EVALUATION OF THE COMMON MARKET ORGANISATIONS (CMOs) FOR PIGMEAT, POULTRYMEAT AND EGGS

Report

Final Report for

DG Agriculture

Submitted by

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S1. Executive Summary

In line with the requirements of the Terms of Reference (TOR) this evaluation of the Common Market Organisations (CMOs) for pigmeat, poultrymeat and eggs covers the timeframe 1992-2002 and has been conducted across the EU-15. The evaluation has been undertaken using a methodology requiring a variety of evaluation tools designed to provide the answers to the list of evaluation questions set out in the TOR. These tools have included:

- *desk research* to analyse historical data and secondary literature as well as preparing models of the intervention logic for the CMOs;
- *econometric modelling* using the CAPSIM model in particular to analyse counterfactuals relating to the impact of export refunds and import protection;
- *statistical analysis* of the effects of private storage in the pigmeat sector;
- *analysis of Farm Account Data Network (FADN) data* on farm incomes and costs on the basis of a specific analysis of this data prepared by the Commission services;
- stakeholder *interviews*; and,
- *case studies* to, in particular, review CMO impacts in specific case study regions.

The work has been conducted during the period December 2004 to October 2005 by a team led by Agra CEAS Consulting including subcontractors in the core Member States. Key results and recommendations for each of the three sectors are as follows:

S1.1. Pigmeat sector

S1.1.1. Price reporting system

The evaluation assessed the extent to which prices reported to the Commission, which form the EU reference price for pigmeat, *correspond* to the prices obtained by producers, the extent to which the reference price reflects market developments and the extent to which this information is comparable across Member States. In this context, the role of the carcass classification grid for pigs was also evaluated.

The industry interviews undertaken indicated that the prices reported to the Commission *correspond* to the prices obtained by producers, in terms of the extent to which the markets and quotation centres on which the reported prices are based can be considered *representative,* as well as *corresponding* closely to the prices obtained by producers in *absolute* terms. Accordingly, the interviews supported the view that there is *correspondence* in that there is generally a high degree of *concordance* between the reported price and the price obtained by producers.

While there are differences in the way in which Member States implement Regulation (EEC) 3220/84, it appears that the reported prices used to form the EU reference price generally reflect market developments and are also in this sense broadly comparable between Member States.

Therefore, the information gathered by the price reporting system under the CMO for pigmeat can generally be regarded as adequate for use by the Management Committee as a basis to assess general trends in the sector. It was, however, noted that:

- In light of the changing structure of the sector and the increasing use of contracts in the sector it is important to ensure that the market *representativeness* of the data collected is regularly reviewed and maintained by ensuring that the market sample on which the price reporting system is based is sufficiently high and that the different contracts under which pigs are sold are adequately covered.
- To possibly improve the timing of the application of market instruments such as export refunds/private storage some consideration might be given as to how it might be possible to establish an 'early warning' system for price developments.
- Greater comparability of the tests used to establish the carcass classification should be achieved by undertaking further work to harmonise the differing tools and formulae used for such tests in the Member States.
- Greater efforts need to be made to ensure comparability of price data between Member States by reducing the variability between Member States in terms of the definition of the carcass quality to which the reported prices refer.

S1.1.2. Export refunds

The application of this instrument was considered to be meeting the objectives of the CMO in terms of ensuring greater market stability and contributing to a fair income to producers. The historical analysis of the use of this instrument indicates that the use of the export refund instrument has been changed to meet the new requirements of the Uruguay Round Agreement on Agriculture (URAA) as well as changing circumstances induced by changes in other sectors notably the reduction in cereal prices within the EU. Thus the proportion of product exported with refund was generally much higher prior to the implementation of the URAA when on average 86% of all pigmeat exports received a refund compared to an average of 9.1% in the post URAA final year period between 2001 and 2003.

Whereas prior to the introduction of the URAA refunds were available more or less permanently across a large range of primary and processed pigmeat products, the export refund market management instrument has particularly post the URAA been used in a more focused fashion to countercyclically assist in re-balancing the EU pigmeat market at times of crisis. This was notably the case in the period 1998 and 1999 when the EU market was plunged into crisis as a result of the production response following the outbreak of classical swine fever in 1997 combined with the collapse of the Russian market and the economic crisis in S.E. Asia.

More generally, since the URAA the Commission has sought to optimise the use of refunds by targeting and maintaining these on those more highly processed products offering the highest value and thus maintaining stability for EU processors and more generally for the market as a whole. The new more focused application of refunds enabled the EU to remain well within the constraints imposed by the provisions of the URAA as well as meeting the objective of the CMO as set out in the intervention logic for this instrument which was to stabilise prices for producers.

It was however noted that the modelling[1] analysis suggested a significant, albeit falling, deadweight effect[2] in the application of this measure. In addition, it was concluded that the application of the measure in conjunction with private storage had been successful in reducing the cyclical price declines in the sector but that this had probably hindered the development of private sector initiatives in this regard.

In this context it is noted that a move towards further liberalisation of the sector (i.e. a reduction in export refunds) would be in line with the expressed agricultural trade objectives of the EU[3] and would also allow greater scope for possibly more efficient[4] private sector risk management tools to be developed. Given that it has been beyond the scope of this evaluation to compare the possible costs and benefits of the usage of such instruments compared to those used under the CMO it is recommended that prior to such a move a full comparison be undertaken.

S1.1.3. Import tariffs

Over the period under review the level of imports of pigmeat has remained relatively low although it is not clear how much of this is due to sanitary barriers rather than import tariffs. As has been shown by the historical data analysis over the period under review the operation of the CMO with respect to trade has been liberalised as a consequence of the URAA (via increased market access under Tariff Rate Quotas (TRQs), lower import tariffs and a reduction in the use of refunds). This is consistent with the aims of trade policy.

At the same time the continued protection of the EU market provided by import tariffs has helped the Community meet the challenge of trying to cope with increasingly competitive third country exports while at the same time maintaining

[1] As with all modelling results there are limitations to the interpretation due to the fact that models are based on a variety of data as well as a range of assumptions concerning behaviour notably with respect to likely supply and demand responses. These are addressed fully in Appendix 3.

[2] The estimated deadweight effect of the export refund measure on export volume reflects the fact that some subsidised export flows that took place with subsidy would also have taken place without subsidy, albeit at a lower scale; and some items not eligible for export refunds have not been exported precisely because in the past some customers abroad preferred to buy substitutable items benefiting from export refunds (see Box A1 in Appendix 4).

[3] The agricultural trade objectives are set out in the Commission's negotiating mandate from the Council as set out in the Council Decision of June 2003 on the reform of the Common Agricultural Policy (CAP). In this it is noted that: 'The CAP reform is Europe's important contribution to the Doha Development Agenda (DDA) and constitutes the limits for the Commission's negotiation brief in the World Trade Organisation (WTO) Round.' In this context it is stressed that 'the margin of manoeuvre provided by this reform in the DDA can only be used on condition of equivalent agricultural concessions from our WTO partners.' Specifically on export support the Commission is guided by the Doha Ministerial Declaration which calls for 'reduction of , with a view to phasing out, all forms of export subsidies'. With respect to market access the Commission is guided by the Council's endorsement of the July 2004 Framework Agreement on the Doha Work Programme adopted on 1 August 2004 which calls for 'substantial new market access in agriculture'.

[4] *Prima facie* any such scheme would need to be *efficient* in the long-term if it is to attract investment by the private sector.

higher environmental, welfare and food safety standards. While this was not the original function of the CMO instrument, as is evident from the intervention logic, it can be argued that this has perhaps given the CMO a new relevance beyond market management.

S1.1.4. Private storage

The application of this measure was considered to meet the objectives of the measure as set out in the intervention logic in particular by operating counter-cyclically. It was noted that there was the possibility that the efficiency and effectiveness of the application of the measure could be improved by introducing the intervention earlier but the evaluation tools have not been adequate to provide a conclusive answer to this question.

S1.1.5. Exceptional measures

The historical analysis of this measure for the case of the classical swine fever outbreak in the Netherlands in 1997 indicates that those directly affected by the disease outbreak appear to have been fully compensated for their *direct* losses. However, these producers were not compensated for a range of other *indirect* losses nor were producers who were indirectly affected by the disease outbreak. In view of the fact that the scope of compensation is primarily an issue for animal health policy it is our view that this issue needs to be addressed in the context of the objectives for this policy.

S1.1.6. Overall market impacts

The use of the instruments of private storage and export refunds has coincided with the troughs in price generated by excess supply on the EU internal market. Thus as has been confirmed by the historical analysis for both these instruments, a correlation on time series relating to price and export refunds as well as interviews with stakeholders the instruments have been used countercyclically to stabilise the market as prescribed by the intervention logic.

The evidence reviewed as part of this evaluation does not support the contention that the CMO measures have significantly increased production and thus generated significant feedback loops. This is partially the consequence of the fact that in particular the reduction in imports which has occurred cannot be clearly attributed to the import tariffs alone since sanitary barriers have also played a significant role.

More generally, however, it was noted that the significance of the CMO in the context of the overall factors influencing supply and demand should not be overestimated since other important factors such as feed costs, sanitary barriers etc.

affect supply while factors such as EU and world demand growth, consumer trends and the marketing efforts of EU enterprises affect demand.

S1.1.7. Income level and development

The evidence suggests that the CMO measures have been effective in achieving their objective of contributing to a fair standard of living for farmers. In terms of the objective of stabilising markets, thereby stabilising incomes, it is generally the case that without intervention the cyclical income lows recorded in 1993, 1998 and 2002 would have been greater. However, the extent to which producers have directly (or indirectly) benefited from these measures varies significantly both within and between Member States.

The existence of public measures to stabilise the market can, however, be seen as potentially hindering the development of possibly more efficient private risk management tools such as futures markets[5]. Given that it has been beyond the scope of this evaluation to compare the possible costs and benefits of the usage of such instruments compared to those used under the CMO it is recommended that a full comparison of the advantages and disadvantages of public and private sector risk management tools be undertaken.

S1.1.8. Production costs

The primary component of pigmeat production costs is the feed. Over the evaluation period, the cost of feed has fallen, primarily due to the CAP reform induced reduction in cereal intervention prices, rather than the CMO for pigmeat itself. Nevertheless, the cost of pig feed as a proportion of total pigmeat production costs has decreased. Moreover, this decrease in the cost of pig feed as a result of the reduction in intervention prices has more than offset observed increases in the cost of feed as a result of developments in Community feed legislation.

Compared to the positive impact of the CAP reform induced reduction in cereal intervention prices on the cost of pig feed, the individual impact of changes in policies on manure disposal and emission reduction, animal welfare and animal health, although resulting in costs to farmers, have *in general* been relatively small. That said, evidence from the case studies would suggest that the impact of these policies on costs differed *considerably* both between and within Member States.

[5] It can be argued that the very success of the CMO in reducing market instability has resulted in only limited use being made of alternative privately based risk management instruments. Thus efforts to achieve a futures market for pigs in London, Amsterdam and Hanover have all found it difficult to attract the necessary participants and therefore achieve the liquidity required for their success. This position is likely to remain while producers can to some extent manage risk themselves via entry and exit from the market and while the risk of much of the short term downward volatility is removed via the CMO.

Although as is evident from the intervention logic it is not the primary objective of the CMO to address the issue of production costs which are incurred as a result of other regulatory action but clearly by maintaining income at levels which are higher than they would have been in the absence of their use the CMO instruments have helped the sector to absorb these costs.

S1.1.9. Rural development and the environment

Analysis has shown that the current patterns of ***regional distribution***[6] ***and concentration***[7] ***of production*** have primarily been the result of geographical and historical factors, such as proximity to centres of feed production, maritime ports and main market outlets. The sector has also undergone significant structural change in the ***number and size of holdings*** over the period covered by this evaluation, resulting in a decrease in pig farm numbers, an increase in the number of pigs per holding and also an increase in the number of pigs per hectare, largely driven by the existence of and drive to achieve scale-economies. Such scale-economies have also been a driving factor in the increased ***specialisation of holdings*** and ***vertical integration (relationships with the upstream and downstream industries)***.

The CMO, particularly through the primary border protection measures (import tariffs and export refunds), has provided a measure of protection for the EU market and consequently contributed to creating advantageous market conditions and have provided an incentive, albeit small[8], to increase pigmeat production. Thus any impact of the CMO on the ***regional distribution of production and concentration of production***, the ***evolution of the number and size of holdings*** is likely to have been small (due to the estimated impact on production) and indirect, since the impact of the CMO on production is small and observed trends were found to have been occurring since before the introduction of the CMO and little evidence was found to strongly link the continuation of these trends directly to the CMO itself.

Any impact of the CMO on the ***specialisation of holdings,*** the sector's ***relationships with the upstream and downstream industries*** and the ***economic importance*** of the sector in terms of value added and employment generated is also likely to have been small (due to the estimated impact on production) and indirect, inasmuch as vertical integration and the expansion of production to take advantage of scale-

[6] The number of pig farms by specific geographic region.
[7] The spatial distribution of pig farms within a specific geographic region.
[8] The direct impact of the CMO on both price and production were small, resulting in prices that were around 2.4% higher and production that was around 1.9% higher as a result of the CMO measures according to the CAPSIM simulation.

economies are influenced by market trends and competitiveness and thus influenced by the advantageous conditions created by the CMO.

Consequently, while the expansion of intensive pig production systems have had a significant negative impact on the ***quality of water, air, land and landscape*** over the evaluation period, any impact of the CMO is also likely to have been small (due to the estimated impact on production) and largely indirect.

S1.1.10. Overall impacts

Key general conclusions on overall impacts of the CMO were as follows:

- It was noted that while the CMO instruments have increased the competitiveness of the pigmeat sector on the internal market, other factors such as sanitary barriers have also played a significant role in this regard.

- The CMO has also boosted the external competitiveness of the pigmeat sector on the world market in the sense that it has increased the EU's net share of world trade, particularly in the pre-URAA period. It was noted, however, that some of this result might have been achieved without the use of the export refund instrument but that this position has been improved by the better targeting of refunds in most of the post-URAA period.

- The EU carcass classification system for pigmeat has played a useful role in guiding production towards better meeting consumer requirements but it was noted that the sector's own efforts in meeting consumers' demands in terms of price and quality are probably equally or more significant in this regard.

- In terms of coherence with other Community policies it was noted that the exceptional support measures have contributed to improving animal health. It was also noted that the CMO was generally not the major driver for the adverse environmental and welfare impacts which have arisen from increasing concentration and intensification of production which has been occurring as a result of a longer term trend driven by a range of other economic, historical and geographic factors. It was noted that coherence with agricultural trade policy objectives has been improving following the URAA.

S1.2. Poultrymeat sector

S1.2.1. Price reporting system

The evaluation assessed the extent to which prices reported to the Commission, which form the EU reference price for poultrymeat, *correspond* to the prices obtained by slaughterhouses, the extent to which the reference price reflects market developments and the extent to which this information is comparable across Member States.

The industry interviews undertaken indicated that for most member States[9] the prices reported to the Commission *correspond* to the prices obtained by slaughterhouses, in terms of the extent to which the markets and quotation centres on which the reported prices are based can be considered *representative,* as well as *corresponding* closely to the prices obtained by slaughterhouses in *absolute* terms. Accordingly, the interviews supported the view that there is *correspondence* in that there is generally a high degree of *concordance* between the reported price and the price obtained by producers.

In terms of the comparability of prices between Member States stakeholders in a number of Member States took the view that the prices were useful for comparison with neighbouring markets suggesting comparability across borders. On the other hand, it was noted in one Member State that due to the structure of retailing as well as the differing nature of production prices reported would not be directly comparable with those in other Member States. This leads to the conclusion that the prices reported are not fully comparable across all Member States.

In spite of this caveat, the information gathered by the price reporting system under the CMO for poultrymeat can generally be regarded as adequate for use by the Management Committee as a basis to assess general trends in the sector. It was, however, noted that:

- In light of the changing structure of the sector and the increasing use of contracts in the sector it is important to ensure that the market *representativeness* of the data collected is regularly reviewed and maintained by ensuring that the market sample on which the price reporting system is based is sufficiently high.

- To possibly improve the timing of the application of market instruments such as export refunds/private storage some consideration might be given as to how it might be possible to establish an 'early warning' system for price developments.

[9] The only exception reported was the one Member State where 90% of broilers sold are sold as chicken parts. Therefore the market for whole birds is not considered representative and thus the price of whole birds would not correspond to the price that slaughterhouses receive.

- Greater efforts need to be made to ensure comparability of price data between Member States by reducing the variability between Member States by making adjustments to the calculations, which would reduce the differences, in terms of what is measured in each country.

S1.2.2. Export refunds

The evidence from the historical analysis of the application of this instrument indicated that it was now primarily focused on maintaining the position of the segment of frozen chicken, mainly from one Member State. Looked at in aggregate across the EU and across the sector as a whole the evaluation has shown that the contribution of the measure to meeting the objectives of the CMO in terms of ensuring greater market stability and contributing to a fair income to producers is therefore relatively limited[10]. It was concluded that while the targeting of the measure had improved following the URAA the deadweight effect[11] associated with this measure remained relatively high.

S1.2.3. Import tariffs

Analysis of historical data suggested that the Community policy with respect to imports has played a significant role in supporting Community preference. The modelling results suggest that as would be expected *a priori*, the import protection provided first by variable levies and subsequently by fixed tariffs is estimated to have led to lower volumes of total annual imports than would otherwise have taken place and that in the absence of border protection, the EU would likely shift from a net export to a net import position. Nevertheless, it is evident that third country imports have occurred with the full tariff duty paid, indicating that the level of protection has decreased as envisaged under the URAA, and for this reason *inter alia*, the competitiveness of third country production has increased. The continuing significance of the import protection in place is highlighted by the fact that increasing volumes of poultry enter the EU market under tariff lines with low ad valorem duties. In particular, imports of salted, frozen, boneless chicken cuts posed a significant problem for maintaining Community preference for poultrymeat during the evaluation period.

S1.2.4. Overall market impacts

[10] If income is measured as gross value added at basic prices the modelling results indicate that for the period 2000-2002 export refunds increased the sector's contribution to the Economic Accounts for Agriculture adjusted for feed costs from €8,494 bn to €8,594 bn or more precisely by €100.2 million

[11] See Footnote 2 and Box A1 in Appendix 4.

In contrast to the results obtained for the other sectors forming part of this evaluation, there is only a weak inverse relationship between export refunds and price (correlation coefficient –0.28) indicating that the use of refunds in the poultrymeat sector has not been countercyclical in the sense of the intervention taking place to counteract the price effects of market imbalances. In this context it should, however, be noted that poultrymeat production is in any case less cyclical.

The modelling results[12] suggest that in all three periods, as would be expected a priori, the impact of import tariffs (and export refunds) has been to significantly increase aggregate domestic production (supply) over what would have occurred in their absence (by 13.3%, 8.7% and 7.0% respectively). This suggests that there was at least the potential for feedback loops (i.e. the use of the instrument in itself generates further support requirements) to occur but given that the refund instrument is not used countercyclically this cannot be said to apply in aggregate terms at least after 1995 when the use of the export refund instrument was curtailed.

The historical analysis and the stakeholder interviews do, however, indicate that the use of the refund instrument has been particularly targeted on a specific product segment, namely frozen whole birds and that indeed the use of this instrument was considered by stakeholders to have been instrumental in helping to establish the export market position for this product in the 1980s. Given that there is considered to be limited scope for this product to be disposed of on the internal market the conclusion that there is a significant feedback loop in this particular market segment is inescapable.

Finally it was noted that the analysis undertaken indicates that both demand and supply in the sector are more strongly influenced by factors such as the evolution of consumer demand patterns and preferences and production costs rather than the CMO instruments themselves.

S1.2.5. Income level and development

The evidence suggests that the CMO measures have been effective in contributing to the objective of ensuring a fair standard of living for poultrymeat producers. The modelling results[13] suggest that border protection measures have maintained prices and production, and thus income, at levels significantly higher than would otherwise have been the case, although the evidence suggests that in the broiler sector, export refunds have largely benefited conventional barn producers only, as there is virtually no demand for, and no differentiation in, refunds for higher cost birds

[12] See Footnote 1 and Appendix 3.
[13] See Footnote 1 and Appendix 3.

produced in free range, organic or other types of production system. This having been said, the production sector in all Member States took the view that the prime drivers for income evolution in the sector were factors not directly linked to the CMO, notably demand conditions (including levels of retailer concentration) as well as export marketing strategies and branding.

S1.2.6. Production costs

The primary component of poultrymeat production costs is the feed. Over the evaluation period, the cost of feed has fallen, primarily because of the CAP reform induced reduction in cereal intervention prices, rather than the CMO for poultrymeat itself. As a result, the cost of poultry feed as a proportion of total poultrymeat production costs has decreased. Moreover, this decrease in the cost of poultry feed due to the reduction in intervention prices has more than offset observed increases in the cost of feed as a result of developments in Community feed legislation.

Compared to the positive impact of the CAP reform induced reduction in cereal intervention prices on the cost of poultry feed, the individual impact of changes in policies on manure disposal and emission reduction, animal welfare and animal health, although resulting in costs to farmers, have *in general* been relatively small. That said, evidence from the case studies would suggest that the impact of these policies on costs differed *considerably* both between and within Member States.

Although, as is evident from the intervention logic, it is not the direct objective of the CMO to address the issue of production costs which are incurred as a result of other regulatory action it is clear that the CMO has helped raise incomes above the level they would have been in the CMO's absence and have therefore helped the sector to absorb these costs.

S1.2.7. Rural development and the environment

There is little evidence of any direct impact of the CMO on rural development and the environment in the main poultry producing regions, with the special exception of poultry production in certain regions, where it can be argued that an export oriented industry serving Middle-East markets has effectively been opened and maintained by the CMO. However, the CMO has contributed to the creation of advantageous market conditions through the primary border protection measures (import tariffs and export refunds). As such, the CMO has provided a small[14] incentive to production

[14] The direct impact of the CMO on both price and production was small, resulting in prices that were around 10.8% higher and production that was around 8.8 % higher as a result of the CMO measures, according to the CAPSIM simulation.

and thus it can be concluded that any impact of the CMO is likely to have been small and largely indirect.

As was found in the pigmeat sector, the current patterns of ***regional distribution***[15] ***and concentration***[16] ***of production*** in the poultry sector are mainly due to the interplay of a number of economic, geographical and historical factors, such as proximity to centres of feed production, maritime ports and main market outlets. Any impact of the CMO is likely to have been both small (due to the estimated impact on production) and indirect, since the observed trends were found to have been occurring since before the introduction of the CMO and little evidence was found to strongly link the continuation of these trends directly to the CMO itself.

The poultry sector has also undergone considerable structural change in terms of the ***number and size of holdings*** over the evaluation period, experiencing a decrease in poultry farm numbers, an increase in the numbers of poultry per holding and also an increase in the number of poultry per hectare. The primary factor driving this structural change was found to be producers taking advantage of economies of scale in order to maintain or increase competitiveness. Again, any impact of the CMO is likely to have been small (due to the estimated impact on production) and largely indirect, since decisions to expand production in order to take advantage of scale-economies are influenced by market trends and competitiveness and thus influenced by the advantageous market conditions that the CMO helped to create.

Any impact of the CMO impact on the ***specialisation of holdings,*** the sector's ***relationships with the upstream and downstream industries*** (the poultry sector was found to be much more vertically integrated than the pigmeat sector) and the ***economic importance*** of the sector in terms of value added and employment generated is also likely to have been small (due to the estimated impact on production) and indirect, in as much as vertical integration and the expansion of production to take advantage of scale-economies are influenced by market trends and competitiveness and thus influenced by the advantageous conditions created by the CMO.

Consequently, while the expansion of intensive poultry production systems have had a significant negative impact on the ***quality of water, air, land and landscape*** over the evaluation period, any impact of the CMO is also likely to have been small (due to the estimated impact on production) and largely indirect.

[15] The number of poultrymeat farms by specific geographic region.
[16] The spatial distribution of poultrymeat farms within a specific geographic region.

S1.2.8. Overall impacts

More generally some of the overall impacts of the CMO were found to be as follows:

- Export refunds and import tariffs have improved the competitive position of the EU poultrymeat sector on the world market. The modelling results[17] suggested that the presence of import tariffs and export refunds has boosted the net trade position of the EU, resulting in the EU becoming a net exporter of poultrymeat. In contrast, the results of the CAPSIM analysis suggests that the removal of export refunds and import tariffs would weaken the EU's aggregate competitive position with the EU becoming a net importer as a result of a surge in imports.

- In terms of satisfying consumer demand in terms of price and quality the analysis indicates that basic quality standards have played a useful role in guiding production in terms of better meeting consumer requirements, but more generally the findings of the industry interviews suggested that the sector's own efforts to meet internal and external consumers' demands in terms of price and quality are probably equally or more significant than the role of the CMO in this regard.

- The modelling results[18] suggest that further liberalisation would result in economic losses to producers but possible welfare gains to consumers through lower prices.

- The evidence collected in this evaluation suggests that, with the notable exception of the poultrymeat sector in certain regions, the measures of the poultrymeat CMO have not been the major drivers for intensification and concentration and the reslting adverse environmental impacts since this has been part of a longer term trend driven *inter alia* by the interplay of a number of economic, geographical and historical factors. However, as a component of the wider EU agricultural policy environment, the CMO has created a favourable economic environment for the continued growth and development of the sector and can thus be said to have had an indirect impact.

- This evaluation has not found any evidence on the issue of whether the CMO contributes to the Community objective of achieving greater regional cohesion by reducing economic imbalances between the regions. A priori it can, however, be stated that CAP Pillar 1 market support policies based on supporting production which operate horizontally across all regions will tend not to be in harmony with Pillar 2 and other Structural Fund measures which may be seeking

[17] See Footnote 1 and Appendix 3.
[18] See Footnote 1 and Appendix 3.

to focus support on particular regions. Thus in the case of poultrymeat the bulk of support will tend to be directed towards regions with the highest concentration of production which will not necessarily coincide with those in greatest need of regional support measures.

S1.3. Egg sector

S1.3.1. Price reporting system

The evaluation assessed the extent to which prices reported to the Commission, which form the EU reference price for eggs, *correspond* to the prices obtained by packers, the extent to which the reference price reflects market developments and the extent to which this information is comparable across Member States.

The industry interviews undertaken indicated that for most Member States the prices reported to the Commission are not wholly *representative* of all transactions taking place in the sector. This is partly due to the fact that the prices reported do not cover all production systems. This having been said in most Member States the reported price is considered to provide an accurate representation of general price trends even if the veracity of the absolute price is questioned. This suggests that even if not fully *representative*, the reported price is often considered to be in *concordance* with actual prices, in other words, the reported price may differ in magnitude from prices generally received, but these are correlated and the series do move together. This suggests that the series is adequate for assessing general trends in the sector.

In terms of the comparability of prices between Member States there is some scepticism amongst stakeholders concerning the extent to which the reported price is comparable. Nevertheless it is clear that some EU markets are highly linked to one another and that price evolution in these markets is comparable.

While the price reporting system was therefore considered to be generating the results required in terms of monitoring and managing the markets it was noted that:

- In light of the changing structure of the sector it is important to ensure that the market representativeness of the data collected is regularly reviewed and maintained by ensuring that the market sample on which the price reporting system is based is sufficiently high e.g. by extending the production systems covered.

- Greater efforts need to be made to ensure comparability of price data between Member States by reducing the variability between Member States by making adjustments to the calculations that would reduce the differences in terms of what is measured in each country.

S1.3.2. Export refunds

The evidence from the historical analysis of the application of this instrument indicated that it was effective in counteracting market imbalances by acting countercyclically and thus stabilising the market in line with the objectives of the CMO. It was concluded from the modelling results[19] that the deadweight effect[20] associated with this measure was, however, relatively high. On the basis of the historical analysis and interviews it was noted that for egg products the refund was used to maintain a third country market presence for a product (egg albumen) which is reported to be in continuous surplus in the EU.

S1.3.3. Import tariffs

The evidence from all the tools used in this evaluation suggests that the maintenance of import protection is critical to the maintenance of a significant proportion of shell egg and egg product production in the EU since in the absence of the measures a significant proportion of production would be displaced by imports. It should be noted that the modelling results[21] also suggested that a move towards greater liberalisation (i.e. a lowering of import tariffs), would increase the level of **consumer welfare, as prices would tend to fall.**

[19] See Footnote 1 and Appendix 3.
[20] See Footnote 2 and Box A1 in Appendix 4.
[21] See Footnote 1 and Appendix 3.

S1.3.4. Overall market impacts

- The assessment of the joint impact of the key market support instruments, export refunds and import tariffs, in this sector on market equilibrium and prices, was primarily undertaken by means of modelling the counterfactual in three separate time periods. The results[22] suggest that the combined impact of these instruments has been to significantly raise prices in the EU egg sector above what they would have been in their absence (by 20.2% in 1990-92, 13.3% in 1995-97 and 6.2% in 2000-02). In this context it should be noted that the significance of the import tariffs is much greater than that of export refunds in that the tariffs effectively appear to prevent a large proportion of EU production from being potentially displaced by imports while export refunds affect only relatively limited volumes.

- The evaluation results indicated that as a result of the fact that the use of the CMO instruments had significantly raised production above what it would otherwise have been there was a potential for significant feedback loops (i.e. this production in turn requiring higher export refunds), to have occurred. It was however, noted that as tariffs had been lowered following the URAA this potential had decreased.

- It has not been possible to establish the proportion of output marketed in line with the EU's marketing standards but *a priori* they should play a significant role in ensuring basics standards with respect to quality are adhered to. It was also noted that the sector's own efforts in meeting consumers' demands in terms of price and quality are probably equally or more significant in this regard.

S1.3.5. Income level and development

The evidence suggests that the CMO measures and in particular import tariffs have had a significant impact on producer incomes in the sector thus contributing to achieving the objective of ensuring a fair standard of living for farmers as well as stabilising markets. The modelling results[23] suggest that the border protection measures in place have maintained prices and production and thus income at levels higher than would otherwise have been the case.

S1.3.6. Production costs

The impacts of the CMO instruments on egg production costs has proved difficult to quantify, given the lack of both primary and secondary data relating to the laying hen sector, partly due to the commercial sensitivity of such information in Member

[22] See Footnote 1 and Appendix 3.
[23] See Footnote 1 and Appendix 3.

States with a high degree of vertical integration in the sector. Feed costs, which form the greatest component of egg production costs, decreased over the period as a result of the CAP reform induced reduction in cereal intervention price (thereby reducing the importance of feed as a proportion of total egg production costs) and more than offset the increase in feed costs as a result of developments in Community feed legislation.

Compared to the positive impact of the CAP reform induced reduction in cereal intervention prices on the cost of poultry feed, the individual impact of changes in policies on manure disposal and emission reduction, animal welfare and animal health, although resulting in costs to farmers, have *in general* been relatively small. That said, the impact of these policies was found to differ considerably both between and within Member States. Therefore *on balance*, the evidence does not suggest that the *overall* impact of the CMO and other Pillar 1 measures on the sector has been negative with respect to production costs, although it has not been possible to conclude that the overall impact has actually been positive.

Although it is not the function of the CMO to address the issue of production costs which are incurred as a result of other regulatory action and therefore no action is recommended here but it is noted that given that income has been raised to levels which are higher than they would have been in the absence of the CMO the income benefits derived from the CMO instruments have helped the sector to absorb these costs.

S1.3.7. Rural development and the environment

The CMO for eggs has contributed to the creation of advantageous market conditions through the primary border protection measures (import tariffs and export refunds) and as such, provided a small[24] incentive to egg production. Therefore, any impact of the CMO on rural development and the environment in the main egg producing regions is likely to have been small and largely indirect.

As was found in both the pigmeat and poultrymeat sectors, the current patterns of ***regional distribution***[25] ***and concentration***[26] ***of production*** in the egg sector were found to have been occurring since before the introduction of the CMO and are mainly due to the interplay of a number of economic, geographical and historical factors, such as proximity to centres of feed production, maritime ports and main market

[24] The direct impact of the CMO on both price and production was small, resulting in prices that were around 11.6% higher and production that was around 9.5% higher as a result of the CMO measures, according to the CAPSIM simulation.

[25] The number of farms with laying hens by specific geographic region.

[26] The spatial distribution of farms with laying hens within a specific geographic region.

outlets. Therefore, any impact of the CMO is likely to have been both small (due to the estimated impact on production) and indirect.

The egg sector has also undergone considerable structural change in terms of the ***number and size of holdings*** over the evaluation period, experiencing a decrease in farm numbers, an increase in the numbers of laying hens per holding and also an increase in the number of laying hens per hectare. The primary factor driving this structural change was found to be producers taking advantage of economies of scale in order to maintain or increase competitiveness. Again, any impact of the CMO is likely to have been small (due to the estimated impact on production) and largely indirect, since decisions to expand production in order to take advantage of scale-economies are influenced by market trends and competitiveness and thus influenced by the advantageous market conditions that the CMO helped to create.

Any impact of the CMO impact on the ***specialisation of holdings,*** the sector's ***relationships with the upstream and downstream industries*** (the egg sector was found to be very vertically integrated) and the ***economic importance*** of the sector in terms of value added and employment generated is also likely to have been small (due to the estimated impact on production) and indirect, in as much as vertical integration and the expansion of production to take advantage of scale-economies are influenced by market trends and competitiveness and thus influenced by the advantageous conditions created by the CMO.

Consequently, while the expansion of intensive egg production systems have had a significant negative impact on the ***quality of water, air land and landscape*** over the evaluation period, any impact of the CMO is also likely to have been small (due to the estimated impact on production) and largely indirect

S1.3.8. Overall impacts

The stakeholder interviews indicate that export refunds in the non-Annex 1 processed products sub-sector have been particularly important in maintaining the EU position in the major export market in Japan. More generally the modelling results and the stakeholder interviews suggest that the joint impact of export refunds and import tariffs have been to change the EU position from being a potential net importer to being a net exporter throughout the period evaluated. In this context it should be noted that other factors such as exchange rates, transport costs, the import and export policies of competing countries etc. also significantly affect the EU competitive position on the internal and external market.

The impact of the export refunds and import tariffs on total welfare has been estimated using the CAPSIM model. The net result suggests that while the

expenditure incurred to achieve a relatively significant amount of producer income was relatively low, the cost of the transfers made from taxpayers and consumers was in excess of the gains to producers suggesting the measure was lacking in efficiency.

In terms of coherence with other Community policies it was noted that the CMO was generally not the major driver for the adverse environmental and welfare impacts resulting from the increasing concentration and intensification of production which has been occurring as a result of a longer term trend driven by a range of other economic, historical and geographic factors.

S1.4. Comparison of the results across the three sectors

The key points emerging from the analysis of the results of the evaluation across the three sectors covered are as follows:

- **Price reporting system**: While the prices reported on in all three sectors were not necessarily always considered to be fully *representative* of the markets they were considered to be suited to the market management purposes they are used for in that they satisfactorily reflect the main trends in the markets covered.

- **Export refunds:** It was found that in all three sectors implementation of the URAA has resulted in a more 'prudent' use of export refunds but that with the exception of the volume constraint on poultrymeat exports (and the period of crisis management in the pigmeat sector in the late 1990s) the export volume and expenditure constraints under the URAA appear not to have been unduly onerous in that they have not been fully utilised. More generally export refunds have been used to counterbalance cyclical volatility in the pigmeat and shell egg sectors but have been used to maintain a market presence in the non-Annex1 processed egg sector as well as in the poultrymeat sector. While the refunds have in all cases improved the position of the EU on the world market over the period evaluated, the modelling results in all cases have suggested there is a significant deadweight effect[27] involved in the sense that the exports might have occurred even without the use of the instrument. While this result may be applied to the aggregate it should be noted that it may well not apply to some specific sub-sectors which are significant beneficiaries of the refunds (i.e. egg albumen and frozen whole chickens).

- **Import tariffs:** The evaluation found that as would be expected in all three sectors import tariffs have significantly reduced the volume of imports over the entire evaluation period although in the case of pigmeat the role of tariffs is obscured

[27] See Footnote 2 and Box A1 in Appendix 4.

by the simultaneous presence of sanitary restrictions. In the case of poultrymeat and shell eggs the presence of tariffs (and export refunds) meant that the EU remained a net exporter rather than a potential net importer of these products over the period under review. It was noted, however, that these results which provided producer welfare gains had been achieved at a relatively high aggregate cost in terms of taxpayer expenditure and consumer loss in terms of higher prices.

- **Producer income:** The FADN analysis found that for all three sectors there has been a general increase in incomes over the period evaluated, although much of this increase has been due to an increase in the scale of production rather than the CMOs themselves.

- **Production costs:** The major change in costs over the evaluation period has been a reduction in the principal cost component namely feed. This cost reduction has been the result of the CAP reform induced reduction in feed costs rather than the CMOs themselves. In contrast, policies on manure disposal and emission reduction, animal welfare and animal health (as well as Community feed legislation) have resulted in additional costs to farmers. However, *on balance*, the evidence does not suggest that the *overall* impact of the CMO and other Pillar 1 measures on the sector has been negative with respect to production costs, although it has not been possible to conclude that the overall impact has actually been positive.

- **Rural development and the environment**: The evaluation has found that with the exception of poultrymeat production in certain regions, the impact of the CMO on intensification has been largely indirect. In terms of the regional distribution and concentration of production the role of the CMOs can be seen as minor since these production developments have been driven by longer terms historic trends. Similarly the impact of the CMOs on the process of structural and employment change (fewer larger holdings) has also been limited and indirect. In conclusion, over the timeframe of this evaluation the role of the CMOs, in terms of generating adverse environmental impacts, has also been largely indirect through maintaining a favourable economic environment.

S2. Synthèse

En accord avec le Cahier des charges (CDC), cette évaluation des Organisations Communes de Marchés (OCM) pour la viande porcine, la viande de volaille et les œufs couvre la période 1992-2002 et a été réalisée dans toute l'UE à 15. La méthodologie qui a été adoptée requiert divers instruments d'évaluation qui ont été conçus afin de répondre à la liste de questions d'évaluation stipulée dans le Cahier des charges. Ces instruments sont les suivants :

- une *étude théorique* à partir de l'analyse des données historiques et de la bibliographie ainsi que la préparation de modèles pour la logique d'intervention des OCM;
- la *construction de modèles économétriques* par l'utilisation du modèle CAPSIM pour tester les hypothèses relatives à l'impact des restitutions à l'exportation et des barrières à l'importation;
- l'*analyse statistique* des effets du stockage privé dans le secteur porcin;
- l'*analyse des données du RICA* (Réseau d'Information Comptable Agricole) sur les revenus agricoles et les coûts en fonction d'une analyse spécifique de ces données préparées par les services de la Commission ;
- des *entretiens* avec les parties prenantes; et
- des *études de cas* afin d'analyser notamment les effets des OCM dans les régions spécifiques des études de cas.

L'étude a été réalisée au cours de la période allant de décembre 2004 à octobre 2005 par une équipe placée sous la direction d'Agra CEAS Consulting et comprenant des sous-traitants pour les principaux Etats membres. Voici quels sont les résultats et les recommandations essentiels pour chacun des trois secteurs étudiés :

S1.5. Secteur de la viande porcine

S1.5.1. Système de notification des prix

L'étude a évalué la mesure dans laquelle les prix signalés à la Commission, qui constituent le prix de référence de l'UE pour la viande porcine, *correspondent* aux prix obtenus par les producteurs, la mesure dans laquelle le prix de référence réflète l'évolution du marché et la mesure dans laquelle ces informations sont comparables dans tous les Etats membres. Dans ce contexte, le rôle de la grille de classification des carcasses de porc a lui aussi été évalué.

Les entretiens réalisés au sein de l'industrie ont indiqué que les prix signalés à la Commission *correspondaient bien* aux prix obtenus par les producteurs, en termes du degré de représentativité des marchés et des centres de cotation sur lesquels sont basés les prix signalés, et qu'ils *correspondaient* étroitement aux prix obtenus par les producteurs en *termes absolus*. De fait, les entretiens ont confirmé qu'il y avait effectivement une *correspondance*, c'est-à-dire que l'on observait généralement une forte *concordance* entre le prix signalé et le prix obtenu par les producteurs.

Bien qu'il y ait des différences au niveau de la mise en œuvre du Règlement (CEE) 3220/84 par les Etats membres, il semble que les prix signalés qui sont utilisés pour constituer le prix de référence de l'UE reflètent généralement l'évolution du marché et sont aussi en ce sens largement comparables d'un Etat membre à l'autre.

On peut donc considérer, de façon générale, que les informations recueillies par le système de notification des prix dans le cadre de l'OCM pour la viande porcine sont bonnes à être utilisées par le Comité de Gestion comme base d'évaluation des tendances générales du secteur. Il faut toutefois noter les points suivants:

- en vue de l'évolution structurelle du secteur et de l'augmentation de l'utilisation des contrats dans le secteur, il est important de veiller à ce que la *représentativité* marchande des données recueillies soit régulièrement examinée et maintenue, et ce par deux moyens: l'échantillon de marchés sur lequel repose le système de notification des prix doit être suffisamment important et les différents contrats de vente des porcs doivent être inclus de façon appropriée;

- afin d'essayer d'améliorer le timing de la mise en œuvre d'instruments de marché tels que les restitutions à l'exportation ou le stockage privé, il faudrait peut-être réfléchir à la manière dont on pourrait établir un «système d'alerte rapide» au sujet de l'évolution des prix;

- il faudrait arriver à une plus grande comparabilité des tests utilisés pour élaborer la classification des carcasses, en travaillant de nouveau à l'harmonisation des différents outils et formules employés pour ces tests dans les Etats membres ;

- il faudrait faire davantage d'efforts pour veiller à la comparabilité des données de prix d'un Etat membre à l'autre en réduisant la variabilité entre Etats membres au niveau de la définition de la qualité des carcasses auxquelles se réfèrent les prix signalés.

S1.5.2. Restitutions à l'exportation

L'application de cet instrument a paru atteindre les objectifs de l'OCM en ce qui concerne la fourniture d'une plus grande stabilité du marché et la contribution à un revenu équitable pour les producteurs. L'analyse historique de l'utilisation de cet instrument indique que l'emploi des restitutions à l'exportation s'est transformé pour répondre aux nouvelles exigences de l'Accord sur l'Agriculture du cycle de l'Uruguay Round (AAUR) ainsi que pour répondre à l'évolution de la situation suscitée par des changements intervenant dans d'autres secteurs, notamment la réduction des prix des céréales à l'intérieur de l'Union européenne. La proportion de produits exportés à l'aide de restitutions à l'exportation était donc généralement beaucoup plus importante avant la mise en œuvre de l'Accord agricole de l'Uruguay Round: 86% en moyenne de toutes les exportations de viande porcine recevaient une restitution à l'exportation, alors que ce chiffre était de 9,1% en moyenne pour la dernière année de la période post-AAUR allant de 2001 à 2003.

Alors qu'avant la mise en place de l'Accord, les restitutions à l'exportation étaient disponibles de façon plus ou moins permanente pour une large gamme de produits porcins primaires et transformés, l'instrument de gestion du marché que sont les restitutions à l'exportation a été utilisé, en particulier dans la période post-AAUR, de façon plus ciblée pour aider sur un mode anticyclique à rééquilibrer le marché de la viande porcine de l'UE en temps de crise. Ceci a notamment été le cas en 1998-1999, lorsque le marché de l'Union européenne s'est retrouvé en crise à la suite de l'impact sur la production d'une épidémie de peste porcine classique en 1997, associée à l'effondrement du marché russe et une crise économique en Asie du Sud-est.

De façon plus générale, depuis l'AAUR, la Commission a cherché à optimaliser l'utilisation des restitutions à l'exportation en ciblant et en maintenant leur attribution aux produits plus fortement transformés qui offrent le plus de valeur, maintenant ainsi la stabilité du marché pour les transformateurs de l'UE et plus généralement pour l'ensemble du marché. La nouvelle application plus ciblée des restitutions a permis à l'UE de rester bien en-deçà des contraintes imposées par les dispositions de l'Accord de l'Uruguay Round et d'atteindre l'objectif de l'OCM fixé dans la logique d'intervention de cet instrument, à savoir la stabilisation des prix pour les producteurs.

Il faut noter, toutefois que l'analyse de modélisation[28] a suggéré l'existence d'un important effet d'aubaine[29], actuellement en diminution, dans l'application de cette mesure. On a pu conclure en outre que l'application de la mesure, associée au stockage privé, avait réussi à réduire les chutes cycliques de prix dans le secteur mais que ceci avait probablement entravé le développement des initiatives du secteur privé à cet égard.

Notons dans ce contexte que le passage à une plus grande libéralisation du secteur (via une réduction des restitutions à l'exportation) serait en accord avec les objectifs exprimés par l'UE dans le domaine du commerce agricole[30] et donnerait aussi, dans une plus large mesure, la possibilité d'élaborer des outils de gestion du risque du secteur privé, peut-être dotés d'une plus grande efficacité[31]. Etant donné qu'il n'entre pas dans le cadre de cette étude de comparer les coûts et les avantages éventuels de l'utilisation de tels instruments par rapport à ceux qui sont utilisés dans le cadre de l'OCM, il est recommandé d'effectuer une comparaison complète avant de passer à une plus grande libéralisation.

S1.5.3. Droits à l'importation

[28] Comme avec tous les résultats de modélisation, il y a des limites à l'interprétation en raison du fait que les modèles sont basés sur une grande diversité de données et une série d'hypothèses en matière de comportement, notamment en ce qui concerne l'offre et la demande. Ces points sont traités de façon complète à l'Annexe 3.

[29] L'effet d'aubaine estimé de la mesure sur le volume des exportations, dans le domaine des restitutions, traduit le fait que certains flux d'exportations subventionnées qui ont eu lieu à l'aide de subventions se seraient également produits sans subventions, bien qu'à un moindre degré ; et certains articles ne remplissant pas les conditions pour bénéficier des restitutions n'ont pas été exportés, précisément parce que dans le passé, certains clients à l'étranger ont préféré acheter des articles de substitution, qui bénéficiaient des restitutions (voir Section A1 de l'Annexe 4).

[30] Les objectifs de l'UE en matière de commerce agricole sont exposés dans le mandat de négociation accordé à la Commission par le Conseil et défini par la Décision du Conseil de juin 2003 sur la réforme de la Politique Agricole Commune (PAC). Il y est indiqué que: «La réforme de la PAC constitue l'importante contribution de l'Europe au programme de Doha pour le développement et fixe les limites du mandat de négociation de la Commission à l'Organisation Mondiale du Commerce (OMC)». Dans ce contexte, il est souligné que «la marge de manœuvre qu'offre cette réforme dans le cadre du programme de Doha pour le développement ne pourra être exploitée qu'à condition que nos partenaires commerciaux de l'OMC fassent des concessions équivalentes dans le domaine agricole.» De façon plus spécifique, la Commission s'appuie en matière de soutien à l'exportation sur la Déclaration Ministérielle de Doha, qui demande «la réduction, en vue d'une élimination progressive, de toutes les formes de subventions à l'exportation». En ce qui concerne l'accès au marché, la Commission s'appuie sur l'approbation par le Conseil de l'Accord Cadre de juillet 2004 sur le Programme de Travail de Doha, adopté le 1er août 2004, qui demande «un accès important à de nouveaux marchés dans le secteur agricole».

[31] A première vue, un système de ce type doit être efficace à long terme si l'on veut qu'il attire les investissements du secteur privé.

Au cours de la période étudiée, le volume des importations de viande porcine est resté relativement faible, bien qu'il n'apparaisse pas clairement dans quelle mesure cette situation est due aux barrières sanitaires plutôt qu'aux droits tarifaires à l'importation. Comme l'a montré l'analyse des données historiques pour la période considérée, le fonctionnement de l'OCM du point de vue du commerce a été libéralisé à la suite de la conclusion de l'Accord agricole de l'Uruguay Round (via l'augmentation de l'accès au marché sous forme de quotas tarifaires, la baisse des droits à l'importation et la réduction de l'utilisation des restitutions). Cette libéralisation est cohérente avec les objectifs de la politique commerciale.

Parallèlement, la poursuite de la protection du marché de l'UE par les droits tarifaires à l'importation a aidé la Communauté à relever le défi posé par la concurrence de plus en plus vive des exportations des pays tiers tout en maintenant des normes plus élevées sur le plan environnemental et social ainsi qu'en matière de sécurité alimentaire. Bien que ceci n'était pas au départ la fonction de l'OCM, comme le montre bien la logique d'intervention, on peut affirmer qu'il a peut-être donné à l'OCM une nouvelle pertinence qui dépasse la seule gestion des marchés.

S1.5.4. Stockage privé

L'application de cette mesure a paru atteindre les objectifs de l'OCM, définis dans la logique d'intervention, grâce en particulier à un fonctionnement anticyclique. La possibilité d'une amélioration de l'efficience et de l'efficacité de la mise en œuvre de la mesure par une introduction anticipée de l'intervention a été constatée, mais les instruments d'évaluation n'ont pas permis de fournir une réponse concluante à ce sujet.

S1.5.5. Mesures exceptionnelles

L'analyse historique de cette mesure dans le cas de l'épidémie de peste porcine classique aux Pays-Bas en 1997 indique que ceux qui ont été directement touchés par la maladie semblent avoir été entièrement indemnisés pour leurs pertes *directes*. Par contre, ces producteurs n'ont pas été indemnisés pour une série de pertes *indirectes*, non plus que les producteurs qui ont été indirectement touchés par l'épidémie. Compte tenu du fait que l'ampleur de l'indemnisation relève essentiellement de la compétence de la politique de santé animale, nous estimons que cette question doit être traitée dans le contexte des objectifs de cette politique.

S1.5.6. Impacts globaux sur le marché

L'utilisation des instruments que sont le stockage privé et les restitutions à l'exportation a coïncidé avec la dépression des prix provoquée par une offre excédentaire sur le marché intérieur de l'UE. Ainsi, comme l'ont confirmé l'analyse

historique de ces deux instruments, l'existence d'une corrélation des séquences temporelles relatives au prix et aux restitutions à l'exportation ainsi que les entretiens réalisés avec les parties prenantes, les instruments ont été utilisés d'une façon anticyclique pour stabiliser le marché, comme le prescrit la logique d'intervention.

Les éléments passés en revue dans le cadre de cette étude ne corroborent pas l'affirmation selon laquelle les mesures de l'OCM ont considérablement accru la production et donc entraîné d'importantes boucles d'interaction entre divers instruments de soutien. Ceci provient en partie du fait que des observations comme la réduction des importations ne peuvent être clairement attribuées aux seuls droits tarifaires, étant donné que les barrières sanitaires ont elles aussi joué un rôle significatif.

Mais de façon plus générale, il a été constaté qu'il ne fallait pas surestimer l'importance de l'OCM dans le contexte des facteurs globaux qui influent sur l'offre et la demande. En effet, d'autres facteurs importants tels que le coût des aliments ou les barrières sanitaires affectent l'offre, tandis que des facteurs tels que la croissance de la demande de l'UE et de la demande mondiale, les tendances en matière de consommation et les efforts de commercialisation des entreprises de l'UE affectent la demande.

S1.5.7. Niveau et évolution des revenus

Les éléments examinés suggèrent que les mesures de l'OCM se sont montrées efficaces pour atteindre l'objectif de contribuer à un niveau de vie équitable des producteurs. Du point de vue de l'objectif de stabilisation des marchés, et donc des revenus, on observe généralement que sans intervention, les creux cycliques des revenus enregistrés en 1993, 1998 et 2002 auraient été plus importants. Toutefois, la mesure dans laquelle les producteurs ont directement (ou indirectement) bénéficié de ces mesures varie grandement au sein des Etats membres et d'un Etat membre à l'autre.

L'existence de mesures publiques de stabilisation du marché peut néanmoins être considérée comme une entrave potentielle à l'élaboration d'outils de gestion du risque du secteur privé, peut-être dotés d'une plus grande efficacité, tels que les marchés à terme[32]. Etant donné qu'il n'entre pas dans le cadre de cette étude de

[32] On peut soutenir que le succès même de l'OCM dans la réduction de l'instabilité du marché a eu pour conséquence l'utilisation limitée des instruments alternatifs de gestion du risque du secteur privé. C'est ainsi que les efforts effectués pour mettre sur pied un marché à terme des porcs à Londres, Amsterdam et Hanovre se sont tous heurtés à la difficulté d'attirer les participants nécessaires et donc à réunir les liquidités que nécessite leur succès. Cette situation va probablement persister tant que les producteurs

comparer les coûts et les avantages éventuels de l'utilisation de tels instruments par rapport à ceux qui sont utilisés dans le cadre de l'OCM, il est recommandé d'effectuer une comparaison complète des avantages et des inconvénients des outils de gestion du risque du secteur privé et du secteur public.

S1.5.8. Coûts de production

La principale composante des coûts de production de la viande porcine est le coût des aliments pour animaux. Au cours de la période considérée, le coût de ces aliments a chuté, essentiellement en raison de la réduction des prix d'intervention des céréales, provenant de la réforme de la PAC, plutôt qu'en liaison avec l'OCM de la viande porcine. Néanmoins, le coût des aliments porcins par rapport à l'ensemble des coûts de production de la viande porcine a diminué. En outre, cette diminution du coût des aliments porcins a plus que compensé les augmentations observées au niveau du coût des aliments pour animaux à la suite de l'évolution de la législation communautaire dans ce domaine.

Par rapport à l'impact positif de la réduction des prix d'intervention des céréales, provenant de la réforme de la PAC, sur le coût des aliments porcines, il faut dire que l'impact individuel des changements de politiques au sujet de la mise en décharge du lisier et de la réduction des émissions, du bien-être des animaux et de la santé animale a été, *en général*, relativement modeste, même s'il a donné lieu à des coûts pour les producteurs. Ceci étant, les données fournies par les études de cas tendent à suggérer que l'impact de ces politiques sur les coûts diffère *considérablement* au sein des Etats membres et d'un Etat membre à l'autre.

Bien que, comme le montre clairement la logique d'intervention, l'objectif premier de l'OCM ne soit pas de s'occuper du problème des coûts de production résultant de la mise en œuvre d'autres législations, mais bien évidemment de maintenir les revenus des producteurs à un niveau plus élevé que celui qu'ils auraient eu en l'absence de l'utilisation des instruments de l'OCM, ces instruments ont aidé le secteur à absorber ces coûts.

S1.5.9. Développement rural et environnement

L'analyse a montré que les modes actuels de ***répartition régionale***[33] ***et de concentration***[34] ***de la production*** proviennent essentiellement de facteurs géographiques et historiques, tels que la proximité des centres de production

peuvent, dans une certaine mesure, gérer eux-mêmes les risques via l'entrée et la sortie du marché et tant que l'OCM supprime le risque lié à une bonne partie de la volatilité à court terme à la baisse.

[33] Le nombre d'exploitations porcines par région géographique donnée.

[34] La répartition spatiale des exploitations porcines au sein d'une région géographique donnée.

d'aliments pour animaux, des ports maritimes et des grands points de vente du marché. Le secteur a également connu des changements structurels importants au niveau du ***nombre et de la taille des exploitations*** pour la période examinée dans cette étude, ce qui a donné lieu à une diminution du nombre des exploitations porcines, une augmentation du nombre de porcs par exploitation et aussi une augmentation du nombre de porcs par hectare, largement liée à l'existence d'économies d'échelle et à la volonté d'en réaliser. Ces économies d'échelle ont également joué un rôle moteur dans l'augmentation de la ***spécialisation des exploitations*** et ***de l'intégration verticale (relations avec les industries en amont et en aval)***.

L'OCM, en particulier par le biais de mesures fondamentales de protection aux frontières (droits tarifaires à l'importation et restitutions à l'exportation), a fourni une certaine protection au marché de l'UE. Il a donc contribué à créer des conditions de marché avantageuses et fourni un incitatif, même modeste[35], à l'augmentation de la production de viande porcine. Il est ainsi probable que tout impact de l'OCM sur ***la répartition régionale de la production et la concentration de la production*** ainsi que sur ***l'évolution du nombre et de la taille des exploitations*** ait été faible (en raison de l'impact estimé sur la production) et indirect. En effet, l'impact de l'OCM sur la production est faible et il a été démontré que les tendances observées étaient déjà présentes avant la mise en place de l'OCM et qu'il existe peu d'éléments à l'appui de l'existence d'un lien solide et direct entre la poursuite de ces tendances et l'OCM.

Il est également probable que tout impact de l'OCM sur la ***spécialisation des exploitations,*** les ***relations du secteur avec les industries en amont et en aval*** et ***l'importance économique*** du secteur en termes de valeur ajoutée et d'emplois créés ait été faible (en raison de l'impact estimé sur la production) et indirect, vu que l'intégration verticale et l'expansion de la production pour tirer parti des économies d'échelle sont influencées par la compétitivité et les tendances du marché et donc par les conditions avantageuses créées par l'OCM.

En conséquence, alors que l'expansion des systèmes intensifs de production des porcs a eu un impact négatif significatif sur la ***qualité de l'eau, de l'air, des sols et des paysages*** pour la période considérée, il est probable que tout impact de l'OCM ait également été faible (en raison de l'impact estimé sur la production) et largement indirect.

[35] L'impact direct de l'OCM sur les prix et la production a été faible, à savoir des prix environ 2,4% plus élevés et une production environ 1,9% plus importante à la suite des mesures de l'OCM (simulation CAPSIM).

S1.5.10. Impacts globaux

Les conclusions générales essentielles au sujet des impacts globaux de l'OCM sont les suivantes :

- Il a été constaté que même si les instruments de l'OCM ont augmenté la compétitivité du secteur de la viande porcine sur le marché intérieur, d'autres facteurs tels que les barrières sanitaires ont également joué un rôle significatif à cet égard.

- L'OCM a aussi renforcé la compétitivité extérieure du secteur de la viande porcine sur le marché mondial, en ce sens qu'il a accru la part nette du marché mondial détenue par l'UE, en particulier pour la période antérieure à l'Accord de l'Uruguay Round sur l'Agriculture (AAUR). Mais il a été observé que certains de ces résultats auraient pu être atteints sans employer l'instrument des restitutions à l'exportation et que cette situation avait été améliorée par un meilleur ciblage des restitutions dans la plus grande partie de la période post-AAUR.

- Le système de l'UE en matière de classification des carcasses a joué un rôle utile pour orienter la production vers une meilleure satisfaction des exigences des consommateurs. Il faut toutefois constater que les propres efforts du secteur pour satisfaire aux exigences des consommateurs en termes de prix et de qualité sont probablement tout aussi importants à cet égard, sinon plus.

- En ce qui concerne la cohérence avec d'autres politiques communautaires, il a été observé que les mesures de soutient exceptionnelles ont contribué à améliorer la santé animale. Il a aussi été observé que l'OCM n'était généralement pas le principal moteur des impacts négatifs sur le plan social et environnemental qui se sont produits à la suite de l'augmentation de la concentration et de l'intensification de la production. Cette évolution s'inscrit dans une tendance à plus long terme, dérivant de toute une série d'autres facteurs économiques, historiques et géographiques. Une meilleure cohérence avec les objectifs de la politique du commerce agricole a également été constatée à la suite de l'Accord agricole de l'Uruguay Round.

S1.6. Secteur de la viande de volaille

S1.6.1. Système de notification des prix

L'étude a évalué la mesure dans laquelle les prix signalés à la Commission, qui constituent le prix de référence de l'UE pour la viande de volaille, *correspondent* aux

prix obtenus par les abattoirs, la mesure dans laquelle le prix de référence reflète l'évolution du marché et la mesure dans laquelle ces informations sont comparables dans tous les Etats membres.

Les entretiens réalisés au sein de l'industrie ont indiqué que dans la plupart des Etats membres[36], les prix signalés à la Commission *correspondaient bien* aux prix obtenus par les abattoirs, en termes du degré de *représentativité* des marchés et des centres de cotation sur lesquels sont basés les prix signalés, et qu'ils *correspondaient* étroitement aux prix obtenus par les abattoirs en *termes absolus*. De fait, les entretiens ont confirmé qu'il y avait effectivement une *correspondance*, c'est-à-dire que l'on observait généralement une forte *concordance* entre le prix signalé et le prix obtenu par les producteurs.

En ce qui concerne la comparabilité des prix d'un Etat membre à l'autre, les parties prenantes ont estimé dans un certain nombre d'Etats membres que les prix étaient utiles pour faire des comparaisons avec les marchés voisins, ce qui suggère une comparabilité transfrontières. D'autre part, il a été observé dans un Etat membre qu'en raison de la structure de la vente au détail et des différences de nature de la production, les prix signalés n'étaient pas directement comparables avec ceux des autres Etats membres. On peut en conclure que les prix signalés à la Commission pour la viande de volaille ne sont pas totalement comparables d'un Etat membre à l'autre.

Malgré cette réserve, on peut considérer, de façon générale, que les informations recueillies par le système de notification des prix dans le cadre de l'OCM pour la viande de volaille sont bonnes à être utilisées par le Comité de Gestion comme base d'évaluation des tendances générales du secteur. Il faut toutefois noter les points suivants :

- en vue de l'évolution structurelle du secteur et de l'augmentation de l'utilisation des contrats dans le secteur, il est important de veiller à ce que la *représentativité* marchande des données recueillies soit régulièrement examinée et maintenue, en s'assurant que l'échantillon de marchés sur lequel repose le système de notification des prix est suffisamment important ;

- afin d'essayer d'améliorer le timing de la mise en œuvre d'instruments de marché tels que les restitutions à l'exportation ou le stockage privé, il faudrait

[36] La seule exception signalée est un Etat membre où 90% des poulets de chair sont vendus sous la forme de morceaux de poulet. Le marché des volailles entières n'est donc pas jugé representatif dans ce cas et le prix des volailles entières ne correspond donc pas au prix reçu par les abattoirs.

peut-être réfléchir à la manière dont on pourrait établir un «système d'alerte rapide» au sujet de l'évolution des prix;

- il faudrait faire davantage d'efforts pour veiller à la comparabilité des données de prix d'un Etat membre à l'autre en réduisant la variabilité entre Etats membres, grâce à des adaptations de calculs qui réduiraient les différences au niveau de ce qui est mesuré dans chaque pays.

S1.6.2. Restitutions à l'exportation

Les éléments fournis par l'analyse historique de l'application de cet instrument ont indiqué qu'elle était maintenant principalement axée sur le maintien de la situation du segment du poulet congelé, principalement dans un Etat membre. Si l'on examine globalement cette application dans toute l'UE et dans l'ensemble du secteur, on voit que la contribution de la mesure au respect des objectifs de l'OCM pour assurer une plus grande stabilité du marché et contribuer à un revenu équitable pour les producteurs est donc relativement limitée[37]. Nous en avons conclu que même si le ciblage de la mesure s'était amélioré à la suite de l'Accord de l'Uruguay Round sur l'Agriculture (AAUR), l'effet d'aubaine[38] associé à cette mesure est resté relativement élevé.

S1.6.3. Droits à l'importation

L'analyse des données historiques a suggéré que la politique de l'UE en matière d'importation a joué un rôle important dans le soutien de la préférence communautaire. Les résultats de modélisation ont suggéré d'autre part que comme on pouvait s'y attendre a priori, la protection fournie à l'importation, d'abord par des prélèvements variables puis par des droits tarifaires fixes, semble avoir conduit à une baisse du volume de l'ensemble des importations annuelles par rapport à ce qui se serait produit sans cela, et qu'en l'absence d'une protection aux frontières, l'UE serait probablement passée du statut d'exportateur net à celui d'importateur net. Il est néanmoins évident que les importations des pays tiers ont été effectuées en payant en totalité les droits tarifaires, ce qui indique que le niveau de protection a diminué, comme l'envisageait l'Accord de l'Uruguay Round, et c'est entre autres pour cette raison que la compétitivité de la production des pays tiers s'est accrue. L'importance persistante de la protection à l'importation est mise en évidence par le

[37] Si les revenus sont mesurés en tant que valeur ajoutée brute dans le cadre des prix de base, les résultats de modélisation indiquent que pour la période 2000-2002, les restitutions à l'exportation ont augmenté la contribution du secteur aux Comptes Economiques de l'Agriculture, avec un ajustement pour les coûts des aliments pour animaux, d'exactement 100,2 millions d'euros (soit le passage de 8,494 milliards d'euros à 8,594 milliards d'euros).

[38] Voir la note de bas de page 29 de la section A1 de l'Annexe 4.

fait qu'un volume croissant de viande de volaille entre sur le marché de l'UE dans le cadre de lignes tarifaires dotées de droits «ad valorem» peu élevés. En particulier, les importations des coupes de poulet salées, congelées et sans os ont posé un problème considérable pour le maintien de la préférence de la Communauté en matière de viande de volaille au cours de la période d'évaluation.

S1.6.4. Impacts globaux sur le marché

Contrairement aux résultats obtenus pour les autres secteurs faisant partie de cette étude, on n'observe qu'une faible relation inversée entre les restitutions à l'exportation et les prix (coefficient de corrélation –0.28), ce qui indique que l'utilisation des restitutions dans le secteur de la viande de volaille n'a pas été anticyclique en ce sens que l'intervention n'a pas été employée pour neutraliser les effets des déséquilibres du marché sur les prix. Dans ce contexte, il faut toutefois noter que la production de viande de volaille est de toute façon moins cyclique.

Les résultats de modélisation[39] suggèrent que pour les trois périodes, comme on pouvait s'y attendre a priori, l'impact des droits tarifaires à l'importation (et des restitutions à l'exportation) a conduit à augmenter considérablement la production intérieure globale (offre) par rapport à ce qui se serait produit en leur absence (de 13,3%, 8,7% et 7,0% respectivement). Ceci suggère qu'il existait au moins des possibilités de boucles d'interaction entre divers instruments de soutien (c'est-à-dire que l'utilisation de l'instrument génère en soi de nouveaux besoins de soutien). Toutefois, comme les restitutions à l'exportation ne sont pas un instrument utilisé de façon anticyclique, on ne peut pas dire que ceci s'applique en termes globaux, du moins après 1995 lorsque l'utilisation des restitutions a été restreinte.

Cependant, l'analyse historique et les entretiens avec les parties prenantes indiquent que l'utilisation des restitutions à l'exportation a été particulièrement ciblée sur un segment spécifique de produits, à savoir les volailles entières congelées, et que les parties prenantes ont effectivement considéré que l'utilisation de cet instrument avait joué un rôle clé pour aider à établir la position de ce produit sur le marché de l'exportation dans les années 1980. Comme on considère que le produit en question a des possibilités limitées d'écoulement sur le marché intérieur, on peut en conclure que l'existence d'une importante boucle d'interaction entre divers instruments de soutien pour ce segment spécifique est inévitable.

Enfin, il a été observé que l'analyse effectuée indique que la demande comme l'offre dans ce secteur sont plus fortement influencées par des facteurs tels que

[39] Voir note de bas de page 28 et Annexe 3.

l'évolution des préférences et des modes de demande des consommateurs et par les coûts de production que par les instruments de l'OCM.

S1.6.5. Niveau et évolution des revenus

Les éléments examinés suggèrent que les mesures de l'OCM se sont montrées efficaces pour atteindre l'objectif de contribuer à un niveau de vie équitable des producteurs de viande de volaille. Les résultats de modélisation[40] suggèrent que les mesures de protection aux frontières ont permis de maintenir les prix et la production, et donc les revenus, à un niveau considérablement plus élevé que ce n'aurait été le cas en leur absence. Certains éléments permettent toutefois de dire que dans le secteur des poulets de chair, les restitutions à l'exportation ont largement profité aux seuls producteurs de poulets fermiers traditionnels, vu qu'il n'y a quasiment aucune demande ni différenciation en ce qui concerne les restitutions à l'exportation se rapportant à des volailles plus coûteuses, produites dans le cadre d'un système de production en plein air, biologique ou autre. Ceci dit, le secteur de la production dans tous les Etats membres a estimé que les principaux moteurs de l'évolution des revenus dans le secteur étaient des facteurs sans aucun lien direct avec l'OCM, notamment les conditions de la demande (en particulier le taux de concentration des détaillants), les stratégies de commercialisation à l'exportation et l'utilisation des marques.

S1.6.6. Coûts de production

La principale composante des coûts de production de la viande de volaille est le coût des aliments pour animaux. Au cours de la période considérée, le coût de ces aliments a chuté, essentiellement en raison de la réduction des prix d'intervention des céréales, provenant de la réforme de la PAC, plutôt qu'en liaison avec l'OCM de la viande de volaille. Néanmoins En conséquence, le coût des aliments pour volaille par rapport à l'ensemble des coûts de production de la viande de volaille a diminué. En outre, cette diminution du coût des aliments pour volaille a plus que compensé les augmentations observées au niveau du coût des aliments pour animaux à la suite de l'évolution de la législation communautaire dans ce domaine.

Par rapport à l'impact positif de la réduction des prix d'intervention des céréales, provenant de la réforme de la PAC, sur le coût des aliments pour volaille, il faut dire que l'impact individuel des changements de politiques au sujet de la mise en décharge du lisier et de la réduction des émissions, du bien-être des animaux et de la santé animale a été, *en général*, relativement modeste, même s'il a donné lieu à des coûts pour les producteurs. Ceci étant, les données fournies par les études de

[40] Voir note de bas de page 28 et Annexe 3.

cas tendent à suggérer que l'impact de ces politiques sur les coûts diffère *considérablement* au sein des Etats membres et d'un Etat membre à l'autre.

Bien que, comme le montre clairement la logique d'intervention, l'objectif premier de l'OCM ne soit pas de s'occuper du problème des coûts de production résultant de la mise en œuvre d'autres législations, il est certain que l'OCM a contribué à faire passer les revenus à un niveau plus élevé que celui qu'ils auraient eu en l'absence de l'OCM et que les instruments de l'OCM ont donc aidé le secteur à absorber ces coûts.

S1.6.7. Développement rural et environnement

Il y a peu de données à l'appui d'un impact direct de l'OCM sur le développement rural et l'environnement dans les principales régions de production de volaille, à l'exception du cas spécial de la production de volaille dans certaines régions, où l'on peut affirmer qu'une industrie orientée vers l'exportation et desservant les marchés du Moyen-Orient a effectivement été mise en place et maintenue par l'OCM. Toutefois, l'OCM a contribué à créer des conditions de marché avantageuses grâce aux mesures fondamentales de protection aux frontières (droits tarifaires à l'importation et restitutions à l'exportation). Il a ainsi fourni un incitatif, même modeste[41], à l'augmentation de la production et on peut donc en conclure que tout impact de l'OCM a probablement été faible et largement indirect.

Comme il a été observé dans le secteur de la viande porcine, les modes actuels de ***répartition régionale***[42] ***et de concentration***[43] ***de la production*** dans le secteur de la volaille sont principalement dus à l'interaction d'un certain nombre de facteurs économiques, géographiques et historiques, tels que la proximité des centres de production d'aliments pour animaux, des ports maritimes et des grands points de vente du marché. Tout impact de l'OCM semble avoir été faible (en raison de l'impact estimé sur la production) et indirect, puisqu'il a été constaté que les tendances observées étaient déjà présentes avant la mise en place de l'OCM et qu'il existe peu d'éléments à l'appui de l'existence d'un lien solide et direct entre la poursuite de ces tendances et l'OCM.

Le secteur de la volaille a également connu des changements structurels importants au niveau du ***nombre et de la taille des élevages*** pour la période examinée dans

[41] L'impact direct de l'OCM sur les prix et la production a été modeste, à savoir des prix environ 10,8% plus élevés et une production environ 8,8% plus importante à la suite des mesures de l'OCM (simulation CAPSIM).

[42] Le nombre d'élevages de volailles par région géographique donnée.

[43] La répartition spatiale d'élevages de volailles au sein d'une région géographique donnée.

cette étude, ce qui a donné lieu à une diminution du nombre des élevages de volailles, une augmentation du nombre de volailles par exploitation et aussi une augmentation du nombre de volailles par hectare. L'étude a montré que le facteur le plus important à l'origine de ces changements structurels était le fait que les producteurs tiraient parti des économies d'échelle pour maintenir ou accroître la compétitivité. Là encore, tout impact de l'OCM semble avoir été faible (en raison de l'impact estimé sur la production) et indirect, puisque les décisions d'augmenter la production pour tirer parti des économies d'échelle sont influencées par la compétitivité et les tendances du marché et donc par les conditions avantageuses de marché que l'OCM a contribué à créer.

Tout impact de l'OCM sur la ***spécialisation des élevages,*** les ***relations du secteur avec les industries en amont et en aval*** (il a été constaté que le secteur de la volaille était beaucoup plus intégré verticalement que celui de la viande porcine) et ***l'importance économique*** du secteur en termes de valeur ajoutée et d'emplois créés semble aussi avoir été faible (en raison de l'impact estimé sur la production) et indirect, vu que l'intégration verticale et l'expansion de la production pour tirer parti des économies d'échelle sont influencées par la compétitivité et les tendances du marché et donc par les conditions avantageuses créées par l'OCM.

En conséquence, alors que l'expansion des systèmes intensifs de production de volailles a eu un impact négatif significatif sur la ***qualité de l'eau, de l'air, des sols et des paysages*** pour la période considérée, il est probable que tout impact de l'OCM ait également été faible (en raison de l'impact estimé sur la production) et largement indirect.

S1.6.8. Impacts globaux

De façon plus générale, voici quelques-uns des impacts globaux de l'OCM que l'étude a mis en évidence:

- Les restitutions à l'exportation et les droits tarifaires à l'importation ont amélioré la situation compétitive du secteur de la viande de volaille de l'UE sur le marché mondial. Les résultats de modélisation[44] suggèrent que la présence des droits à l'importation et des restitutions à l'exportation a renforcé la position commerciale nette de l'UE, en conséquence de quoi l'UE est devenue une exportatrice nette de viande de volaille. Par contre, les résultats de l'analyse CAPSIM suggèrent que la suppression des restitutions à l'exportation et des droits à l'importation affaiblirait la situation compétitive globale de l'UE, puisque l'UE deviendrait un importateur net de viande de volaille, suite à l'afflux des importations.

[44] Voir note de bas de page 28 et Annexe 3.

- En ce qui concerne la satisfaction des exigences des consommateurs en termes de prix et de qualité, l'analyse indique que les normes de qualité de base se sont montrées utiles pour orienter la production vers une meilleure satisfaction des exigences des consommateurs. Toutefois, les conclusions des entretiens réalisés au sein de l'industrie suggèrent que les propres efforts du secteur pour satisfaire aux exigences des consommateurs en termes de prix et de qualité sont probablement tout aussi importants à cet égard, sinon plus, que le rôle de l'OCM.

- Les résultats de modélisation[45] suggèrent qu'une plus grande libéralisation provoquerait des pertes chez les producteurs mais des gains sociaux éventuels pour les consommateurs en raison de la baisse des prix.

- Les éléments rassemblés dans cette étude suggèrent qu'à l'exception notable du secteur de la viande de volaille dans certaines régions, les mesures de l'OCM pour la viande de volaille n'ont pas été les principaux moteurs de l'intensification et de la concentration ni des impacts négatifs sur l'environnement qui en résultent. Cette situation s'inscrit en fait dans une tendance à plus long terme, qui est entre autres le fruit de l'interaction entre un certain nombre de facteurs économiques, géographiques et historiques. Toutefois, dans la mesure où l'OCM fait partie de l'environnement plus large de la politique agricole de l'UE, il a créé un milieu économique favorable à la poursuite de la croissance et du développement du secteur. On peut donc dire qu'il a eu un impact indirect.

- Cette étude n'a trouvé aucun élément permettant de déterminer si l'OCM contribue à l'objectif communautaire d'une plus grande cohésion régionale en réduisant les déséquilibres économiques entre les régions. On peut toutefois affirmer a priori que les politiques de soutien du marché relevant du Pilier 1 de la PAC et basées sur un soutien à la production qui fonctionne horizontalement dans toutes les régions, auront tendance à ne pas être en harmonie avec les mesures du Pilier 2 et avec les autres mesures relevant des Fonds Structurels, qui pourraient chercher à centrer le soutien sur des régions spécifiques. C'est ainsi que dans le cas de la viande de volaille, la plus grosse partie du soutien AAUR tendance à être orientée vers des régions où la concentration de la production est la plus forte, ce qui ne coïncidera pas nécessairement avec celles qui ont le plus besoin de mesures de soutien régionales.

S1.7. Secteur des œufs

[45] Voir note de bas de page 28 et Annexe 3.

S1.7.1. Système de notification des prix

L'étude a évalué la mesure dans laquelle les prix signalés à la Commission, qui constituent le prix de référence de l'UE pour les oeufs, *correspondent* aux prix obtenus par les emballeurs, la mesure dans laquelle le prix de référence reflète l'évolution du marché et la mesure dans laquelle ces informations sont comparables dans tous les Etats membres.

Les entretiens réalisés au sein de l'industrie ont indiqué que pour la plupart des Etats membres, les prix signalés à la Commission n'étaient pas complètement *représentatifs* de toutes les transactions se déroulant dans le secteur. La raison en est, en partie, que les prix signalés ne concernent pas tous les systèmes de production. Ceci dit, dans la plupart des Etats membres, on considère que le prix signalé fournit une juste représentation des tendances générales en matière de prix, même si l'exactitude du prix absolu est mise en doute. Ceci suggère que même si le prix signalé n'est pas complètement *représentatif*, on considère qu'il est souvent en *concordance* avec les prix effectifs. En d'autres termes, le prix signalé peut différer des prix généralement reçus au niveau du montant, mais il existe une corrélation entre ces prix et ils bougent ensemble dans le même sens. La série de prix paraît donc convenir à une évaluation des tendances générales du secteur.

En ce qui concerne la comparabilité des prix d'un Etat membre à l'autre, les parties prenantes font montre d'un certain scepticisme quant à la mesure dans laquelle le prix signalé est effectivement comparable. Il est clair, néanmoins, que certains marchés de l'UE sont fortement liés les uns avec les autres et que l'évolution des prix sur ces marchés est comparable.

On peut donc considérer que le système de notification des prix produit les résultats requis en terme de suivi et de gestion des marchés. Il faut toutefois noter les points suivants :

- en vue de l'évolution structurelle du secteur, il est important de veiller à ce que la *représentativité* marchande des données recueillies soit régulièrement examinée et maintenue, en s'assurant que l'échantillon de marchés sur lequel repose le système de notification des prix est suffisamment important (par exemple, en élargissant les systèmes de production couverts) ;

- il faudrait faire davantage d'efforts pour veiller à la comparabilité des données de prix d'un Etat membre à l'autre en réduisant la variabilité entre Etats membres, grâce à des adaptations de calculs qui réduiraient les différences au niveau de ce qui est mesuré dans chaque pays.

S1.7.2. Restitutions à l'exportation

Les éléments fournis par l'analyse historique de l'application de cet instrument ont indiqué qu'elle neutralisait efficacement les déséquilibres de marché en agissant de façon anticyclique et donc en stabilisant le marché, en accord avec les objectifs de l'COM. On peut conclure des résultats de modélisation[46] que l'effet d'aubaine[47] associé à cette mesure est toutefois relativement élevé. En s'appuyant sur l'analyse historique et sur les entretiens réalisés, il a été constaté que pour les produits du secteur des œufs, les restitutions à l'exportation étaient principalement utilisées pour maintenir une présence sur les marchés des pays tiers dans le cas d'un produit (blanc d'œuf), dont on signale qu'il est constamment excédentaire dans l'UE.

S1.7.3. Droits à l'importation

Les éléments fournis par tous les outils employés dans cette étude suggèrent que le maintien de la protection à l'importation est d'une importance cruciale pour le maintien d'une proportion importante de la production des œufs en coquille et autres produits du secteur des œufs dans l'UE. En effet, en l'absence de ces mesures, une proportion importante de la production serait supplantée par les importations. Il faut noter que les résultats de modélisation[48] suggèrent également que le passage à une plus grande libéralisation (en abaissant les droits d'importation) serait **un bien pour les consommateurs car les prix auraient tendance à chuter**.

S1.7.4. Impacts globaux sur le marché

- L'évaluation de l'impact conjoint qu'ont dans ce secteur les principaux instruments de soutien du marché, les restitutions à l'exportation et les droits à l'importation, sur l'équilibre du marché et sur les prix a été essentiellement effectuée au moyen de la modélisation des arguments négatifs pour trois périodes séparées. Les résultats[49] suggèrent que l'association de l'impact de ces instruments a eu pour effet d'augmenter considérablement les prix dans le secteur des œufs de l'UE par rapport à ce qui se serait produit en leur absence (de 20,2% en 1990-92, 13,3% en 1995-97 et 6,2% en 2000-02). Dans ce contexte, il faut noter que l'importance des droits à l'importation est beaucoup plus grande que celle des restitutions à l'exportation en ce sens que les droits tarifaires paraissent effectivement empêcher une grande partie de la production de l'UE

[46] Voir la note de bas de page 28 et l'Annexe 3.
[47] Voir la note de bas de page 29 de la section A1 de l'Annexe 4.
[48] Voir la note de bas de page 28 et l'Annexe 3.
[49] Voir la note de bas de page 28 et l'Annexe 3.

d'être potentiellement supplantée par les importations, tandis que les restitutions à l'exportation ne concernent que des volumes relativement limités.

- Les résultats de l'étude ont indiqué qu'en raison de l'augmentation considérable de la production par les instruments de l'OCM par rapport à ce qui se serait produit en leur absence, il existait des possibilités de boucles d'interaction importantes entre divers instruments de soutien (c'est-à-dire que cette production nécessite à son tour des restitutions plus élevées). Il faut toutefois noter que comme les droits tarifaires ont été réduits à la suite de l'Accord de l'Uruguay Round sur l'Agriculture, ces possibilités sont moindres.

- Il n'a pas été possible d'établir la proportion de la production commercialisée en accord avec les normes de commercialisation de l'UE, mais ces normes devraient a priori jouer un rôle important pour le respect des normes de base en matière de qualité. Il a également été observé que les propres efforts du secteur pour satisfaire aux exigences des consommateurs en termes de prix et de qualité sont probablement tout aussi importants à cet égard, sinon plus.

S1.7.5. Niveau et évolution des revenus

Les éléments examinés suggèrent que les mesures de l'OCM, et en particulier les droits tarifaires à l'importation, ont eu un impact considérable sur les revenus des producteurs du secteur, contribuant de ce fait à atteindre l'objectif d'un niveau de vie équitable des producteurs ainsi que de stabilisation des marchés. Les résultats de modélisation[50] suggèrent que les mesures de protection aux frontières ont permis de maintenir les prix et la production, et donc les revenus, à un niveau considérablement plus élevé que ce n'aurait été le cas en leur absence.

S1.7.6. Coûts de production

Les impacts des instruments de l'OCM sur les coûts de production des œufs se sont avérés difficiles à quantifier, compte tenu du manque de données primaires et secondaires se rapportant au secteur des poules pondeuses. Ce manque est dû en partie au caractère sensible de ces informations sur le plan commercial dans les Etats membres et à l'intégration verticale importante dans ce secteur. Les coûts des aliments pour volaille, qui constituent la principale composante des coûts de production des œufs, ont diminué au cours de la période considérée, à la suite de la réduction des prix d'intervention des céréales provenant de la réforme de la PAC (réduisant de ce fait l'importance des aliments pour animaux par rapport au total des coûts de production des œufs) et ont plus que compensé l'augmentation des

[50] Voir la note de bas de page 28 et l'Annexe 3.

coûts des aliments pour animaux liée à l'évolution de la législation communautaire dans ce domaine.

Par rapport à l'impact positif de la réduction des prix d'intervention des céréales, provenant de la réforme de la PAC, sur le coût des aliments pour volaille, il faut dire que l'impact individuel des changements de politiques au sujet de la mise en décharge du lisier et de la réduction des émissions, du bien-être des animaux et de la santé animale a été, *en général*, relativement modeste, même s'il a donné lieu à des coûts pour les producteurs. Ceci étant, les données fournies par les études de cas tendent à suggérer que l'impact de ces politiques sur les coûts diffère *considérablement* au sein des Etats membres et d'un Etat membre à l'autre. Tout bien considéré, les éléments rassemblés ne suggèrent donc pas que l'impact *global* de l'OCM et des autres mesures relevant du Pilier 1 sur le secteur ait été négatif pour les coûts de production, même s'il n'a pas été possible de conclure que cet impact global avait bien été positif.

Bien que la fonction de l'OCM ne soit pas de s'occuper du problème des coûts de production résultant de la mise en œuvre d'autres législations et que nous ne recommandons donc aucune action spécifique, il faut noter que compte tenu du passage des revenus à un niveau plus élevé que celui qu'ils auraient atteint en l'absence de l'OCM, les avantages découlant des instruments de l'OCM en matière de revenus ont aidé le secteur à absorber ces coûts.

S1.7.7. Développement rural et environnement

L'OCM pour les œufs a contribué à créer des conditions de marché avantageuses grâce aux mesures fondamentales de protection aux frontières (droits tarifaires à l'importation et restitutions à l'exportation). Il a ainsi fourni un incitatif modeste[51] à l'augmentation de la production d'œufs. Tout impact de l'OCM sur le développement rural et l'environnement dans les principales régions de production d'œufs a donc probablement été faible et largement indirect.

Comme pour le secteur de la viande porcine et de la viande de volaille, il a été constaté que les modes actuels de ***répartition régionale***[52] ***et de concentration***[53] ***de la production*** dans le secteur des œufs étaient déjà en place avant l'établissement de l'OCM et sont principalement dus à l'interaction d'un certain nombre de facteurs

[51] L'impact direct de l'OCM sur les prix et la production a été modeste, à savoir des prix environ 11,6% plus élevés et une production environ 9,5% plus importante à la suite des mesures de l'OCM (simulation CAPSIM).

[52] Le nombre d'exploitations de poules pondeuses par région géographique donnée.

[53] La répartition spatiale des exploitations de poules pondeuses au sein d'une région géographique donnée.

économiques, géographiques et historiques, tels que la proximité des centres de production d'aliments pour animaux, des ports maritimes et des grands points de vente du marché. Tout impact de l'OCM semble donc avoir été faible (en raison de l'impact estimé sur la production) et indirect.

Le secteur des œufs a également connu des changements structurels considérables au niveau du ***nombre et de la taille des exploitations*** pour la période examinée dans cette étude, ce qui a donné lieu à une diminution du nombre des exploitations, une augmentation du nombre de poules pondeuses par exploitation et aussi une augmentation du nombre de poules pondeuses par hectare. L'étude a montré que le facteur le plus important à l'origine de ces changements structurels était le fait que les producteurs tiraient parti des économies d'échelle pour maintenir ou accroître la compétitivité. Là encore, tout impact de l'OCM semble avoir été faible (en raison de l'impact estimé sur la production) et largement indirect, puisque les décisions d'augmenter la production pour tirer parti des économies d'échelle sont influencées par la compétitivité et les tendances du marché et donc par les conditions avantageuses de marché que l'OCM a contribué à créer.

Tout impact de l'OCM sur la ***spécialisation des exploitations,*** les ***relations du secteur avec les industries en amont et en aval*** (il a été constaté que le secteur des œufs était fort intégré verticalement) et ***l'importance économique*** du secteur en termes de valeur ajoutée et d'emplois créés semble aussi avoir été faible (en raison de l'impact estimé sur la production) et indirect, vu que l'intégration verticale et l'expansion de la production pour tirer parti des économies d'échelle sont influencées par la compétitivité et les tendances du marché et donc par les conditions avantageuses créées par l'OCM.

En conséquence, alors que l'expansion des systèmes intensifs de production de volailles a eu un impact négatif significatif sur la ***qualité de l'eau, de l'air, des sols et des paysages*** pour la période considérée, tout impact de l'OCM semble également avoir été faible (en raison de l'impact estimé sur la production) et largement indirect.

S1.7.8. Impacts globaux

Les entretiens réalisés avec les parties prenantes indiquent que les restitutions à l'exportation dans le sous-secteur des produits transformés hors Annexe 1 ont joué un rôle particulièrement important dans le maintien de la situation de l'UE sur le grand marché d'exportation qu'est le Japon. De façon plus générale, les résultats de modélisation et les entretiens avec les parties prenantes suggèrent que l'impact conjoint des restitutions à l'exportation et des droits tarifaires à l'importation a conduit à faire passer l'UE de la situation d'importateur potentiel net à celle d'exportateur net

pour l'ensemble de la période considérée. Dans ce contexte, il faut noter que d'autres facteurs tels que les taux de change, les frais de transport, les politiques d'importation et d'exportation des pays concurrents, etc. affectent aussi considérablement la situation compétitive de l'UE sur les marchés intérieur et extérieur.

L'impact des restitutions à l'exportation et des droits à l'importation sur le plan social global a été estimé à l'aide du modèle CAPSIM. Le résultat net suggère que bien que les dépenses effectuées pour arriver à un montant relativement important de revenus pour les producteurs aient été relativement faibles, le coût des transferts des contribuables et des consommateurs était supérieur aux gains pour les producteurs, ce qui laisse à penser que cette mesure manque d'efficacité.

En ce qui concerne la cohérence avec d'autres politiques communautaires, il a été observé que l'OCM n'était généralement pas le principal moteur des impacts négatifs sur le plan social et environnemental qui se sont produits à la suite de l'augmentation de la concentration et de l'intensification de la production. Cette évolution s'inscrit dans une tendance à plus long terme, dérivant de toute une série d'autres facteurs économiques, historiques et géographiques.

S1.8. Comparaison des résultats pour les trois secteurs

Les principaux points à retenir de l'analyse des résultats de cette étude dans les trois secteurs considérés sont les suivants :

- **Système de notification des prix** : Même si les prix signalés dans les trois secteurs n'ont pas toujours été jugés pleinement *représentatifs* des marchés, il a été estimé qu'ils convenaient aux fins de gestion des marchés pour lesquelles ils sont utilisés, en ce sens qu'ils reflètent de façon satisfaisante les principales tendances des marchés étudiés.

- **Restitutions à l'exportation :** Il est apparu que dans les trois secteurs, la mise en œuvre de l'Accord de l'Uruguay Round sur l'Agriculture (AAUR) avait eu pour effet une utilisation plus « prudente » des restitutions à l'exportation. Toutefois, à l'exception des contraintes de volume pour les exportations de viande de volaille (et la période de gestion de crise dans le secteur de la viande porcine à la fin des années 1990), les contraintes en matière de volume des exportations et de dépenses dans le cadre de l'Accord de l'Uruguay Round ne semblent pas avoir été indûment lourdes, puisqu'elles n'ont pas été entièrement exploitées. De façon plus générale, les restitutions à l'exportation ont servi de contrepoids à la volatilité cyclique des secteurs de la viande porcine et des œufs en coquille, mais elles ont aussi servi à maintenir une présence sur le marché dans le secteur des œufs relevant des produits transformés hors Annexe 1 ainsi que dans le secteur de

la viande de volaille. Même si les restitutions à l'exportation ont amélioré dans tous les cas la situation de l'UE sur le marché mondial au cours de la période considérée, les résultats de modélisation suggèrent dans tous les cas l'existence d'un effet d'aubaine important[54], c'est-à-dire que les exportations auraient pu avoir lieu, même sans l'utilisation de cet instrument. Bien que ce résultat puisse s'appliquer à l'ensemble, il faut noter qu'il pourrait bien ne pas s'appliquer à certains sous-secteurs spécifiques qui sont des bénéficiaires importants des restitutions à l'exportation (à savoir le blanc d'œuf et les poulets entiers congelés).

- **Droits à l'importation:** L'étude a montré que comme l'on pouvait s'y attendre dans les trois secteurs, les droits à l'importation ont considérablement réduit le volume des importations pour l'entièreté de la période considérée, bien que dans le cas de la viande porcine, le rôle des droits tarifaires soit masqué par la présence simultanée des restrictions sanitaires. Dans le cas de la viande de volaille et des œufs en coquille, la présence des droits tarifaires (et des restitutions à l'exportation) a eu pour résultat que l'UE est restée un exportateur net plutôt qu'un importateur potentiel net de ces produits pour la période considérée. Il a cependant été observé que ces résultats, qui ont fourni des gains sociaux aux producteurs, avaient été atteints à un coût global relativement élevé du point de vue des dépenses des contribuables ainsi que des pertes des consommateurs en termes de prix plus élevés.

- **Revenus des producteurs :** L'analyse du RICA a mis en évidence une augmentation générale des revenus dans les trois secteurs pour la période considérée, bien qu'une grande partie de cette augmentation soit due à une augmentation de l'échelle de production plutôt qu'aux OCM.

- **Coûts de production:** Les principaux changements au niveau des coûts pour la période considérée ont été la réduction de la principale composante des coûts, à savoir les aliments pour animaux. Cette réduction provient des réductions de coûts des aliments pour animaux effectuées dans le cadre de la réforme de la PAC plutôt que des OCM. En revanche, la législation communautaire relative aux autres mesures législatives se rapportant au bien-être des animaux (bien que la législation communautaire relative aux aliments pour animaux) ont fait augmenter les coûts pour desproductuers. Mais, les éléments rassemblés ne suggèrent donc pas que l'impact *global* de l'OCM et des autres mesures relevant du Pilier 1 sur le secteur ait été négatif pour les coûts de production,

[54] Voir la note de bas de page 29 de la section A1 de l'Annexe 4.

même s'il n'a pas été possible de conclure que cet impact global avait bien été positif.

- **Développement rural et environnement** : L'étude a montré qu'à l'exception de la production de viande de volaille dans certaines régions, l'impact de l'OCM sur l'intensification avait été largement indirect. En ce qui concerne la répartition régionale et la concentration de la production, le rôle des OCM peut être considéré comme mineur puisque cette évolution de la production résulte de tendances historiques à plus long terme. De même, l'impact des OCM sur le processus de changement en matière de structures et d'emploi (réduction du nombre de grandes exploitations) a lui aussi été limité et indirect. En conclusion, pour la période examinée par cette étude, le rôle des OCM au niveau d'impacts négatifs sur l'environnement a également été largement indirect grâce au maintien d'un environnement économique favorable.

1. Introduction

In line with the contract requirements for this Evaluation of the Common Market Organisations (CMOs) for pigmeat, poultrymeat and eggs, this draft final report presents the final analysis and recommendations on the three CMOs in line with the requirements of the Terms of Reference (ToR). The work on this evaluation has been undertaken during the period from December 2004 to October 2005 by a team[55] led by Agra CEAS Consulting Ltd. The subcontractors involved are as follows:

Denmark: Anne-Mette Hjalager and Laura Sokka, Advance/1
France: Magdelaine Pascale, ITAVI; Michel Rieu ITP
Germany: Prof. Dr. Monika Hartmann, Christian Fischer, Johannes Simons, Sebastian Schornberg, based at the University of Bonn
Germany: Dr. Peter Witzke and Dr Arnim Kuhn, EuroCARE, Bonn
Italy: Professor Roberto Fanfani and Dr Carlotta Valli, University of Bologna
Netherlands: Koos de Vlieger, LEI
Portugal: Pedro Serrano, AgroGes
Spain: Lourdes Viladomiu I Canela and Jordi Rosell, Universitat Barcelona

Agra CEAS Consulting would like to thank the subcontractors above as well as the DG Agriculture Steering Committee for their comments and advice during the course of this project. In this context we note that Agra CEAS is fully responsible for the opinions expressed in this report.

1.1. Evaluation coverage

The evaluation covers three sectors which are addressed by three different Common Market Organisations (CMOs) under Council Regulations 2795/75, 2777/75 and 2771/75. The ToR states that it was decided there would be added value in evaluating the three CMOs simultaneously 'as there are many similarities between the sectors 'as concerns the instruments of the CMOs and the ways of production (less linked to land)'. The evaluation covers the main instruments of the CMOs namely:

- Export refunds
- Import regime: import duties and tariff rate quotas
- Aid for private storage in the pig sector
- Exceptional market measures in the case of epizootic disease in the pig sector.

[55] Conrad Caspari, Clifford Biggs, Edward Oliver, Dylan Bradley, and Remi Gauthier.

In addition it addresses the quality and relevance of the information obtained via the price reporting systems applicable in the three sectors and the significance of the quality grids applied.

The evaluation addresses the significance of other EU and national measures concerning animal health and welfare, food and feed legislation in terms of their impacts on markets and production costs and comments on the significance of national rules and measures concerning planning permission, the granting of investment aid, restructuring. The evaluation similarly comments on the coherence of the CMO measures with other Community policies notably those on the environment, trade and regional cohesion.

The scope of the evaluation is the EU-15 but there has been a more in depth analysis undertaken the principal five producing Member States in each sector. More detailed regional investigation of impacts on rural development and the environment was undertaken by means of case studies.

The report is structured according to 4 broad evaluation themes under which the evaluation questions (EQs) are addressed. These are:

- **Theme 1: Market equilibrium and price stability** which covers EQ1 on the price reporting system, EQ2 on export refunds, EQ3 on the import regime, EQ 4 on private storage aid in the pigmeat sector, EQ5 on exceptional support measures in the pigmeat sector and EQ 6 on overall market impacts
- **Theme 2: Producers' income** which covers EQ7 on income level and development, EQ 8 on production costs
- **Theme 3: Rural development and environment** which addresses EQ 9 on impacts on rural development ant environment
- **Theme 4: Overall impacts** which provides an overall judgement on the three CMOs and addresses broader issues such as the coherence of the CMOs with other relevant EU policies and the impacts of national measures. It also addresses the question of whether the instruments of the CMOs are adapted to current market developments.

1.2. Evaluation tools used

As was set out in Agra CEAS' original proposal, in essence the methodology adopted combines quantitative analysis via modelling and other quantitative approaches with qualitative data collection and analysis to assess the evolution and impacts of the market management policy implemented for the three sectors in the period 1992-2002. The key tools used are as follows:

- desk research to analyse historical data and secondary literature as well as preparing models of the intervention logic for the CMOs;
- modelling using the CAPSIM model in particular to analyse counterfactuals relating to impact of export refunds and import protection;
- statistical analysis of the effects of private storage in the pigmeat sector;
- analysis of Farm Account Data Network data on farm incomes and costs on the basis of a specific analysis of this data prepared by the Commission services;
- stakeholder interviews; and,
- case studies to in particular review CMO impacts in specific case study regions.

The answers to EQ 1 on the price reporting system were provided on the basis of interviews with stakeholders and detailed analysis of the relevant data series.

The core of the answers to EQs 2-4 on the impacts of the major market measures has been provided by modelling using the CAPSIM model developed by EuroCare. The key rationale for using this modelling approach was that it allows a modelling of a 'policy-off' scenario thus enabling clear statements and quantification to be made with respect to these major evaluation questions. This was supplemented by extensive analysis of the historical use and impact of the instruments on the basis of data provided by DG Agriculture and other sources as well as by a literature review and above all interviews with stakeholders in all Member States. These qualitative elements of the research therefore serve to amplify and validate the results obtained through the quantitative analysis and vice versa to thus form a sound basis for the judgement phase.

For EQ 4, on the impact of the private storage aid, was assessed by means of a statistical analysis of historic data on stocks entering and leaving storage and price as well as by means of interviews with stakeholders.

EQ 5, on the impact of exceptional measures in the pigmeat sector, was analysed by means of a case study on the 1997 outbreak of classical swine fever in the Netherlands.

For EQ 6 in particular regression analysis was used to assess the degree to which the export refunds under the CMO were related to price developments in the different sectors. The CAPSIM model and stakeholder interviews were used to answer the other sub-questions under this heading.

EQ 7, on income level and developments, was analysed primarily by means of a special analysis of Farm Accounts Data Network (FADN) data prepared by DG Agriculture.

EQ 8 on production costs was addressed by means of analysis of FADN and national data on costs, by means of a literature review and stakeholder interviews.

EQ9 on the impacts of the CMO on rural development and the environment was addressed by means of case studies in key production regions, a literature review and stakeholder interviews.

The results from the analysis provided by these tools were synthesised by EQ to provide the basis for a comparison across sectors, a final judgement on overall impacts as well as overall conclusions and recommendations.

1.3. Plan of the report

The analysis is presented along the following lines. For Themes 1-4 covering EQs 1-8 and EQ 9 (sub-questions 1-5) the analysis is presented by sector in Sections 2-4. EQ 9 (sub-question 6) is presented in Section 5 on the joint environmental impacts of the three sectors. Section 6 contains the comparison of results across the three sectors for Themes 1 and 2. The methodology and results of the structuring work, the sector descriptions, the technical specification of the CAPSIM model, the CAPSIM modelling results, the results of the statistical analysis for private storage, the DG Agriculture FADN analysis, the regional case studies and the bibliography are presented in Appendices 1-8 respectively.

2. Pigmeat CMO evaluation

2.1. Introduction

2.1.1. CMO objectives

The overarching objectives for the CMO for pigmeat reflect those in Article 39 of the Treaty of Rome, namely:

1) to increase agricultural productivity;
2) to ensure a fair standard of living for farmers;
3) to stabilise markets;
4) to assure availability of supplies;
5) to ensure reasonable prices for consumers.

However, as shown in Figure 2.1, the various measures under the CMO for pigmeat aim to meet only objectives 1, 2, 3 and 4. These measures are:

- *private storage*;
- *import tariffs* (which have the specific aim of maintaining Community preference and preventing world market price fluctuations from affecting EU internal prices), and *export refunds* enabling EU producers to compete on world markets (by compensating for the potentially higher cost of EU produced feed));
- *exceptional market support measures* are provided to compensate for restrictions on the movement of animals/losses incurred by producers in times of disease;
- *marketing standards* which are designed to improve the quality of EU output and thereby improve producer returns.

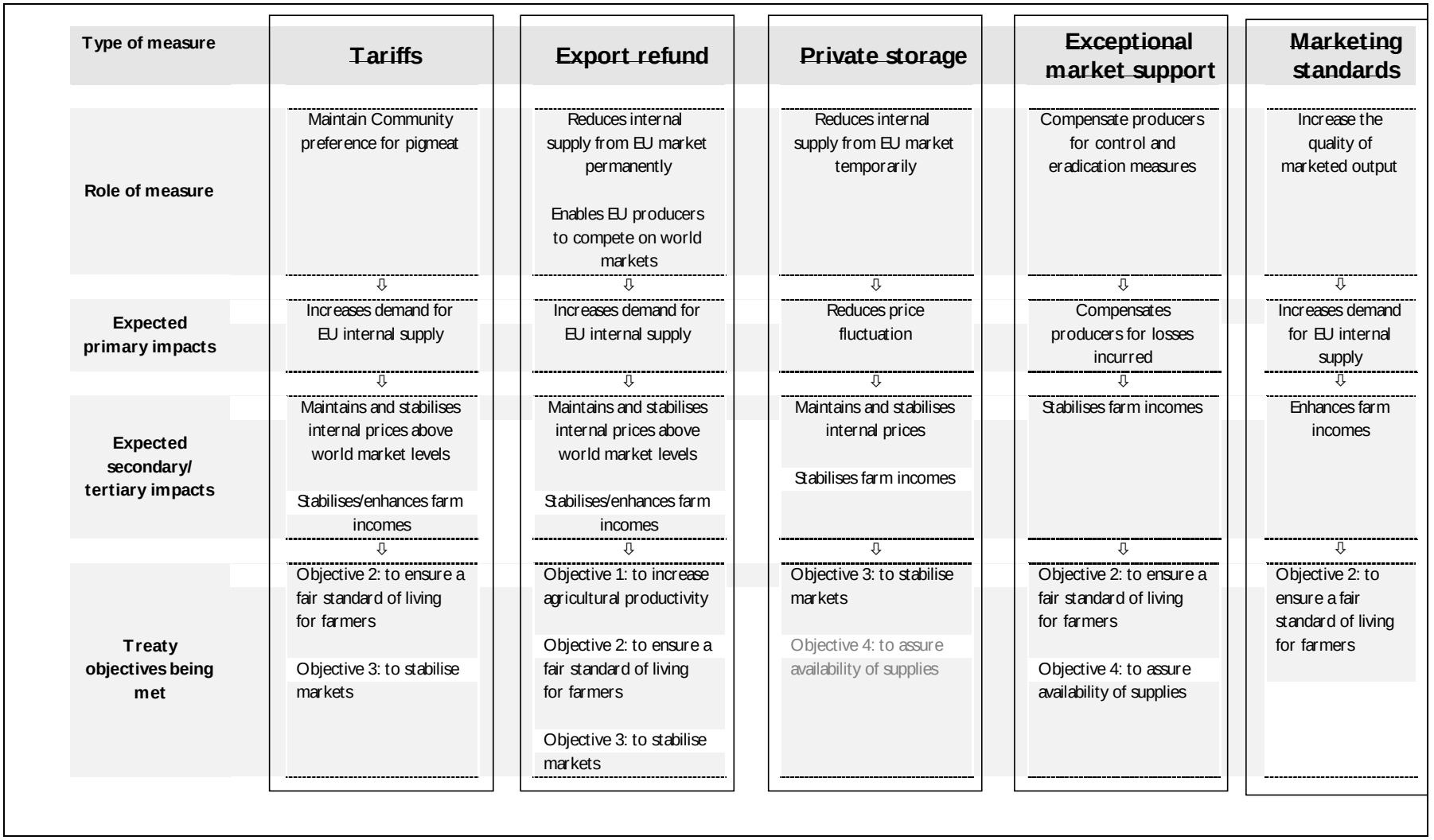

Figure 2.1: Intervention logic: Pigmeat CMO

2.1.2. Operation of the CMO instruments

The EU pigmeat regime covers the following product categories:

- live pigs (except pedigree pigs);
- edible fresh, chilled and frozen pigmeat and pig offals;
- edible, salted, dried and smoked pigmeat and pig offals;
- lard and unrendered pig fat; and,
- processed pigmeat products (including canned and sausages).

The framework for a common pigmeat regime was established in 1962 and became operational in 1967. Various changes were made between 1967 and 1975 when a 'consolidation' regulation (Council Regulation 2759/75) updated the original regulation to incorporate the changes made. The pigmeat regime has three principal pillars[56].

1. Pigmeat is treated as a 'cereal-based product'. This implies close links between the cereal and pigmeat regimes.
2. The EU is self-sufficient in pigmeat. This implies that measures affecting trade with third countries can only have a limited role in correcting imbalances within the EU.
3. The recognition of the cyclical nature of pigmeat production (the so-called pig cycle[57]). The regime therefore attempts to provide measures to counter the cycle and ensure a reasonable level of stability in the EU pig market.

The EU pigmeat regime is seen as a 'light regime', in comparison with other EU livestock regimes such as sheep, dairy and beef and some arable sector CMOs. This is because pigs receive no headage support and the market support provided is relatively limited. This market support comes in the form of:

- price support with a basic price and provision for support buying;
- export refunds to enable the export of surpluses at world market prices when required; and,
- import tariffs maintain Community preference for the EU pig industry.

[56] Links to the individual pieces of legislation incorporated into the pigmeat regime can be found at http://europa.eu.int/scadplus/leg/en/lvb/l11046.htm.

[57] Historically, pig production has been cyclical, increasing and decreasing as producers react to profit and loss. Producers seek to expand production when they see it as profitable; however, there is a lag of about a year as a result of the time needed to breed and raise pigs prior to pork production. When pig production becomes unprofitable, producers reduce the number of breeding pigs by selling animals for slaughter. Pigmeat output thus increases initially, but then declines as the effects of herd reduction are felt.

Consequently, changes in support levels for arable commodities are likely to influence incentives for pigmeat production. In particular, pig producers are affected by changes in support policies for cereals that are used as feed inputs. Reforms that have reduced cereal prices also lower input costs for pigmeat producers.

Therefore, the impact of the pigmeat CMO on the pigmeat sector may not be as substantial as that of other CMOs, such as the impact of the CMO for cereals on the cereals sector in particular.

2.1.3. CMO Disbursements

2.1.3.1. Community level

Figure 2.2 shows that over the period from 1993-2003 export refunds made up the bulk of CMO payments except for when "exceptional measures" were introduced as was notably the case in 1994, 1997 and 1998.

The trend of export refunds and private storage is cyclical with declining disbursements reflecting rising world prices. Falls in the world price in 1999 and 2000 saw large increases in the use of refunds and private storage. By 2003, disbursements had fallen to below 100 million Euro (see also Appendix 2, section A2.1.5).

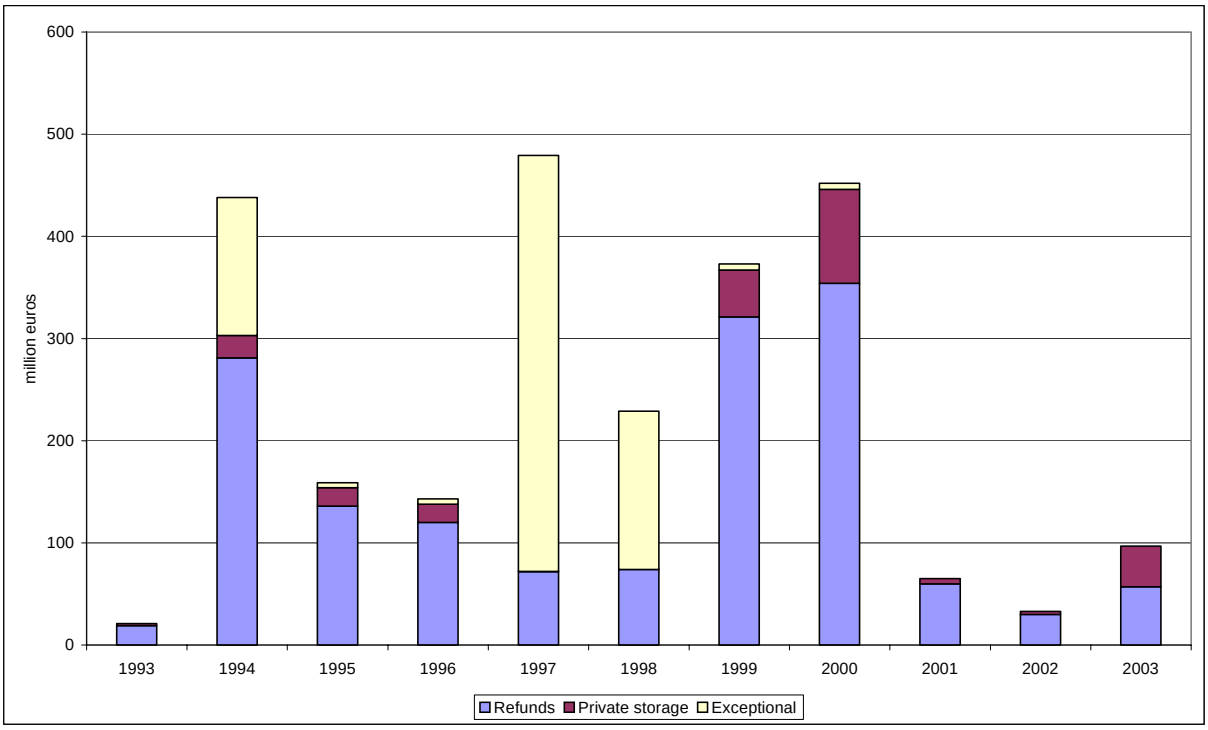

Figure 2.2: Pigmeat CMO disbursements for refunds, private storage and exceptional measures 1993-2003

Source: DG Agriculture

Figure 2.3 illustrates that Denmark is the largest recipient of payments under the CMO within the EU, followed by Germany and France respectively.

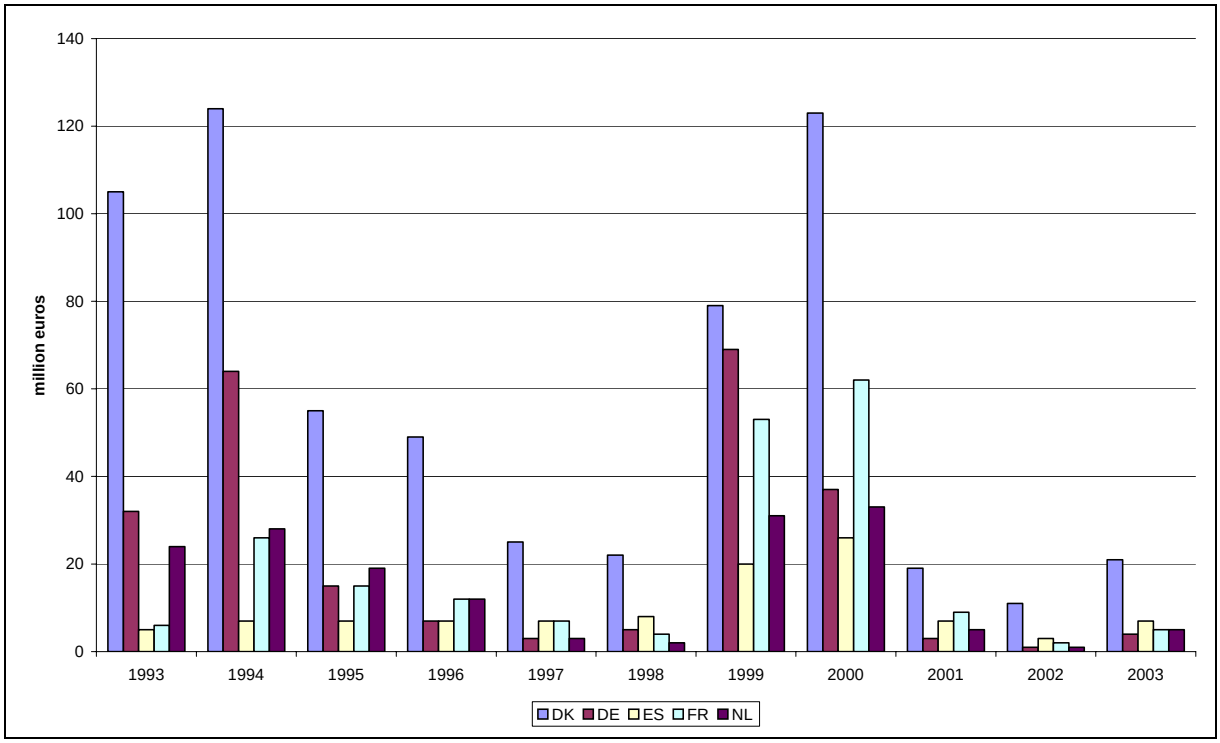

Figure 2.3: Pigmeat CMO disbursement case study countries 1993-2003

Source: DG Agriculture.

Further information about the EU pigmeat sector may be found in Appendix 2.

2.2. Theme 1: Market equilibrium and price stability

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.1.

2.2.1. Question 1: Price reporting system

This evaluation question concerns the extent to which prices reported to the Commission, which form the EU reference price for pigmeat, *correspond* to the prices obtained by producers, the extent to which the reference price reflects market developments and the extent to which this information is comparable across Member States. In this context, the carcass classification grid for pigs is considered, in particular as concerns its impact on the quality of pigmeat.

The EU reference price for pigmeat is the average price calculated for pig carcasses in each Member State, used by the Commission to manage markets. Each Member State calculates its individual national average reference price recorded at *representative* markets. A weighted average of the national reference prices is calculated to give the EU reference price for Grade E carcasses (see Table 2.1). The weighting coefficients are determined by the relative size of the pig herd in each Member State on the basis of the census in the previous December. These coefficients are reviewed each year.

Table 2.1: Reference price for pigmeat (€/100 Kg PAD[1])

Yr/Mn	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1990	133.88	136.80	136.99	142.92	147.23	157.20	157.18	143.77	130.35	122.67	118.84	117.72	137.13
1991	119.27	130.70	132.22	131.78	140.05	143.16	137.16	137.29	144.24	140.08	145.12	148.45	137.46
1992	152.87	157.14	154.93	152.89	154.99	156.80	150.44	140.22	133.24	123.21	122.51	109.03	142.36
1993	109.60	108.48	108.08	104.02	108.26	109.12	108.26	102.16	99.59	93.74	99.91	103.12	104.53
1994	98.17	98.48	99.58	100.90	112.16	113.33	108.27	108.99	111.85	107.46	106.16	105.16	105.88
1995	108.67	136.02	136.62	130.18	131.57	136.60	141.87	148.70	150.77	146.44	146.63	147.28	138.45
1996	143.89	148.35	150.41	155.05	166.21	178.49	183.85	183.02	180.20	163.62	146.84	147.88	162.32
1997	143.57	145.90	153.62	174.04	201.56	177.75	168.48	173.55	174.83	161.71	154.25	138.87	164.01
1998	134.61	141.61	137.80	132.67	126.11	126.90	122.93	116.23	108.09	98.02	88.79	99.42	119.43
1999	93.57	97.52	102.73	100.84	105.58	123.68	126.18	126.25	125.45	116.71	112.82	108.48	111.65
2000	112.81	121.67	130.72	134.99	142.89	148.96	151.75	148.76	145.62	147.17	153.77	158.23	141.44
2001	156.05	171.26	194.40	185.72	182.68	175.75	167.32	169.38	161.42	151.63	143.15	140.07	166.57
2002	135.06	135.70	146.16	138.80	136.22	139.15	141.98	136.16	135.78	129.23	127.14	124.77	135.51
2003	124.54	128.26	126.19	124.29	122.65	125.99	133.09	134.86	141.53	128.13	123.40	114.12	127.25

Note [1]: PAD – price after deductions, for example, bonus.
Source: DG Agriculture.

2.2.1.1. Limitations of the techniques used for the analysis

This question has primarily been addressed through the interviews carried out with stakeholders in the sector. Clearly the validity of the results depends on the reliability of the estimates and views obtained from such stakeholders and therefore to ensure that these are as consistent as possible a range of stakeholders has been consulted in each Member State. It should also be noted that while the results obtained may hold for the period covered the picture may change quite rapidly as, for example, the number of markets covered by the price reporting system may be reduced or the structure and behaviour of the sector changes.

2.2.1.2. Analysis of results

Do the prices reported correspond to the prices obtained by producers?

To establish the extent to which the price reported to the Commission *corresponds* to the price obtained by producers, it is necessary to initially consider the extent to which the reported price can be considered *representative* of that obtained by producers within the industry as a whole. The representativeness of the reported price will therefore depend on the number of markets or slaughterhouses from which pricing information is collected and the number of animals sold in each market/slaughtered in each slaughterhouse (i.e. the proportion of national kill that they represent).
Article 4 (2) of Regulation (EEC) No 2759/75 on the CMO for pigmeat provides for the determination of this reference price from prices recorded on *representative* markets within the Member States. To enable this provision to be applied, Regulation (EEC) No 1901/2004, amending Regulation (EEC) No 2123/89, establishes the list of *representative* markets in the Community from which price quotations are obtained and reported to the Commission.

In some Member States, the reported prices are obtained from *quotation centres* based on the prices paid by public and private slaughterhouses. Some Member States use a *single quotation centre* in this respect (namely in Austria, Belgium, Denmark, the Netherlands, Finland and the United Kingdom), while others use *multiple quotation centres* (namely in France, Germany and Greece). In other Member States, the reported prices are obtained directly from the most important *markets/slaughterhouses* for pigmeat (namely in Ireland, Italy, Luxembourg, Portugal and Sweden). In Spain, the reported prices are established from an average between the quotations obtained directly from *markets/slaughterhouses* and from *quotation centres* (Table 2.2).

The extent to which these markets and quotation centres can be considered *representative*, in terms of the proportion of the national kill that they represent, varies significantly between Member States. Based on those Member States where information is available (Table 2.2), the proportion of the national kill in the *representative* markets ranges from 30% in Belgium to 97% Luxembourg.

Table 2.2: Representative markets for pigmeat in the Community

	Market	**Quotation centre**	**Representativeness (% of national kill)**
Belgium		Brussel	30%
Denmark		København	90%
Germany		Kiel, Hamburg, Oldenburg, Münster, Düsseldorf, Trier, Gießen, Stuttgart, München, Bützow, Potsdam, Magdeburg, Erfurt, Dresden	82%
Greece		Preveza, Chalkida, Korinthos, Agrinio, Drama, Larissa, Verria	
Spain	Murcia, Malaga, Barcelona, Huesca, Burgos, Lleida, Navarra, Ourense, Segovia, Ciudad Real	Ebro, Mercolleida, Campillos, Segovia, Segura, Silleda	>50%
France		Rennes, Nantes, Metz, Lyon, Toulouse	*(Effectively around 90%)*
Ireland	Waterford, Mitchelstown, Edenderry		33%
Italy	Milano, Cremona, Mantova, Modena, Parma, Reggio Emilia, Perugia		
Luxembourg	Esch-sur Alzette, Ettelbruck, Mersch, Wecker		97%
Netherlands		Zoetermeer	67%
Austria		Wien	54%
Portugal	Famalicao, Maior, Coimbra, Leiria, Montijo, Povoa da Galega, Rio		93%
Finland		Helsinki	
Sweden	Helsingborg, Trelleborg, Visby, Kristianstad, Skövde, Skara, Kalmar, Uppsala, Visby, Kristianstad		
United Kingdom		Milton Keynes	65%

Source: Regulation (EEC) No 1901/2004 and industry interviews.

A priori, it would be expected that in those *representative* markets that account for a significant share of the national kill, the reported price is likely to *correspond* to the price obtained by producers within the industry as a whole. The findings of our industry interviews and quantitative data support this. Specifically, the prices reported to the Commission tend to *correspond* to the prices obtained by producers where there is a highly concentrated pigmeat slaughtering sector and where the prices paid by these slaughterhouses are used to form the price reported to the Commission:

- In Luxembourg, the pigmeat-slaughtering sector is highly concentrated with three slaughterhouses accounting for 97% of the national kill. As the price paid by these three slaughterhouses forms the price reported to the Commission, the industry considers it to be very *representative* of the national market and to *correspond* to the price obtained by producers.

- In Denmark, the pigmeat-slaughtering sector is highly concentrated, with a single company, *Danish Crown*, accounting for around 90% of the national kill. As the price reported to the Commission is based on the price paid by *Danish Crown*, this price is considered to be *representative* of the national market and to *correspond* to the prices obtained by producers. Moreover, it is reported that the price paid to producers by the other major pigmeat slaughterhouse in Denmark (namely, *Tican*), which accounts for the majority of the remaining national kill, is more or less identical to that paid by *Danish Crown*.

- In Portugal, the reported price is based on a weighted average of prices paid by six slaughterhouses, which together represent 93% of national kill. The industry therefore considers this reported price to be extremely *representative* of the national market and to *correspond* to the price obtained by producers.

Although the *representative* markets in other Member States account for a lower share of national kill, this does not mean that the reported price is less likely to *correspond* to the price obtained by producers within the industry as a whole. The findings of the industry interviews indicate that the sample of transactions used by most other Member States to calculate the price reported to the Commission is still fairly *representative* of the price obtained by producers. The only exception reported was Italy, where the validity of the representative markets is currently being questioned as the volume of pigmeat traded on these markets has fallen considerably in recent years, as the proportion of pigmeat sold on contract has increased to around 90%.

There were a number of reasons presented during the industry interviews to justify why the price reported to the Commission was considered *representative* of that obtained by producers, even though the *representative* markets do not necessarily account for a particularly high share of the national kill:

- The *representative* markets established under Regulation (EEC) No 2123/89 were selected as the price quotations obtained from these markets were considered to *correspond* to the prices obtained by producers. This Regulation has subsequently been amended on nine occasions since it entered into force, with the list of *representative* markets in a number of Member States[58] being revised with the aim of maintaining the degree of *correspondence* between the reported prices and those obtained by producers.

- In the UK, for example, a new price reporting system has recently been introduced, with an increased sample accounting for over 65% of the national kill, which therefore provides a better representation of the different contracts on which pigs are sold.

- In a number of Member States, the sample size on which the reported price is based is effectively larger than the share of the national kill accounted for by the *representative* markets. Interviews with the industry revealed that a number of slaughterhouses determine the producer price for pigmeat based on the prices paid by *representative* markets. For example:

- In Ireland, prices are currently collected from the two largest slaughterhouses, namely *Glanbia* in Edenderry and *Dawn Pork and Bacon* in Waterford. Together these two slaughterhouses account for 33% of the national kill. However, the industry interviews revealed that the reported price is effectively based on a larger sample given that *Glanbia* also operates another plant at Roscrea where the prices paid to producers tend to be identical to those paid at the Edenderry plant. Therefore, it was suggested that the price reported to the Commission effectively represents up to 53% of the national kill[59].

[58] Greece (Regulation (EEC) No 1786/90), Germany, following unification, and Portugal, during its second stage of accession (Regulation (EEC) No 3787/90), Sweden, Finland and Austria, following accession (Regulation (EEC) No 2123/89), Ireland and Sweden (Regulation (EEC) No 1448/95), France (Regulation (EEC) No 426/96), Belgium (Regulation (EEC) No 532/96), Ireland, Luxembourg and Spain (Regulation (EEC) No 1285/98), Ireland (Regulation (EEC) No 2712/2000) and the 10 New Member States following accession as well as several EU-15 Member States (Regulation (EEC) No 1901/2004).

[59] Until recently, the reported price was also based on prices paid by a third slaughterhouse operated by *Galty*, which is now closed. Prior to this closure and with the implicit inclusion of the national kill from the *Glanbia* Roscrea plant, industry interviews suggested that the reported price had effectively represented up to 78% of the total national pig kill.

- In France, five quotation centres are used to determine the reported price for pigmeat. However, a high proportion of these transactions and those of other markets in France are based on the *Marché du porc Breton (Cadran) quotation*. Accordingly, the reported price is effectively based on a larger sample given that up to 92% of pigmeat in France is marketed by the 'groupements de producteurs', many of which use this price quotation as a reference price.

- In Spain, the reported price for pigmeat is based on the price quotations from six quotation centres and eleven markets. However, the reported price is effectively based on a larger sample as some 90% of all pigmeat transactions use price quotations from a single quotation centre, namely *Mercolleida*, as their reference price.

Does the information correctly reflect market developments?

Although the findings of the industry interviews generally suggested that the prices reported to the Commission are *representative* of those obtained by producers, this does not necessarily imply that the reported prices *correspond* exactly to the prices obtained by producers in terms of the *absolute price level*. Nevertheless, evidence suggests that any difference in the absolute price level is minimal. For example, regular monitoring and analysis carried out by French Institut Technique du Porc (ITP) pôle Economie has found that the difference between the French producer price and the price reported to the Commission ranged from -€0.04/kg to -€0.06/kg between 1996 and 2003. Similarly, industry interviews in Germany have revealed that the difference between the German producer price and the price reported to the Commission ranged from -€0.03/kg to -€0.07/kg between 2003 and 2004.

While any difference between the prices reported to the Commission and those obtained by producers can be explained by the extent to which the markets and quotation centres (on which the prices reported to the Commission are based) can be considered *representative*, the interviews also suggest that variations in the process of determining the respective prices are an important factor[60]. For example, interviews in Ireland reported on analysis carried out by Teagasc, which estimate that producer pig prices are 3% higher than the reported price. However, the reported price is net of VAT whereas Irish producer prices include VAT, on which there is a 4.3% VAT refund. When accounting for this VAT refund, the difference between the two price series is negligible.

[60] These include differences between the reported price and that obtained by producers in terms of the standardised quality, VAT liability, trading bonuses, cold/warm weight pricing basis, transport costs, marketing costs.

In the EU, the pig carcass classification scheme forms an important part of the price determination process for pigmeat. In general, producers receive a price incentive for the production of leaner animals and a price penalty for the production of animals considered to be fatter than that required by the market. Interviews with the industry revealed that in some Member States these price adjustments were asymmetric in the sense that the penalty for producing fatter grades of pigs is greater than the premiums paid for producing leaner pigs (e.g. in the UK, France, the Netherlands).

As would be expected with any pricing system that provides an incentive to produce certain leanmeat grades of pigs, there has been a gradual increase in the production of pigs of the more desirable 'S' and 'E' leanmeat grades and less in the undesirable 'III/O' and 'IV/P' grades (see Table 2.3) during the evaluation period (Figure 2.4). However, the proportion of pigs graded in the EU out of the total number of commercial pig slaughterings has remained more or less stable over the period at 70%.

Table 2.3: EU carcass grades and corresponding lean meat percentage

Lean Meat percentage	Current EU Grade	Former grade
60% and above	S	
55-50%	E	
50-54%	U	i
45-49%	R	ii
40-44%	O	iii
39% or less	P	iv

Source: Meat and Livestock Commission (UK).

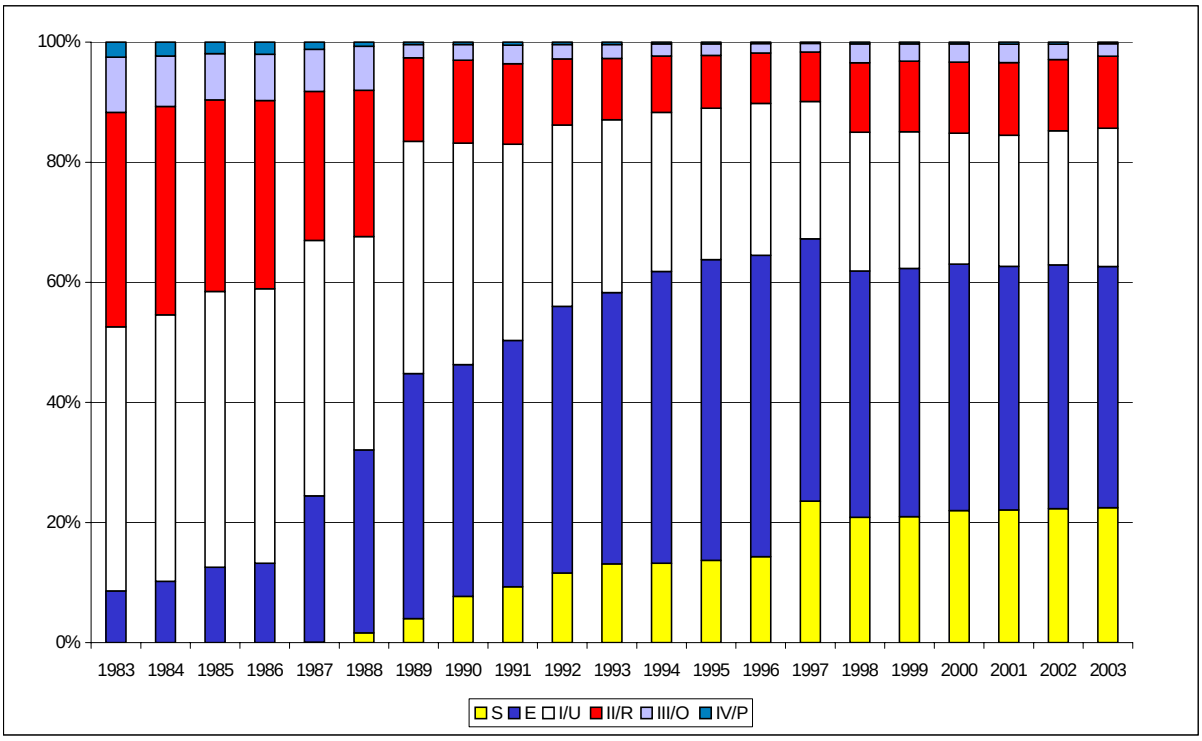

Figure 2.4: EU pig carcass grading results

Note: Italy included from 1998.
Source: DG Agriculture.

The above indicates that in spite of some possible small differences in absolute price levels, in general the information collected via the price reporting system correctly reflects market developments in the sense that it reflects the prevailing trends in the market.

Is the information comparable between member States?

As previous discussed, the reported prices are only *comparable* insofar as Member States respect Regulation (EEC) 3220/84[61]. In this respect, it was noted during the industry interviews that there is some variability both between and within Member States in terms of how to define the quality of the carcass to which the prices reported refer. This is because while there is a common system in place, it is implemented differently by Member States using different tools and formulae. As such the measurement is considered subjective. Furthermore, research has found that the relationship between actual leanmeat percentages and instrumental carcass measurements differ by breed[62] and sex[63]. Given this, it is perhaps unsurprising that the interviews revealed that the EU pigmeat sector was unanimous in its view that prices were not *comparable* in this respect between Member States.

Despite this, it is clear that some EU markets are highly linked to one another and that price evolution in these markets is *comparable*. For example, the findings of industry interviews suggest that the prices in Northern Ireland were *comparable* to those of (southern) Ireland given their geographical proximity and the extent of cross-border trade. In this respect, it was suggested that prices in Northern Ireland were more *comparable* with those of (southern) Ireland than the rest of the UK. Similarly, the German pig price series is considered appropriate by producer organisations and slaughterhouses in Austria when determining prices at the Austrian Pig Bourse. In Luxembourg, it is also reported that slaughterhouses base their price on that paid in Germany as well as Belgium. Accordingly, in spite of the finding that absolute price levels reported are not strictly comparable there is likely to be a certain degree of *comparability* between the price series in each of these Member States.

[61] In addition, the industry interviews suggest that in many Member States it is considered that reported prices are not *comparable* because the reporting conventions are interpreted differently and some of the resulting prices may be unrealistic as a result.

[62] see for example Engel *et al* (2004). Subpopulations and accuracy of prediction in pig carcass classification, *Animal Science*, 78, 37-52.

[63] see for example Engel and Walstra (1991). A simple method to increase precision or reduce expense in regression experiments to predict the proportion of leanmeat of carcasses. *Animal Science*, 53, 353-359.

2.2.1.3. Synthesis of results and conclusion

Box 2.1: Main conclusions on price reporting system

Do the prices reported correspond to the prices obtained by producers? Does the information correctly reflect market developments?

In summary, the industry interviews suggest that the prices reported to the Commission *correspond* to the prices obtained by producers, in terms of the extent to which the markets and quotation centres on which the reported prices are based can be considered *representative,* as well as *corresponding* closely to the prices obtained by producers in *absolute* terms. Accordingly, the interviews supported the view that there is *correspondence* in that there is generally a high degree of *concordance* between the reported price and the price obtained by producers.

Is the information comparable across Member States?

While there are differences in the way in which Member States respect Regulation (EEC) 3220/84, it appears that the reported prices used to form the EU reference price generally reflect market developments and are also in this sense broadly comparable between Member States.

Therefore, the information gathered by the price reporting system under the CMO for pigmeat can generally be regarded as adequate for use by the Management Committee as a basis to assess general trends in the sector.

2.2.2. Question 2: Export refunds

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.2.

2.2.2.1. Description and analysis of the historic functioning of the instrument

Description of the export refund instrument

Since the end of the 1970s the EU has been a net exporter of pigmeat, and has regularly had to cope with the periods of over-production. The two main instruments used by the European Commission to deal with this problem are export refunds and private storage. In order for European exports to be competitive on the world market, traders may obtain a refund that aims to (partially) cover the gap between the generally lower world market and the EU price.

Prior to the implementation of the Uruguay Round on Agriculture (URAA) from July 1995 when there was no international constraint on the manner and level at which refunds were used, in essence refunds were fixed and maintained virtually as a permanent feature of the policy so as to cover the difference in production costs between the EU and major competitors. This means that in practice refunds were largely determined on the basis of the difference in cereals costs bearing in mind that the one aim of the refund was (and is) ultimately to ensure that EU product maintains its competitiveness in international markets. The major changes to have occurred post the URAA are that:

- as cereals prices have fallen to closer to world market levels the need for refunds has declined; and that,
- in order to comply with the constraints of the URAA which limited the volume of exports supported by refund and expenditure on such refunds (see detailed analysis below) refunds are no longer permanently in place and have increasingly become focused on more processed pigmeat products, with refunds on carcasses and cuts only being applied in times of market crisis.

Since the start of the implementation of the URAA on 1 July 1995 the quantity of products benefiting from export support and the amount of aid provided has been constrained by the General Agreement for Tariffs and Trade (GATT) commitments made by the EU under this agreement (see below). In order to monitor these exports, since this date traders have had to apply for an export license prior to

export[64]. They have to lodge a surety which will be forfeited if the export does not take place, and an allocation procedure may be put in place to 'ration' the limited amount of funds available under the GATT constraints.

The level of export refunds is determined by the periodic fixing of refunds by the European Commission at the regular Management Committee meetings (standing refunds). Periodically, the European Commission, after consulting the respective Management Committee, fixes the level of the 'standing' export refunds (which may vary by destination) and publishes them in the Official Journal of the European Union. These refunds will be available to all comers, subject to having a valid export license.

Traders may ask for export licenses some time before they effect the trade, and request that the export refund associated with the license is that valid on the day the license was issued rather than that valid on the day the cargo is shipped. In effect this 'pre-fixes' the export refund, allowing traders to build more certainty into their trading business (although complex rules apply and the Commission can and does suspend prefixing when they are concerned about speculation).

Export licenses have a fixed period of validity, which varies by product and time of application. If not used within this time, the surety lodged when the license was issued will be forfeited. The security of the export license is normally released once 95% of the export has been completed. Partial release of the security is made if the full obligation has not been carried out within the time limits specified.

However, for some but not all products, a secondary market exists in export (and import) licenses: the individual or company that effects the trade need not to be the individual or company that took out the license in the first instance.

The objective of offering standing export refunds for pigmeat and pigmeat products is to counteract the cyclical nature of the market. There are two categories of pigmeat for the purposes of the refunds: half carcasses and main cuts, and processed products. These two categories are treated differently.

a) ***Half carcasses and main cuts (hams, bellies, and shoulders) – fresh or frozen***
   As is indicated above, since the start of the URAA in contrast to refunds for processed products, refunds for half carcasses and main cuts have been applied as a countercyclical support measure for the market when necessary in times of "crisis" (i.e. low prices). They are no therefore no longer offered permanently.

[64] Export refund licenses are administered at national level, e.g. in the UK by the Rural Payments Agency.

Licenses are allocated weekly using a straightforward process. Traders apply for a license at the respective national authority, which passes on the request to the European Commission. The Commission check and where appropriate accepts the application (based on Management Committee vote), and finally send out the licenses. The Commission draws up a list of destination countries that are eligible for refunds, which will take into account the competitive position of the EU.

b) Processed products

With a few exceptions (cooked sausages and luncheon meat), refunds for processed pig products are offered as a permanent measure in order to maintain a permanent export flow of these products (mainly high quality dried ham). Therefore, the level of refunds only varies slightly. The product codes are set out in Commission Regulation (EEC) No 3846/87 of 17 December 1987 establishing an agricultural product nomenclature for export refunds.

The level of the refund is set regularly by the European Commission under the terms of Council Regulations 2768/75 and 3290/94. When setting the level of the refunds as well as taking into account the differences in production costs as reflected in feed grain prices and the US$/Euro exchange rate, the current situation and the likely development of both Community pigmeat price and supply, as well as the prices for pigmeat products on the world market are taken into consideration, bearing in mind the need to avoid disturbances which might lead to a prolonged imbalance between supply and demand on the Community market and the economic aspect of the proposed exports. In the case of processed products, competitors' prices are less important for fixing the level of the export refund because the market is so differentiated that a comparison between countries is difficult.

There has been a clear evolution in the use of the refund instrument over the period 1993-2002, as illustrated in Appendix 2, tables A12, A13 and A14. At the start of this period prior to the July 1995 implementation of the Uruguay Round Agreement on Agriculture (URAA), export refunds were applied permanently across the board to pigmeat products ranging from fresh, chilled and frozen carcasses and cuts to more processed products such as hams, smoked bellies and sausages. For fresh chilled and frozen carcasses and cuts the refunds were differentiated according to destination with higher refunds being offered for the Russia, Belarus, Ukraine markets. Following the implementation of the URAA and the adoption of a more 'prudent' policy designed to meet the URAA constraints, refunds on fresh, chilled and frozen carcasses and cuts as well as bellies were phased out by mid 1996 and higher refunds were introduced on more processed products, notably hams. This policy was temporarily adjusted in 1998 to deal with the swine fever induced overproduction

crisis in the pigmeat market which coincided with the collapse in the Russian market and at this point refunds on carcasses and cuts were re-introduced and remained in place until July 2000 when the six year URAA implementation period came to an end[65]. At more or less the same point (April 2000) the refunds on more processed products started to be reduced.

This analysis indicates clearly that once the EU was subjected to the expenditure constraints of the URAA it primarily targeted the now limited refund expenditure on those more processed products generating the highest value for EU exporters. Table 2.4 below confirms that after the implementation of the URAA in 1995, export refunds have focused on specific pigmeat products such as dried and salted meat, sausages and conserves. In this manner the market for carcasses and cuts within the EU is in any case supported as these products are used by the processing industry. As has been confirmed by the market unit within DG Agriculture a supplementary rationale for maintaining a relatively steady level of refunds for such products is that it provides the processing industry with a stable outlook for production and sales planning.

[65] The last time that export refunds for pigmeat carcasses and cuts were offered within the period under review was between 27 January and 16 March 2004 (Commission Regulation (EC) No 129/2004). They were introduced as a short-term measure to relieve pressure on prices, which recovered from €112 per 100 kg in the beginning of January to €135 per 100 kg in mid March. The refunds aided shipments of around 70,000-75,000 tonnes with a value of approximately €20-25 million. The refunds offered for carcasses and half carcasses amounted to €40 per 100 kg. It should be noted that the initial response was to open private storage in December. However subsequently, this instrument alone was deemed insufficient and export refunds commenced in January and private storage was closed.

Table 2.4: Export refunds for pigmeat, 1991-2003 (marketing year, € million)

	EU-12								EU-15															
	91/92		92/93		93/94		94/95		95/96		96/97		97/98		98/99		99/00		00/01		01/02		02/03	
	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget
Total refunds	**199.5**		**130.5**		**193.5**		**259.2**		**130.1**		**163.5**		**76.4**		**330.9**		**233.9**		**36.1**		**20.6**		**11.3**	
Non differentiated data	199.5	1991	130.5	1992	193.5	1993	6.1	1994	0.6	1995	21.2	1996	1.1	1997	0.1	1998								
Carcasses and off-cuts							**171.3**		**49.7**		**4.6**		**6.6**		**274.6**		**168.1**		**4.1**		**0.5**		**0.0**	
							171.3	*1994*	*49.7*	*1995*	*4.6*	*1997*	*0.0*	*1997*	*4.4*	*1998*	*11.6*	*1999*	*0.0*	*2000*	*0.0*	*2002*	*0.0*	*2003*
													5.3	*1998*	*207.6*	*99*	*135.7*	*2000*	*0.1*	*2001*	*0.5*	*2003*		
													1.3	*1999*	*62.6*	*2000*	*20.8*	*2001*	*4.0*	*2002*				
Dried, salted meats etc.							**5.3**		**19.9**		**36.4**		**25.8**		**10.9**		**11.1**		**8.5**		**7.0**		**4.2**	
							5.3	*1994*	*14.0*	*1995*	*18.2*	*1996*	*0.2*	*1997*	*0.3*	*1998*	*0.2*	*1999*	*0.1*	*2000*	*0.1*	*2001*	*0.1*	*2002*
									5.9	*1997*	*14.5*	*1997*	*23.2*	*1998*	*8.2*	*1999*	*7.8*	*2000*	*3.9*	*2001*	*4.0*	*2002*	*4.1*	*2003*
											3.7	*1998*	*2.4*	*1999*	*2.4*	*2000*	*3.1*	*2001*	*4.5*	*2002*	*2.9*	*2003*		
Sausages and conserves							**72.7**		**56.9**		**102.3**		**42.6**		**43.1**		**46.9**		**20.5**		**11.6**		**6.4**	
							72.7	*1994*	*51.2*	*1995*	*63.2*	*1996*	*2.6*	*1997*	*0.9*	*1998*	*2.0*	*1999*	*0.6*	*2000*	*1.0*	*2001*	*0.4*	*2002*
									5.7	*1997*	*37.0*	*1997*	*34.0*	*1998*	*34.6*	*1999*	*38.2*	*2000*	*15.8*	*2001*	*8.6*	*2002*	*6.0*	*2003*
											2.1	*1998*	*6.0*	*1999*	*7.6*	*2000*	*6.7*	*2001*	*4.1*	*2002*	*2.0*	*2003*		
Others							**3.8**		**3.0**		**-0.9**		**0.3**		**2.2**		**7.8**		**3.0**		**1.5**		**0.7**	
							3.8	*1994*	*2.7*	*1995*	*-1.3*	*1996*	*0.3*	*1998*	*0.1*	*1998*	*0.1*	*1999*	*0.1*	*2000*	*0.0*	*2001*	*0.0*	*2002*
									0.3	*1997*	*0.3*	*1997*	*0.0*	*1999*	*0.9*	*1999*	*6.2*	*2000*	*2.2*	*2001*	*1.1*	*2002*	*0.7*	*2003*
											0.1	*1998*			*1.2*	*2000*	*1.5*	*2001*	*0.7*	*2002*	*0.4*	*2003*		

Source: DG Agriculture.

Table 2.5: Total pigmeat exports and exports with refunds, 1991 to 2003 ('000 tonnes carcass weight)

	1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003	
	Total	with refund	Total	with refund	Total	with refund	Total	with refund	Total	with refund	Total	with refund	Total	with refund	Total	with refund	Total	with refund	Total	with refund	Total	with refund	Total	with refund	Total	with refund	Total	with refund
Carcass	-	-	102.5	102.5	8.1	8.1	50.3	50.3	87.3	87.3	36.9	36.9	24.3	12.1	22.7	11.3	73.2	64.0	196.4	196.4	66.7	33.3	48.7	0.0	49.5	0.0	24.7	0.0
Cuts	-	-	253.5	253.5	228.9	228.9	318.6	318.6	484.1	484.1	405.1	167.0	420.2	76.0	455.4	75.8	537.0	469.9	917.3	917.3	831.6	415.8	627.3	0.0	716.6	0.0	752.2	0.0
SSF	-	-	15.0	12.6	15.3	11.5	16.5	15.0	25.6	23.3	21.9	16.6	26.5	21.2	27.3	24.0	22.4	18.0	19.6	14.9	21.1	16.0	18.3	14.8	18.7	12.7	20.3	14.1
Sub total	-	-	371.0	368.6	252.2	248.5	385.3	383.8	597.0	594.7	463.9	220.5	471.1	109.3	505.4	111.1	632.6	551.9	1133.3	1128.6	919.4	465.2	694.3	14.8	784.8	12.7	797.1	14.1
Non Denom	-	-	39.3	0.0	39.4	0.0	29.1	0.0	24.1	0.0	28.8	0.0	34.5	0.0	46.0	0.0	72.1	0.0	70.5	0.0	83.1	0.0	64.1	0.0	69.4	0.0	85.4	0.0
Sausages	-	-	52.2	52.2	51.1	51.1	93.4	93.4	98.3	98.3	110.1	106.0	140.0	134.5	156.0	40.1	142.1	135.1	85.1	83.3	92.2	91.2	70.9	70.3	65.1	64.2	62.8	61.6
Conserves	-	-	157.3	157.3	144.9	144.9	171.7	171.7	174.1	174.1	174.1	144.8	181.3	163.7	164.1	95.0	142.3	129.3	98.2	93.1	78.9	73.8	64.7	43.0	59.0	54.5	65.5	59.2
Sub total	-	-	209.5	209.5	195.9	195.9	265.1	265.1	272.4	272.4	284.2	250.8	321.3	298.2	320.1	135.1	284.4	264.4	183.3	176.4	171.1	165.1	135.6	113.3	124.0	118.7	128.3	120.9
Total	496.9	489.7	619.7	578.1	487.5	444.4	679.5	648.9	893.5	867.1	776.8	471.3	826.9	407.5	871.5	246.1	989.1	816.3	1387.1	1305.0	1173.6	630.2	894.0	128.1	978.3	131.5	1010.8	135.0
Fat	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Offal	-	-	49.2	0.0	50.5	0.0	64.9	0.0	99.7	0.0	108.6	0.0	127.1	0.0	218.5	0.0	261.0	0.0	241.1	0.0	353.4	0.0	393.7	0.0	496.3	0.0	557.6	0.0
Viv	-	-	9.1	9.0	1.0	0.8	1.2	1.2	6.7	6.7	4.2	0.0	1.3	0.0	1.1	0.0	3.3	0.0	1.7	0.0	0.5	0.0	2.5	0.0	5.8	0.0	2.5	0.0
Sub total	-	-	58.4	9.0	51.4	0.8	66.2	1.2	106.4	6.7	112.9	0.0	128.4	0.0	219.6	0.0	264.3	0.0	242.9	0.0	354.0	0.0	396.2	0.0	502.1	0.0	560.1	0.0
Total	577.8	498.1	678.1	587.1	539.0	445.2	745.7	650.1	999.9	873.8	889.7	471.3	955.3	407.5	1091.1	246.1	1253.3	816.3	1629.9	1305.0	1527.6	630.2	1290.2	128.1	1480.3	131.5	1570.9	135.0

Source: DG Agriculture.

The countercyclical use of the refund instrument is confirmed particularly by Figure 2.5 which presents pigmeat export refund expenditure data, plotted against the evolution of production and the reference price for the period 1991 to 2003. Starting with relatively high refund expenditure in the 1993/1994 period when production peaked and prices bottomed out expenditure levelled off/declined until 1997/1998 when, in response to high prices induced by the classical swine fever outbreak in the Netherlands in 1997, production rose sharply leading to a fall in prices and greatly increased refund expenditure. Finally refund expenditure started to fall again as prices recovered from 1999 onwards. This analysis strongly indicates that the export refund instrument has been used effectively to counteract the market imbalances resulting from the pig cycle and has therefore been used as designed to stabilise the pigmeat market.

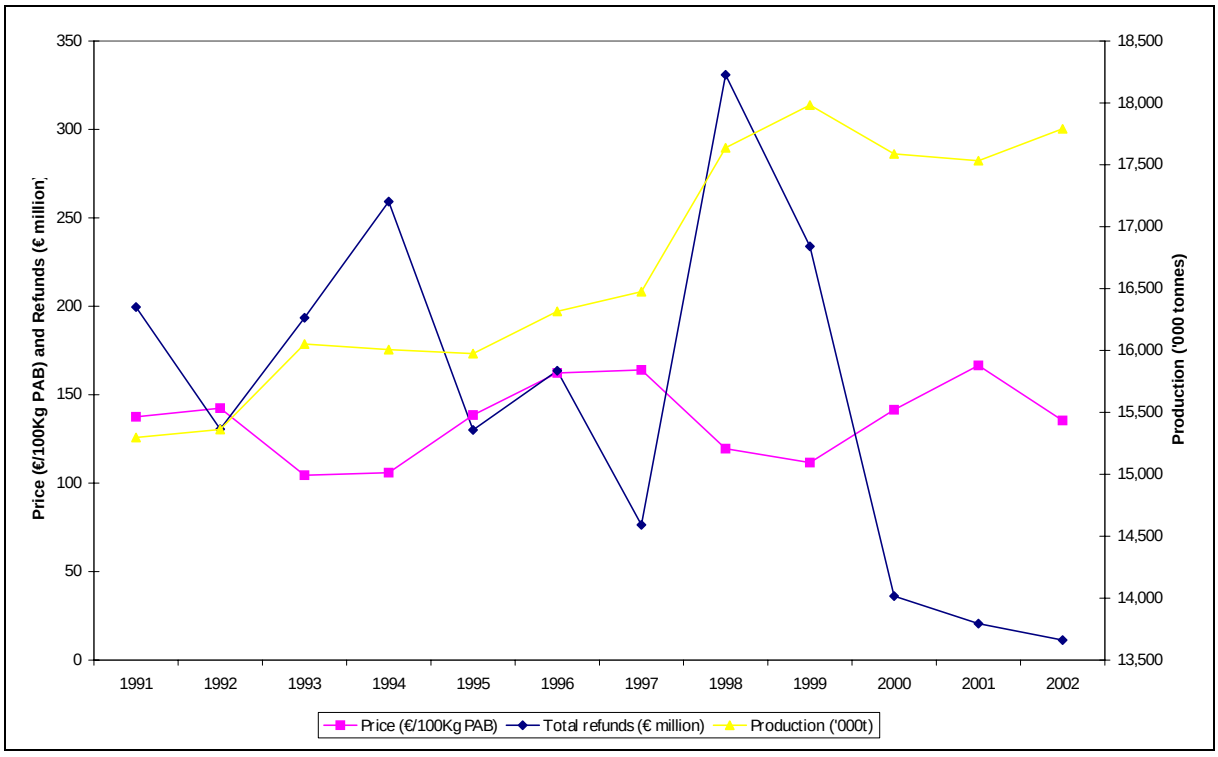

Figure 2.5: Countercyclical nature of export refund usage

Source: DG Agriculture and Eurostat.

Analysis of export refunds 1990-1995

Prior to the 1995 URAA there were no legally binding international constraints on the support policy pursued by the EU and therefore the EU was able to manage its trade policy with respect to pigmeat, poultrymeat and eggs as it saw fit. Border protection was provided by a system of sluicegate prices and variable levies fixed on a quarterly basis designed to protect EU producers from lower price third country competition and the sale of products on third country markets was supported by means of export refunds. As is evident from Table 2.5 the proportion of product exported from the EU with refund was generally much higher prior to the URAA implementation period. Thus during the period 1991-1994 the proportion of all pigmeat exports receiving a refund averaged 86% and in the first period of URAA implementation from 1995-1997 the proportion exported with refund fell to 39.4%. In the three years of crisis for the sector which followed (1998-2000) during which the carry-over provisions (see below) of the URAA still applied thus allowing higher refunded volumes, the proportion of product exported with refund again rose to 62.2% before falling to an average of 9.1% in the post URAA final year period between 2001 and 2003.

Analysis of export refunds 1995-2003

Under the GATT agreement of the URAA, the EU (and others) are constrained in the amount they can spend on export refunds in any one year, and in terms of the volume and value of exports that can benefit from subsidies. Under the URAA, the EU committed itself to reduce the annual volume of pigmeat exported with a refund by 3.5% per year, resulting in an overall reduction of export refunds over six years (1995-2000) of 18% for each product in terms of volume and 34% in budgetary terms (see Table 2.6). However, under the agreement, unused quota could be carried over from one year to the next.

As can be seen from Table 2.6 below, with the exception of 1998 and 1999 when the provisions of the carry-over were used, the utilisation rate compared to the WTO volume and value ceilings were relatively low, falling to 29% of the volume ceiling and 18% of the value ceiling in 2000. In aggregate by the end of the URAA implementation period in July 2000 the EU had used 61% of its export refund expenditure quota and 83% of its volume quota.

Looking at the historical analysis of trade and export refund data over the period as a whole it is clear that, perhaps surprisingly given that one of the purposes of the refund is to boost competitiveness on world markets, there has been an inverse relationship between the usage of the export refund instrument and the total volume of pigmeat exported. Thus in the 1992-1994 period an annual average total of

762,000 t of pigmeat (in carcass weight equivalent) was exported. During this period the proportion of total pigmeat exported with refund came to 86% (or an annual average of 656,000 tonnes). By contrast in the period 2000-2002 more than double the volume of pigmeat (an annual average of 1.45 million tonnes) was exported but the proportion obtaining a refund had fallen to 20.5%[66] (see Table 2.5). This strongly indicates that the competitiveness of the sector in third country markets has been maintained and improved without the use of refunds.

Table 2.6: Volume and value of pigmeat exports with refunds in relation to WTO URAA ceilings 1995 to 2000

Date (01 July)	1995	1996	1997	1998[2]	1999[3]	2000
WTO ceiling for exports with refunds (tonnes)[1]	541,800	522,100	502,500	482,800	463,200	443,500
Actual exports with refunds (tonnes)[1]	378,200	285,900	212,700	742,700	694,000	128,600
% Utilisation of WTO ceiling	69.8%	54.8%	42.3%	153.8%	149.8%	29.0%
WTO expenditure ceiling for exports with refunds (Mio ECU)	288,800	269,300	249,800	230,300	210,800	191,300
Actual expenditure on refunds (Mio ECU)	100,500	71,100	74,400	356,100	243,000	33,800
% Utilisation of WTO ceiling	34.8%	26.4%	29.8%	154.6%	115.3%	17.7%

Note[1]: In carcass equivalents.
Note[2]: Unused export refunds in previous years: €561.9 million; 689,600 tonnes.
Note[3]: Unused export refunds in previous years: €436.1 million; 429,700 tonnes.
Source: EU notifications to WTO.

While it would be interesting to analyse the impact of decreasing export refund levels (Table 2.6) on total export volumes (Table 2.5), in practice, any interpretation based on the raw data would have to be very cautious because many variables are changing over time. The identification of isolated 'effects' or 'impacts' requires econometric modelling.

To summarise, the above analysis indicates that the ceilings imposed on these items as part of the URAA did not appear to act as a significant constraint during the implementation period, although as has been noted above they did induce a significant change in the way export refund policy was managed so as to meet these requirements.

[66] This differs slightly from data presented with the CAPSIM model, due to the use of different data sources (see Appendix 4 section A4.1.1).

The above historical analysis of export refund management policy indicates that in the period under review the use of the export refund instrument has been changed to meet the new requirements of the URAA as well as changing circumstances induced by changes in other sectors notably the reduction in cereal prices within the EU. Whereas prior to the introduction of the URAA refunds were available more or less permanently across a large range of primary and processed pigmeat products particularly post the URAA, the export refund market management instrument has been used in a more focused fashion to countercyclically assist in re-balancing the EU pigmeat market at times of crisis (see Figure 2.5), notably in the period 1998 and 1999 when the EU market was plunged into crisis as a result of the production response following the outbreak of classical swine fever in 1997 combined with the collapse of the Russian market and the economic crisis in S.E. Asia. It appears to have been used in a similar countercyclical fashion in late 2004/early 2004.

More generally, as is evident from the analysis of the refunds by category of product and interviews held with the relevant Commission units, since the URAA the Commission has sought to optimise the use of refunds by targeting and maintaining these on those more highly processed products offering the highest value and thus maintaining stability for EU processors and more generally for the market as a whole. The new more focused application of refunds enabled the EU to remain well within the constraints imposed by the provisions of the URAA as well as meeting the objective of the CMO as set out in the intervention logic for this instrument which was to stabilise prices for producers.

2.2.2.2. Modelling results

In order to fully assess the impact of a particular policy instrument it is necessary to establish insofar as possible what would have occurred by way of impact if the instrument had not been used. In order to provide clear results on these counterfactuals, the assessment of the impacts of the instrument was therefore further addressed using the CAPSIM econometric model. The operation of this model is discussed in detail in Appendix 3. Full details of the modelling results can be found in Appendix 4 section A4.1.1.

Assumptions and limitations of the model for the analysis of export refunds

The CAPSIM model assessed the impact of export refunds on third country export volumes during three time periods (three year averages 1990/92, 1995/97, 2000/02) within the evaluation period by considering the impact of removing export refunds. Being a comparative static model, CAPSIM can only capture the medium term situation on the market for 'pigmeat'. Differentiated aspects relating to short run issues and particular market segments are dealt with by means of analysis of secondary literature and expert judgement. The key parameters driving export demand for subsidised and unsubsidised exports have been specified based on the literature, but the final choice will also reflect the plausibility assessments.

It is not possible to present concisely the key basic data in the simulation model (production and trade quantities, prices, tariffs, export subsidies) on which the simulations are based. This is because equilibrium models determine the endogenous variables (production and trade quantities, market prices, border prices) as solution values of a set of equations (behavioural functions, market balances and other constraints) which depend in turn on certain exogenous variables (macroeconomic variables, tariffs and other policy instruments). A change in an exogenous variable, say a tariff cut, will disturb the equilibrium such that a new solution of the set of equations results. Because the tariff inclusive border price would be below initial EU market prices, for example, the price linkage would be disturbed which triggers an increase in imports leading to an increase in border prices according to the Rest of the World import supply function. Whereas in reality these adjustments would occur in a sequence of disequilibria, the partial equilibrium model determines the required changes of endogenous variables in one step which gives the new simulation result for the tariff cut.

The general limits of the model are determined by its specification, i.e. by what it sets out to address from the start. First the CAPSIM model is specified at the level of individual EU Member States. It is a 'partial equilibrium' model, meaning that it does not cover the whole economy but focuses on agriculture. Within agriculture it distinguishes between beef, veal, pigmeat, sheep meat, poultrymeat, eggs, butter, cheese, skimmed milk powder, and other milk products, to mention the most important outputs from the animal sector. However, CAPSIM does not differentiate between the different cuts, qualities and preparation forms that real market participants are dealing with. Furthermore it is a 'comparative static' model which implies that the model seeks to indicate average and medium outcomes rather than picking up yearly particularities resulting from short run fluctuations on the adjustment path to a new equilibrium. CAPSIM does not therefore model the pig cycle. For this reason all simulations conducted for this evaluation are carried out not for single

years but for three-year averages. CAPSIM is a '*deterministic*' model, which means it ignores random factors and removes certain issues such as the merits of market or income stabilisation policies from the array of questions that can be addressed. The above model characteristics are clearly simplifications of reality which are nonetheless typical for applied modelling. Finally it should be noted that the model results rest on the parameters of the model which in themselves cannot be determined with certainty. Given these general limitations it is clear that these, and indeed all, modelling results have to be supplemented with expert judgement to answer evaluation questions.

Synthesis of CAPSIM modelling results

Table 2.7: Impact of export refund removal on the pigmeat sector

	Unit	1990-92			1995-97			2000-02		
		Base	Simulation	Change	Base	Simulation	Change	Base	Simulation	Change
Export volume	000 tonnes	596	410	-31%	1027	935	-9%	1627	1598	-2%
Price	€/tonne	€ 1,632	€ 1,614	-1.1%	€ 1,551	€ 1,541	-0.6%	€ 1,403	€ 1,400	-0.2%
Supply	000 tonnes	15,183	15,020	-1.1%	16,277	16,198	-0.5%	17,838	17,813	-0.1%
Demand	000 tonnes	14,642	14,662	0.1%	15,332	15,358	0.1%	16,417	16,421	0.0%
World Trade	%	25.7%	17.8%		36.6%	33.2%		31.7%	31.1%	
Self-sufficiency	%	103.7%	102.4%		106.2%	105.6%		108.7%	108.5%	
EEA net contribution	€ million	13,653	13,255	-2.9%	13,186	12,975	-1.6%	12,682	12,610	-0.6%
EEA net contribution ***- 15% cereal price cut***	€ million	13,653	13,589	-0.5%	13,186	13,153	-0.2%	12,682	12,772	0.7%
Welfare		**Total difference**			**Total difference**			**Total difference**		
Income (GVAB)	€ million	-293.9			-174.4			-62.5		
EAGGF expenditure	€ million	137.2			72.8			31.3		
Consumer welfare	€ million	284.6			163.6			57.4		

Source: CAPSIM

2.2.2.3. Interview results

Assumptions and limitations of the interviews

Interviews were conducted with industry stakeholders and experts in each Member State. The interviews were semi-structured, involving a series of open-ended questions based on the topic areas. The open-ended nature of the questions defined the topic under investigation but provided opportunities for both interviewer and interviewee to discuss some topics in more detail. Because of the personal nature of interviewing, the scope for introducing error and bias is quite large and can affect all the subsequent stages of the interviewing process, such as recording and interpreting the answers.

The most significant limiting factor of the interviews as a tool for evaluating the CMO was found to be a significant lack of knowledge and understanding of the role and activities of the CMO including among public sector staff with responsibility for the sector. This was often interpreted by the respondents as indicating a lack relevance to the Member States concerned, but also resulted in a failure to provide relevant national data relating to the sector and the evaluation questions.

What impacts do export refunds have on export volumes?

It is generally accepted by the industry that export refunds have been a key driver in the maintenance of EU exports on the world market, mainly by helping to offset the higher cost of production within the EU arising from higher cereal prices. While reforms to the cereal regime over the evaluation period have resulted in lower feed costs to the sector (as quantified above by the declining impact of export refunds and an increasing deadweight effect[67]), export refunds are currently viewed as helping to compensate for the increasing costs associated with higher environmental, sanitary and welfare standards in the EU.

[67] See Footnote 2 and Box A1 in Appendix 4.

What impacts do export refunds have on Community price levels?

Export refunds are seen as having a generally positive impact on EU pigmeat prices, although there was some agreement among those interviewed that in more recent years any positive impact on price had been more limited. In particular, export refunds are seen by many as an important market management tool in periods of production surplus to limit any resulting fall in price. However, in general, export refunds are viewed as playing only a minor role in the formation of the market price with other general market factors relating to the evolution of supply and demand considered more significant.

What impacts do export refunds have on supply and demand volumes on the internal market?

The interviews suggested that export refunds are an important supply control mechanism, particularly in periods of production surplus because they assist in managing supply. Without such a measure, there was concern that excess production would have a further (i.e. greater than currently taking place) price depressing effect on the market, thereby accelerating the downward slope of the pig production cycle. In this respect, it is considered that export refunds act counter-cyclically, although it was also noted that it is, in practice, difficult to isolate the impact of export refunds from other factors, at least qualitatively. In general, the interviews suggest that export refunds play only a minor role in supply and demand formation, with other general market factors being considerably more significant.

What impacts do export refunds have on the competitive position of Community pigmeat production on the internal market and in third countries?

The industry experts interviewed corroborated the view that export refunds did artificially inflate the competitive position of the EU pigmeat sector on the world market and consequently, the removal of export refunds would be expected to expected to weaken the EU competitive position by reducing total exports. It is considered likely by many in the industry that there would be some displacement effects in the absence of export refunds, with exported processed products losing competitiveness in third country markets and potentially becoming more competitive in intra-EU markets, possibly displacing processed production in less competitive Member States. Stakeholders in Denmark noted that the key to the competitiveness of their exports in particular was the attention given to whole production chain in terms of working together to achieve maximum cost efficiency, food safety, innovation, product quality, reliability and marketing.

2.2.2.4. Synthesis of results from the tools used and conclusions

The main conclusions to be drawn from the analysis steps above (historical data analysis of market management policy, modelling and interviews with stakeholders) in relation to the EQs are as follows:

Impact of export refunds on export volumes

The **analysis of historical data** has shown how in practice, in part influenced by the URAA but also by lower cereals prices, market management policy has become more 'prudent' and focused over the evaluation period. While the URAA constraints appear not to have been particularly onerous since 1995 refund expenditure has generally become focused on more highly processed added value products although a leading aim of market management policy has been to be able to address the market instability resulting from the pig cycle. As a consequence in 1998-2000 refunds on carcasses and cuts were temporarily re-introduced in order to help stabilise the market at a time of crisis. Thus the instrument has continued to be used to address the aims of the CMO, which are to operate countercyclically to stabilise the market.

On the other hand, the analysis of the historical data has also shown that when comparing the 1992-1994 period with the 2000-2002 period total exports have more than doubled while the use of the export refund instrument has sharply declined. This result indicates strongly that export refunds have played an increasingly marginal role in the evolution of total exports.

This result is supplemented by the **results of the modelling** which have shown that although export refunds have had an impact on the pigmeat sector in terms of export volumes, domestic supply and demand, prices and competitive position looked at in aggregate these impacts are relatively small.

Looking at these results in more detail:

As would be expected a priori export refunds lead to higher volumes of total annual exports than would otherwise take place. In the 1990-92 period export volumes are estimated to have been 45% above what they would otherwise have been, in 1995-97 (a period of relatively low refund expenditure) the estimate is 10% and in 2000-02 (again a period when refund expenditure was relatively low) the estimate of impact is 2% (see Table 2.7 and corresponding paragraph in Appendix 4 section A4.1.1). Clearly the impact will vary according to the years chosen and the fall in impact over time reflects the general decline in the per unit subsidy provided. It should be noted that for each period reviewed the deadweight effect [68] is relatively high (rising from 48% in 1990-1992 to 88% in 2000-2002) (see corresponding paragraph in Appendix 4 section A4.1.1). This again reflects the fact that exports would have to a degree been sustained even in the absence of the support provided.

The **stakeholder interviews** generally support this picture although it was noted that the refunds do have a role in compensating for the higher costs incurred in the EU due to the need to adhere to higher environmental, sanitary and welfare standards.

In conclusion export refunds played a significant role in increasing export volumes in the pre-URAA period but their role generally has sharply declined in this respect since the start of the URAA implementation period in 1995 (although their use increased temporarily in the 1997-1999 period as a result of the crisis in the pigmeat sector).

Impact of export refunds on supply and demand volumes on the internal market and price

The **historical analysis** of this instrument (together with that of the private storage instrument) has demonstrated that as is their purpose the export refunds have been successfully used to help stabilise the market at periods of crisis to help prevent excessive downward fluctuations in the pigmeat price. This is strongly suggested by the fact that correlation of the historical data on market prices and refund expenditure found that there was a moderate inverse relationship between the

[68] See Footnote 2 and Box A1 in Appendix 4.

reference price and total refunds (correlation coefficient of –0.66). This function of the instrument is confirmed by the **stakeholder interviews**.

This having been said the **modelling analysis** looked at the aggregate effect of the instrument on sectoral output and demand over three separate time periods. As would be expected *a priori* given the weight of the instrument in terms of the overall market, export refunds have a positive, albeit small, impact on domestic production (supply) of 1.1% in 1990-92, 0.5% in 1995-97 and 0.1% in 2000-02; a negligible impact on domestic demand (0.1% or less); and result in a slight increase in domestic market price of 1.1%, 0.6% and 0.2% respectively in the three periods addressed (see Table 2.7 and corresponding paragraph in Appendix 4 section A4.1.1).

In conclusion it can be said that the impact of export refunds on aggregate domestic supply, demand and price has been marginal but over the period under consideration the measure has been used countercyclically to reduce the downward movement of pigmeat prices in periods of crisis in the sector.

Impact of export refunds on the competitive position of Community pigmeat production on the internal market and in third countries. If impacts can be identified, are they significant, in particular in relation to other determining external factors? If impacts are significant, what is their dimension and are they achieved at a reasonable budgetary cost?

As has been indicated above, with respect to the answer to the first evaluation sub-question on the impact of export refunds on the volumes exported, the **historical data analysis** has shown that total export volumes have doubled when comparing the 1992-1994 average with the 2000-2002 average while at the same time the proportion of exports receiving a refund has fallen sharply. This indicates that the competitiveness of the sector has improved even though the use of the export refund instrument has fallen. This picture is confirmed by **stakeholder interviews** which indicate that other factors, notably the decline in feed costs resulting from the reforms to the CAP cereals CMO, have been far more significant drivers of both internal and external supply and demand.

The **modelling results** provide further details to support this analysis, showing that looked at in aggregate export refunds have played only marginal role in supply and demand formation. An indicator of the competitiveness of EU pigmeat production on the internal market is the self-sufficiency ratio. The modelling results indicate that export refunds are estimated to have increased the competitiveness of EU pigmeat production on the internal market by 1.3% in the 1990-1992 period, 0.6% in the 1995-1997 period and 0.2% in the 2000-2002 period (see Table 2.7 and corresponding

paragraph in Appendix 4 section A4.1.1). This is mainly due to the stimulating effect that export refunds have been shown to have on domestic production and the decreasing significance of export refunds over the period as the volume and value of exports with refund has decreased. It also indicates that other market factors play a far greater role than export refunds in determining the competitiveness of pigmeat production on the internal market.

Both **stakeholder interviews** and the **modelling results** indicate that as would be expected a priori export refunds also inflate the competitive position of the EU on third country markets. Export refunds are estimated to have strengthened the competitive position of the EU pigmeat sector on the world market in terms of total exports, by 45% in the 1990-92 period; 10% in the 1995-97 period; and 2% in the 2000-02 period (see Table 2.7 and corresponding paragraph in Appendix 4 section A4.1.1). This clearly shows that in general and in aggregate, the role of export refunds in securing the competitiveness of EU pigmeat production has declined and is now likely to be less significant than a range of other external factors. For example, the findings of the industry interviews suggest that the key drivers of the export markets include price and demand in destination countries in terms of preferences for different parts of the carcass.

As would be expected *a priori,* given that the volume of subsidy expenditure was relatively higher compared to the later periods, removing export refunds (and correcting for feed costs) would have had the largest impact in the 1990-92 period and would have reduced the sector's contribution to the economic accounts for agriculture by an average 2.2% per year. The declining importance of the measure over time results in a reduced impact averaging 1.1% annually in the 1995-97 period and an impact of only 0.4% per year in the 2000-02 period (see Table 2.7 and corresponding paragraph in Appendix 4 section A4.1.1).

The overall effect on producer welfare[69] was estimated by means of the CAPSIM model which indicates that in aggregate the measure added some €294 million to producer welfare in the 1990-1992 period with EAGGF budgetary expenditure incurred of €137 million (see Table 2.7 and corresponding paragraph in Appendix 4 section A4.1.1). This in turn generated consumer and downstream sector welfare costs (in terms of higher prices) of some €284.6 million. While clearly the assumptions underlying these estimates may be discussed this suggests that in this period the net welfare benefit to producers of some €9 million have been generated at a relatively high budgetary cost. A similar relationship holds for the later periods modelled although the orders of magnitude are considerably lower due to the lower impact

[69] as measured by gross value added at basic prices

and budgetary expenditure for the measure and it should be noted that a change in the assumptions could relatively easily lead to different absolute outcomes.

Box 2.2: Key conclusions on export refunds

This analysis confirms that while the export refund instrument (in combination with the private storage instrument) have generated greater market stability and producer welfare gains in terms of marginally increased competitiveness these benefits have been achieved at a relatively high economic cost. The existence of a deadweight effect[70] attached to the achievement of the result in terms of export volumes, particularly towards the end of the evaluation period suggests this result might have been achieved partially without the measure having been used although the greater targeting of refunds on added value products in the post URAA period should have reduced this effect. In addition, the modelling has indicated that the welfare benefit to producers has been achieved at a relatively high cost to consumers and taxpayers, suggesting that the instrument is of doubtful economic efficiency. In this context it should be added that the estimation of the overall welfare impacts excludes any quantification of potential environmental and administrative costs arising from the application of this instrument. These would potentially reduce the overall welfare benefits indicated further. These results raise the question of whether alternative private means of risk management (e.g. futures markets) might be more effective and efficient.

This leaves open the question of whether the budgetary expenditure incurred can be considered 'reasonable'. The evaluators take the view that they cannot make a final judgement on this issue as it involves issues of equity between different segments of the population. This having been said the evaluation results have highlighted the direction and likely extent of transfers being made and thus the nature of the choice involved.

[70] See Footnote 2 and Box A1 in Appendix 4.

2.2.3. Question 3: Import tariffs

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.2.

2.2.3.1. Description and analysis of the historic functioning of the instrument

Description of the import tariff instrument

For pigmeat, poultrymeat and eggs, the main instrument of import protection currently used is the import tariff which aims to protect the EU market from lower price imports. The import duty (partially) covers the gap between the lower world market price and the EU price for imported products.

Traders must be in possession of a valid import license before imports can be effected. Under most circumstances, the import license is a formality. However, where traders wish to take advantage of the reduced tariffs that apply to shipments within the import tariff rate quotas (TRQs) in place for certain products, they must be in possession of a TRQ import license. The method by which this import license is issued is very important. It might be issued i) on a first-come, first-served basis; ii) to traders who have imported in the past; iii) be made freely available to all who wish to request an import license, but with all applications scaled back the match the quantities available. Traders must lodge a surety when taking out an import license, which will be released when the import is effected. Failure to use the license will result in forfeiture of the surety.

Description of import tariff rules prior to 1995

Before the Uruguay Round Agreement on Agriculture entered into force in 1995, for pigmeat the EU applied a complex system of border protection. Each quarter a sluice-gate price for carcasses was set which acted as a minimum import price. This was composed of three main elements: a variable amount to represent the world market value of cereals required to produce one tonne of pigmeat abroad; a fixed element to represent the cost of other protein feed used in producing the same kilogram; and a further element to represent overhead, production and marketing costs. To this sluicegate price was added a levy which represented the difference in cost between producing a kilogram of pigmeat in the EU and in third countries. The levy consisted of two components: one element represented the difference between the price inside and outside the EU of the cereals used to produce a kilogram of pigmeat and another element designed to protect the domestic processing industry. If the price at the EU border fell below the sluice-gate price a supplementary levy became chargeable. For products other than carcasses sluice-gate prices and levies were derived from those for carcasses by the application of co-efficients (e.g. for a belly a co-efficient of 0.7-0.8 and for a ham a co-efficient of 1.5-1.6).

Description and analysis of import tariffs post 1995

As a result of decisions taken in the Uruguay Round, import barriers were turned into fixed import tariffs ("tariffication"). These tariffs were subject to reduction commitments over the implementation period. For fresh, chilled and frozen pigmeat, the tariffs had to be cut by 36% between July 1995 and July 2001. The tariffs on fresh, chilled and frozen carcasses and half-carcasses had to be reduced from €838/tonne to €536/tonne, and those on fresh, chilled and frozen hams and cuts thereof had to be reduced from €1,215/tonne to €778/tonne (see Table 2.8).

For these products, a Special Safeguard Clause was also introduced, allowing the imposition of an additional tariff when certain criteria are met. The criteria involve either a specified rapid surge in imports (volume trigger) or, on a shipment-by-shipment basis, a fall in the import price below a specified reference price (price trigger). In the case of the volume trigger, the higher duties apply only until the end of the year in question. For the price trigger, additional duties can be imposed only on the shipment concerned. The additional duties may be charged only on products to which tariffied rates apply and only if a reservation to invoke such safeguards is indicated against the product in the country's schedule of concessions.

Table 2.8: EU URAA commitments on import tariffs for pigmeat

Tariff item number	Description of products	Base rate of duty	Bound rate of duty	Special Safeguard (SSG)
0203	Meat of swine, fresh, chilled or frozen:			
	-Fresh or chilled:			
020311	--Carcass and half-carcass			
02031110	---Of domestic swine	€838/tonne	€536/tonne	SSG
02031190	---Other	3%	Free	
020312	--Hams, shoulders and cuts thereof, with bone in:			
	---Of domestic swine:			
02031211	----Hams and cuts thereof	€1,215/tonne	€778/tonne	SSG
02031219	----Shoulders and cuts thereof	€939/tonne	€601/tonne	SSG
02031290	---Other	3%	Free	
020319	--Other:			
	---Of domestic swine:			
02031911	----Fore-ends and cuts thereof	€939/tonne	€601/tonne	SSG
02031913	----Loins and cuts thereof, with bone in	€1,358/tonne	€869/tonne	SSG
02031915	----Bellies (streaky) and cuts thereof	€729/tonne	€467/tonne	SSG
02031957	----Other	€1,358/tonne	€869/tonne	SSG
02031990	---Other	3%	Free	
	-Frozen:			
020321	--Carcasses and half-carcasses:			
02032110	---Of domestic swine	€838/tonne	€536/tonne	SSG
02032190	---Other	3%	Free	
020322	--Hams, shoulders and cuts thereof, with bone in:			
	---Of domestic swine:			
02032211	----Hams and cuts thereof	€1,215/tonne	€778/tonne	SSG
02032219	----Shoulders and cuts thereof	€939/tonne	€601/tonne	SSG
02032290	---Other	3%	Free	
020329	--Other:			
	---Of domestic swine:			
02032911	----Fore-ends and cuts thereof	€939/tonne	€601/tonne	SSG
02031913	----Loins and cuts thereof, with bone in	€1,358/tonne	€869/tonne	SSG
02031915	----Bellies (streaky) and cuts thereof	€729/tonne	€467/tonne	SSG
02031957	----Other	€1,358/tonne	€869/tonne	SSG
02031990	---Other	3%	Free	

Source: European Communities Schedules for the Uruguay Round of Multilateral Trade Negotiations, GATT, 1994.

As part of the URAA, minimum access quotas were established for the import of pigmeat into the EU. The new minimum access quota were initially set at zero, as imports in the base period 1986-88 amounted to more than 3% of domestic consumption (with the exception of cuts, for which a minimum access TRQ of 7,000 tonnes cwe was offered in 1995/96). The EU committed itself to increase the minimum access quotas that are subject to reduced tariff rates to the following levels by July 2001:

Table 2.9: EU minimum access quotas under the URAA

Volume (tonnes)	Product	Tariff
15,000	fresh, chilled or frozen carcasses and half-carcasses of domestic swine	€268/tonne
5,500	fresh, chilled or frozen cuts of domestic swine, with or without bone, excluding tenderloin presented alone	various tariffs (depending on the tariff item number)
7,000	fresh or chilled loins and cuts thereof, bone-in, and frozen bellies, streaky and cuts thereof	zero tariff
34,000	fresh, chilled or frozen boneless loins and hams	€250/tonne
5,000	fresh, chilled or frozen tenderloins	€300/tonne
3,000	sausages	€747/tonne (dry or for spreading, uncooked) / €502/tonne (other sausages)
6,100	preserved meat of domestic swine	various tariffs (depending on the tariff item number)

Source: European Communities Schedules for the Uruguay Round of Multilateral Trade Negotiations, GATT, 1994.

Since the entry into force of the GATT agreement in July 1995, pigmeat imports into the EU have never exceeded 100,000 tonnes of carcass weight equivalents (see Figure 2.6 and Appendix 2 Table A.5). They have always represented less than 0.06% of total EU production of approximately 18 million tonnes of carcass weight equivalents. Between mid 1995 and mid 2001, most pigmeat was imported from Hungary, which in the context of the EU-CEEC trade agreements benefited from a reduced import tariff (80% of the normal tariff) until June 2000 and then until accession to the EU from duty-free access under the "double zero agreements" which entered into force in July 2000.

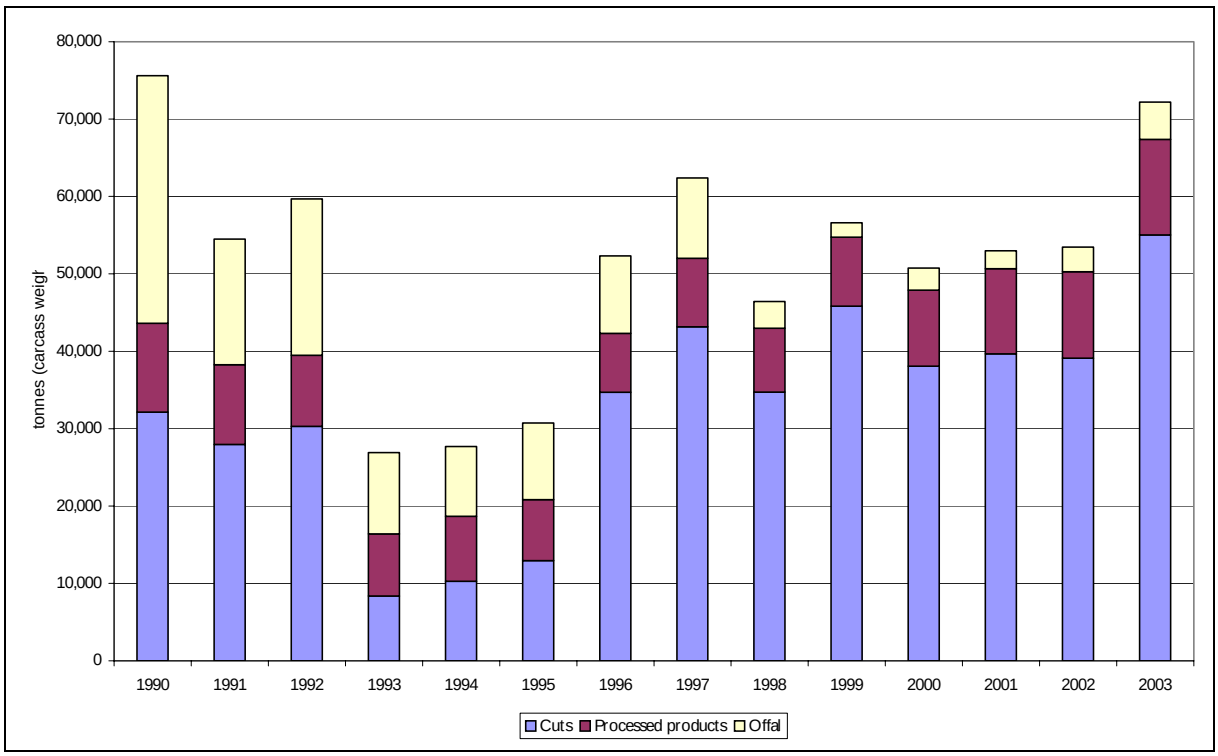

Figure 2.6: Imports of pigmeat, 1990-2003 (tonnes carcass weight)

Source: Eurostat - COMEXT

However, pigmeat imports into the EU from third countries have particularly been limited for sanitary reasons. The quotas offered to CEECs have only been used to a limited extent because few Central and Eastern European slaughterhouses and cutting plants complied with the sanitary standards required for importing into the EU. Tariff-reduced or duty-free import quotas (TRQs) which the EU offers to other WTO members are also not fully used for various reasons (sanitary recognition, mismatch between supply and demand etc.).

Beyond this, the relatively high level of import tariffs for pigmeat effectively limited the inflow of product from third countries. The average import tariffs over the 1995-2000 period amounted to €0.66/kg (€0.56/kg in 2000) for pig carcasses, and to €1.07/kg (€0.91/kg in 2000) for fresh or frozen loins. These tariffs have to be compared to the market value of these products inside the EU. Between 1995 and 2000, the average annual price of a carcass, including slaughter costs, varied between €1.20/kg and €1.70/kg. Therefore, the average tariff in the same time period represented between 39% and 55% of the market value of the carcass. The average annual price of a loin on the Rungis central market fluctuated between €2.36/kg and

€2.96/kg, meaning that the average tariff represented between 36% and 45% of the (tender)loin market value (Tregaro and Lossouarn (2002)[71]).

Costs of transporting pigmeat to the EU from the US and Canada, the main potential suppliers of pigmeat to the EU, can be estimated at €0.15/kg. Based on these estimates, between 1995 and 2000, the price of a carcass of equal quality in North America would have had to be below €0.90/kg in periods of high prices in Europe (1996-1997) and €0.41/kg in periods of crisis (1998-1999), in order to make exports to the EU viable. However, during these two periods, average US pig carcass prices amounted to €1.40/kg and €0.96/kg respectively. The wholesale price for loins in the US at €2.03/kg to €2.13/kg was relatively stable in the 1996 to 1999 period. This was definitely too high to envisage exports to the EU. Therefore, even if the average pigmeat prices in the US had been below EU levels and the cuts had been priced differently, the respective EU import tariffs have, until now, effectively acted as a deterrent/prevented imports.

The above analysis of historical data suggests that the Community policy with respect to imports has succeeded in maintaining Community preference by largely ensuring that imports outside TRQs have not entered the EU market. The degree to which this result is a direct consequence of the pre-1995 system of sluicegate prices and variable levies and the subsequent fixed tariffs as opposed to sanitary measures is not fully clear although the evidence available suggests that imports from major suppliers could generally not have taken place profitably at the prevailing tariff rates.

2.2.3.2. Modelling results

One means of assessing the impact of a particular policy instrument is to establish what would have occurred by way of impact if the instrument had not been used. In order to provide such an assessment the impacts of the instrument were therefore further addressed using the CAPSIM econometric model. In order to assess the impact of removing import tariffs it is necessary to also remove export refunds. Removing import protection without also removing export refunds would mean that domestic producers would face consistently cheaper imported products on the EU market, but would be able to achieve higher prices through exporting with subsidy. This might lead to a situation where a large proportion of domestic demand would be met through imports whilst a large proportion of domestic production would be exported to third countries with subsidy. Alternatively, it might also give rise to an increase in imports for re-export onto the world market, to take advantage of the EU

[71] Tregaro, Yves, Lossouarn, Jean. L'evolution du secteur porcin europeen: Enjeux techniques, Politiques de Marche et de Societe. Notes et etudes economiques, no 17, 2002.

export refunds. The operation of this model is discussed in detail in Appendix 3. Full details of the modelling results can be found in Appendix 4 section A.4.1.2.

Assumptions and limitations of the model for the analysis of import tariffs

The impact analysis on import tariffs undertaken and presented here has been based on a counterfactual simulation using the CAPSIM model of an abolition of import tariffs during the time periods 1990/92, 1995/97, and 2000/02. The reader should note that CAPSIM does not model the short run dynamics along the pig cycle which means that the simulations are only intended to identify the average impacts of tariff protection in the three periods. As would be expected the results are in particular sensitive to the detailed specification of the import regime of the EU and the import supply function from the Rest of the World[72].

Because CAPSIM only considers 'pigmeat' in aggregate, a first key parameter regarding the import regime is the average tariff assumed. This specification is more difficult than would be expected at first sight: an average tariff is not available within the relevant statistical databases such as TARIC but would in theory have to be calculated based on many single CN codes with an appropriate weighting. Because this calculation would require very significant resources and any weighting scheme would in any case be subject to question[73], it has been decided to characterise the evolution of tariff protection with the tariff on the lead product underlying the EU 'reference prices' (see Table 2.1), namely carcasses and half carcasses of domestic swine, fresh chilled or frozen (CN codes 0203111000 or 0203121000). The evolution of these tariffs has been presented in Section 2.2.3.1 above.

Another issue of relevance for the analysis of tariff protection levels is how to take into account tariff preferences in place (**see** Section 2.2.3.1). Again the ideal approach for modelling would be to have as detailed an analysis as possible, since this would capture the various preferences granted to different regions, in different years and for different cuts and processed forms of pigmeat. However the regional heterogeneity makes it almost impossible to compile a disaggregated database of these tariff preferences and to re-aggregate them in a defensible manner. For the quantitative analysis therefore a simplification based on the WTO notifications by the EU as reproduced in Table 2.10 below was considered appropriate.

[72] A full sensitivity analysis with an alternative set of parameters could not be carried out in the framework of this study. However the experience from the set-up phase of the chosen specification as well as simple intuition suggests that the trade effects and therefore the terms of trade effects depend in their magnitude on the chosen elasticities. This specification uncertainty has been expressed in the comments on the welfare effects in qualitative terms.

[73] Thus, for example, simple import weights are often criticised because they imply a zero weight for prohibitive tariffs.

Eurostat calculates these import data from an aggregation of balances delivered by Member States after netting out EU intra trade. By contrast, the imports given in DG Agriculture market balances result from an aggregation of selected CN codes from external trade statistics (COMEXT) and certain conversion coefficients for carcass weights. Ideally both approaches should lead to the same numbers but in practice they do not. As CAPSIM relies on Eurostat market balances for all products it was considered inconsistent to switch to another source (DG Agriculture) for the import data of a particular product. Nonetheless it is acknowledged that the import data from the Eurostat market balances appear surprisingly high compared to the COMEXT derived import data from DG Agriculture. In view of this weakness, the TRQs have been incorporated according to the share of preferential imports in total imports *according to DG Agriculture data*.

Table 2.10: Import data used by CAPSIM (tonnes)

	1995/96	1996/97	1995/97	2000/01	2001/02	2000/02
Total imports (CAPSIM data)[1]			82,050			206,560
Total imports (DG Agriculture[2])			40,966			50,824
Tariff free imports (WTO oilseeds panel)			7,000			7,000
WTO notified TRQ for reduced tariffs	6,500	15,920	11,210	68,600	68,600	68,600
WTO notified in quota imports	3,171	6,447	4,809	4,781	4,794	4,788
In quota + tariff free / CAPSIM total			14%			6%

Note [1]: The CAPSIM data rely on Eurostat market balances for pork which give EU15 extra imports of 193.699 t, 195.210 t, and 272.188 t for years 2000-2002 (bivianda, item 20, product b4120). These import data result from an aggregation of balances delivered by Member States after netting out EU intra trade.

Note [2]: By contrast, the imports given in DG Agriculture market balances result from an aggregation of selected CN codes from external trade statistics (COMEXT) and certain conversion coefficients for carcass weights.

Source: CAPSIM, WTO - oilseeds panel, DG Agriculture (based on COMEXT data).

For pigmeat, the TRQs consolidated in the URAA appear to give only a partial picture. A total of 54,000 tonnes of pigmeat were imported during the URAA application period between July 1995 and June 2001, of which 44,6000 tonnes came in with reduced duties from the Central European countries benefiting from TRQs and a further 600 tonnes were imported at full duty. A further 8,800 tonnes were imported with full duty paid from third countries (Tregaro and Lossouarn, 2002).

For the quantitative analysis only the WTO notifications have been used (due to the fact that this provides a common source), but this appears to underrate the significance of such imports. However, at the same time an applied within quota

tariff of zero has been used to simplify the TRQ representation. This implies that the preferential imports would not benefit at all from hypothetical tariff abolition on the part of the EU and therefore they can be separated from the price responsive part of imports for the purposes of the analysis.

Price responsiveness of non-preferential imports was estimated using a Rest of the World import supply elasticity. Because our lead product tariffs (see above) appeared to be rather high compared to the poultry and egg sectors, relatively low values have been used for the aggregate import supply elasticity (2.5-3.0) to avoid generating an implausible surge in simulated imports. Of course other model parameters such as the Rest of the World export demand elasticity and supply and demand elasticities in EU Member States also have a bearing on the simulation results related to tariff protection.

It is clear that the simulation results below all rest on the above assumptions regarding data issues, specification choices and parameter selection. Due to these limitations our simulations provide sound indicators with which to address the evaluation questions, but they have to be judged in the context of the descriptive analysis and expert opinions.

Synthesis of CAPSIM modelling results

Table 2.11: Impact of export refund and import tariff removal on the pigmeat sector

	Unit	1990-92			1995-97			2000-02		
		Base	Simulation	Change	Base	Simulation	Change	Base	Simulation	Change
Import volume	000 tonnes	55	322	485%	82	365	345%	207	525	154%
Net trade volume	000 tonnes	541	100	-82%	945	602	-36%	1,421	1,123	-21%
Price	€/tonne	€ 1,632	€ 1,590	-2.6%	€ 1,551	€ 1,515	-2.3%	€ 1,403	€ 1,371	-2.3%
Supply	000 tonnes	15,184	14,790	-2.6%	16,277	15,976	-1.8%	17,838	17,580	-1.4%
Demand	000 tonnes	14,643	14,690	0.3%	15,332	15,374	0.3%	16,417	16,457	0.2%
Export share	%	25.7%	19.5%		36.6%	31.6%		31.7%	31.7%	
Import share	%	2.8%	15.3%		2.1%	9.6%		1.8%	8.1%	
Net trade share	%	22.9%	4.2%		34.5%	22.0%		29.9%	23.7%	
Self-sufficiency	%	103.7%	100.7%		106.2%	103.9%		108.7%	106.8%	
EEA net contribution	€ million	13,653	12,706	-6.9%	13,186	12,394	-6.0%	12,682	11,943	-5.85%
Border price/export	€/tonne	1,339	1,590	19.0%	1,470	1,515	3.0%	1,383	1,371	-0.9%
Border price/import	€/tonne	883	1,590	80.0%	841	1,515	80.0%	882	1,371	55.0%
Welfare		**Total difference**			**Total difference**			**Total difference**		
Income (GVAB)	€ million	-702.2			-656.1			-644.6		
EAGGF expenditure	€ million	84.3			44.9			13.0		
Tariffs	€ million	-28.5			-16.1			-27.9		
Consumer welfare	€ million	684.5			619.8			595.3		

Source: CAPSIM

2.2.3.3. Interview results

Assumptions and limitations of the interviews

Interviews were conducted with industry stakeholders and experts in each Member State. The interviews were semi-structured, involving a series of open-ended questions based on the topic areas. The open-ended nature of the questions defined the topic under investigation but provided opportunities for both interviewer and interviewee to discuss some topics in more detail. Because of the personal nature of interviewing, the scope for introducing error and bias is quite large and can affect all the subsequent stages of the interviewing process, such as recording and interpreting the answers.

The most significant limiting factor of the interviews as a tool for evaluating the CMO was found to be a lack of knowledge and understanding of the role and activities of the CMO. This was often interpreted by the respondents as indicating a lack relevance to the Member States concerned, but also resulted in a failure to provide relevant national data relating to the sector and the evaluation questions.

What impacts do import duties and the volumes of tariff rate quotas have on import volumes?

Most of the interviewees took the view that the import protection function of the CMO was vital, particularly given the volumes of pigmeat already imported into the EU with the full duty rates paid. However, it was generally felt that the import tariffs were no longer effective, given that they have been steadily reduced over time.

What impacts do import duties and the volumes of tariff rate quotas have on Community price levels?

There is a general understanding that import tariffs contribute to maintaining Community prices above world market prices, thereby providing an incentive for internal production and maintaining competitiveness but limited awareness of the extent to which Community price levels might be affected.

What impacts do import duties and the volumes of tariff rate quotas have on supply and demand volumes on the internal market?

It is generally considered that import tariffs foster higher volumes of domestic production (supply) than would otherwise be the case because import tariffs help to maintain Community prices above the world market level. However, the expectation among the interviewees is that any impact on demand is likely to be small because demand for pigmeat is considered to be fairly inelastic, hence lower prices would not necessarily result in significant increases in consumption.

What impacts do import duties and the volumes of tariff rate quotas have on competitive position of Community pigmeat production?

The removal of import protection is generally considered likely to have a negative impact on the competitive position of EU pig production and would be likely to result in some internal displacement of production and intra-Community trade. This would be particularly likely in those Member States that have higher pig production costs, where it was felt that pig production could potentially cease altogether, barring some niche production.

2.2.3.4. Question 3: Import tariffs - synthesis of results from the tools used and conclusions

What impacts do import duties and the volumes of tariff rate quotas have on import volumes?

As would be expected a priori since the purpose of import levies/tariffs is to lower the level of imports taking place, the **historical data analysis** indicates that in spite of the reduction in tariffs implemented under the URAA, pigmeat imports over the period under review have been indeed been largely limited to the amounts provided under the TRQs consistently accounting for under 100,000 tonnes carcass weight equivalent in the period under review in a market which produces approximately 18 million tonnes carcass weight equivalent in a given year. The data analysis has confirmed that the tariff barriers have represented a genuine obstacle to exporters given the relative price differentials and transport costs on third country and EU markets. The **stakeholder interviews** and **literature review** have, however suggested that this result is at least in part due to sanitary measures rather than the tariff barriers themselves.

In this respect the **modelling results** highlight the degree to which the instruments themselves can be considered to have contributed to reducing imports. These results indicate that in the 1990-92 period, the presence of import tariffs resulted in an annual decrease in imports of 83%. Import tariffs resulted in decreases in the volume of imports of 78% and 61% per year in the 1995-97 and 2000-02 periods respectively

(see Table 2.11 and corresponding paragraph in Appendix 4 section A.4.1.2). This result of the modelling analysis is confirmed by the **stakeholder interviews** that generally took the view that the import protection function of the CMO was 'vital' although it was noted that the reduction in tariff levels over time had already to a degree reduced their effectiveness.

In absolute terms the modelling results suggest that impacts on imports are estimated to be quite moderate and this is considered to reflect the difficulties foreign competitors have in meeting EU sanitary requirements. More generally, the contribution of both export refunds and import tariffs has been to ensure that the EU share of world imports has been lower than it otherwise would have been. This result occurs because the impact of the import protection has outweighed the impact of the export refunds and therefore in the absence of the CMO measures estimated EU shares of world imports would have risen by some 12.5% in the 1990-92 period, 7.5% in the 1995-1997 period and 6.3% in the 2000-2002 period leading to lower volumes of total annual imports than would otherwise have taken place (see Table 2.11 and corresponding paragraph in Appendix 4 section A.4.1.2).

In all three periods, the absence of import tariffs would likely have meant that the EU would have remained a net exporter of pigmeat, although the absolute level of net exports would have fallen. The fall in net exports would have likely been highest in the earliest period (1990-92) at a level of almost 450,000 tonnes or 82% of initial net exports. In later periods the impact of a hypothetical abolition would have been smaller (300,000 tonnes in the 2000-02 period) because typical tariffs have declined, preferential imports have increased and base year net exports are higher. The absolute impacts on net trade are usually greater than on imports alone, because typically exports also decrease, in line with the abolition of export refunds.

In conclusion import tariffs have contributed to a significant reduction of imports into the EU although the absolute scale of this reduction is obscured by the contemporaneous existence of sanitary protection measures. Thus imports have been more or less in line with the volumes provided under the TRQs. The significance of the protective effect of import tariffs was highlighted by the stakeholder interviews which indicated that the protection provided remained 'vital' although it has been reduced over time.

What impacts do import duties and the volumes of tariff rate quotas have on Community price levels?

The **modelling results** indicate that as would be expected a priori, in all three reference periods the price is somewhat higher (2.6% in 1990-92 and 1995-97 and

2.3% in 2000-02) with import tariffs and TRQs in place as the market has a measure of protection from generally cheaper imports (see Table 2.11 and corresponding paragraph in Appendix 4 section A.4.1.2). This is confirmed by the **stakeholder interviews** although quantified impacts were not generally made.

The modelling results further indicate that the simultaneous abolition of export refunds also reduces export possibilities thus supplementing the pressure on domestic prices from additional import supply with a decline in export demand. The impact of import tariffs (and export refunds) on price decreases over time as the specific tariff on lead products also falls. A comparison with the price impacts of export refund removal alone (-1.1%, -0.6%, -0.2%) (see Table 2.7 and corresponding paragraph in Appendix 4 section A.4.1.1) shows that the removal of tariff protection has a greater impact on domestic market prices than the removal of export refunds alone would. Nonetheless in both cases the simulated impacts are relatively limited.

What impacts do import duties and the volumes of tariff rate quotas have on supply and demand volumes on the internal market?

The **historical data analysis** indicates that the TRQs are relatively small in relation to the overall size of the market and thus do not have a substantial impact on supply and demand volumes on the internal market. The **modelling results** indicate that the pressure on domestic market price of a potential removal of import protection and TRQs is estimated to have resulted in a reduction in annual domestic production in all three of the reference periods examined (of 2.6%, 1.8% and 1.4% respectively) (see Table 2.11 and corresponding paragraph in Appendix 4 section A.4.1.2). Apart from the declining scale of the impact over time, it is to be noted that the impacts are fairly small in general due to the marginal impact on price, but also because the contribution of imports in terms of meeting demand is very low in pigmeat markets (0.4% in 1990/92, 0.5% in 1995/97, 1.3% in 2000/02) (see Table 2.11 and corresponding paragraph in Appendix 4 section A.4.1.2).

The results from **stakeholder interviews** also suggested that the impact of import tariffs on demand were likely to be relatively low because due to fairly inelastic demand lower prices resulting from an abolition of such tariffs would not in their view greatly increase demand.

In conclusion the impact of import duties (and the relatively low volumes of TRQs in relation to the overall market size) in terms of supply and demand volumes on the internal market is considered to be relatively modest.

What impacts do import duties and the volumes of tariff rate quotas have on the competitive position of Community pigmeat production?

The impact of import duties and TRQs on the competitive position of Community pigmeat production was primarily addressed via the CAPSIM model. The **results from the modelling** of the counterfactual (i.e. removal of import protection and export refunds) indicate that as would be expected a priori these instruments have the effect of significantly improving the competitive position of the EU on third country markets. The modelling here indicates that the Community's net share of world trade would have declined from 22.4% to 4.2% in the 1990-1992 period, from 34.5% to 22% in the 1995-1997 period and from 29.9% to 23.7% in the final 2000-2002 period modelled (see Table 2.11 and corresponding paragraph in Appendix 4 section A.4.1.2). This suggests that the combined impact of these instruments was particularly significant before the URAA and less so since. The **interviews with stakeholders** provided the additional comment that removal of import protection would almost certainly result in some displacement of internal production and internal trade with those producers in countries with higher production costs being most likely to cease production altogether or to only produce for niche markets.

Another indicator here is derived through the modelling of the counterfactual in respect of the self-sufficiency ratio which shows that the combination of export refunds and import tariffs is estimated to have increased the competitiveness of EU pigmeat production on the internal market by 3.0% in the 1990-1992 period, 2.3% in the 1995-1997 period and 1.9% in the 2000-2002 period (see Table 2.11 and corresponding paragraph in Appendix 4 section A.4.1.2). These relatively low numbers are an indication of the fact that other factors, notably sanitary barriers have also played a significant role in maintaining internal competitiveness.

In conclusion the results show that import tariffs and relatively limited TRQs (combined with the effect of export refunds) have the effect of significantly improving the position of the EU on third country markets in the sense that these instruments boosted the EU net share of world trade particularly in the pre- URAA period.

If impacts can be identified, are they significant, in particular in relation to other determining external factors?

As would be expected a priori, the **modelling results** obtained suggest that in all three reference periods, the removal of import tariffs (and export refunds) would reduce the sector's contribution to the economic accounts for agriculture (by 5.2%, 4.1% and 3.7% respectively) (see Table 2.11 and corresponding paragraph in Appendix 4 section A.4.1.2). Correcting for feed costs reduces the absolute income

losses estimated for the pigmeat sector because reduced production also entails feed cost savings.

The modelling results indicate that income in the pigmeat sector is more strongly influenced by import protection than by export support via refunds. Import protection also appears to be more significant than the indirect effects (via feed costs) of moderate changes in administrative cereal prices. **Stakeholder interviewees** in Denmark noted that the key to the competitiveness of their exports in particular was the attention given to whole production chain in terms of working together to achieve maximum cost efficiency, food safety, innovation, product quality, reliability and marketing.

In conclusion it can be said that the impact of import tariffs (and export refunds) is relatively modest with stakeholders pointing out that sectoral performance, particularly with respect to exports was primarily driven by the production chain successfully working together to maximise cost efficiency and other product and market related factors.

If impacts are significant, what is their dimension? Could any efficiency losses be determined?

The impact of the import tariffs in aggregate has been assessed through the **modelling** of the impact of the counterfactual i.e. removal of export refunds and import tariffs on producer gross value added at basic prices, EU expenditure on export refunds, revenues from variable levies and duties and the impact on consumer welfare via price. Taken together these estimates produce aggregate measures of the distribution of impact and allow a commentary on efficiency. Looking at these results indicates that in the first 1990-1992 period overall producer gains come to €702 million. To this must be added estimated revenue of some €28.5 million from import levies. These two elements are, however, offset by EAGGF expenditure of €84 million and consumer welfare losses (through higher prices) of some €685 million (see Table 2.11 and corresponding paragraph in Appendix 4 section A.4.1.2). Thus the net result suggests that while the expenditure incurred to achieve a relatively significant amount of producer income was relatively low the cost of the transfers made from taxpayers and consumers was in excess of the gains to producers suggesting the measure was lacking in efficiency. This overall picture is repeated for the simulation for the 1995-1997 period but for the 2000-2002 period an overall welfare gain from keeping the measures in place is estimated. This apparently counterintuitive result is, however, explained by the fact that the result is affected by the fact that the values for border prices (i.e. prices for imports) are relatively high and applied to a relatively high volume of imports thus pushing the

result in this direction. As with all such estimates it must always be borne in mind that the absolute estimates must be treated with caution since they reflect a broad range of statistical inputs and assumptions. Nevertheless it should be noted that the lack of targeting of this measure makes it relatively inefficient in that it can lead to factor and product market distortions and this position might be improved by relatively better targeting of the measure.

Box 2.3: Main conclusions on import tariffs

The conclusion from the above analysis of the impact of import tariffs and TRQs is that the instrument has been effective in that by reducing the level of third country imports and thus raising production and prices to levels above what they otherwise would have been, it has contributed to the CMO objective of contributing to a fair standard of living for producers. It should be noted, however, that, partially because the impact of this instrument cannot be effectively disaggregated from the effect of sanitary protection, this impact in aggregate appears relatively low. It was noted that this overall welfare benefit to producers was achieved at a relatively high cost (if one adds in expenditure on export refunds less revenue from import levies/tariffs) to consumers and taxpayers.

It was also noted that while the contribution of import tariffs and export refunds has been to significantly increase the EU share of world trade this role has become considerably less significant over time and is now perhaps less important for the export sector than a clear focus on other factors such on research and development to improve cost efficiency, product quality, supply reliability, innovation and marketing.

2.2.4. Question 4: Aid for private storage

This evaluation question looks at the impact of private storage aid measures on fluctuations in the volume of pigmeat supply as well as on the level and development of pigmeat prices. This evaluation question was addressed using an analysis of historical data on private storage, econometric analysis and interviews with stakeholders. For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.3.

2.2.4.1. Description and analysis of the historic functioning of the instrument

As for export refunds, private storage aid is used by the European Commission as an instrument to manage the market in periods of oversupply. Private storage aid aims to temporarily take away product from the market in order to ease pressure on prices. Traders are paid by the EU to hold stocks off the market for a specified storage period. In contrast to public intervention, the EU (or the Member State) does not take on ownership of the stock.

Private storage aid for pigmeat is implemented when the Community market price falls to below 103% of the basic price and looks likely to remain so (European Parliament, 2003[74]). Detailed rules for its implementation are set out in Commission Regulation 3444/90. The relationship between Community market price and pigmeat production between 1991 and 2003 is shown in Figure 2.7 below. From this graph, it is possible to visualise the periods when Private Storage Aid for pigmeat was implemented in the EU.

[74] European Parliament Fact Sheets, Common Organisations of the Market (COMs): sectoral applications, 2003.

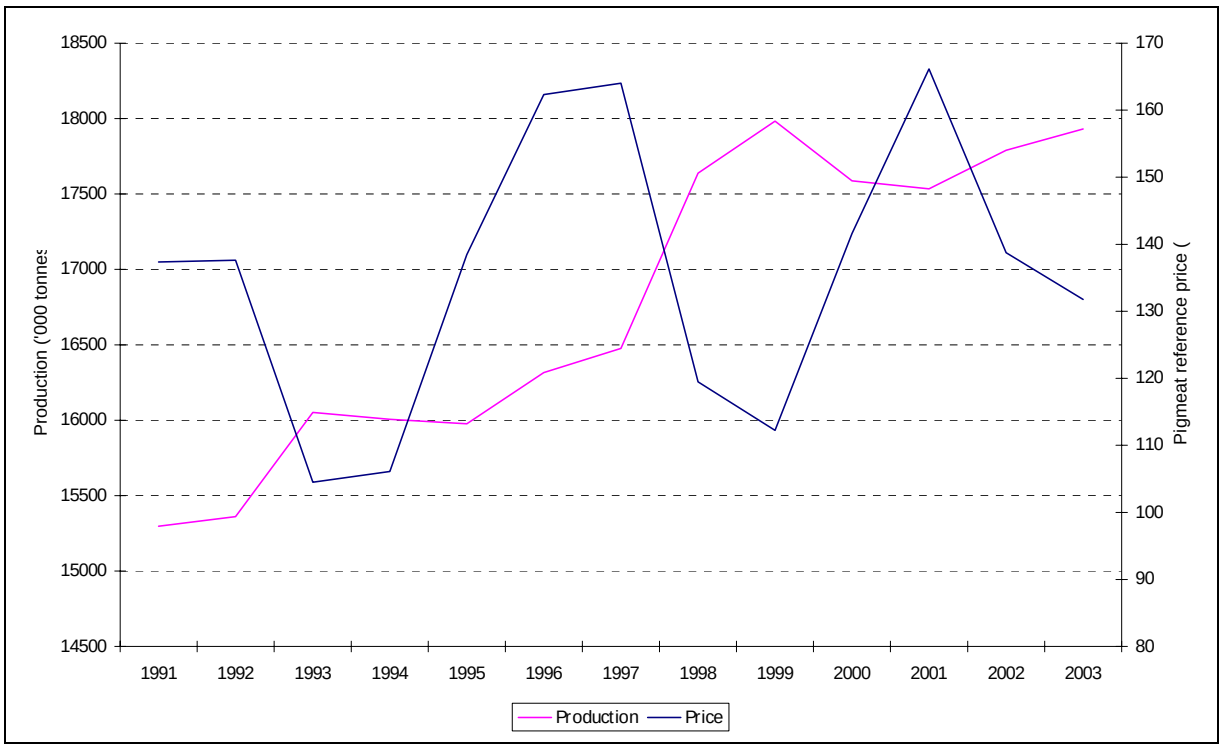

Figure 2.7: Relationship between price and production in the EU-15 pigmeat sector

Source: DG Agriculture.

Over the evaluation period, the private storage aid measure has been applied quite frequently (see Table 2.12). The period during which pigmeat can enter into private storage (pre-private storage) is always less than 6 months maximum and typically available for 3, 4 or 5 month periods, whereas the period of operation for private storage can be much longer, as illustrated in the table. The three most recent private storage periods are examined in more detail below.

Table 2.12: Private storage periods, 1986-2004

Pre-private storage periods	Private storage periods
	January 1986 – March 1989
July 1990 – December 1990	January 1991 – December 1991
April 1992 – September 1992	October 1992 – July 1993
August 1993 – September 1993	October 1993 – March 1994
August 1994 – January 1995	February 1995 – July 1995
April 1998 – September 1998	October 1998 – April 2000
June 2002 – November 2002	December 2002 – August 2003
September 2003 – December 2003	December 2003 – July 2004

Source: LEI.

Following the suspension of trade relations with Russia as a direct consequence of the rouble crisis, during which time Community pigmeat production reached record

levels and prices fell sharply, private storage aid was implemented in 1998 under Regulation 2042/98. The period of operation lasted for approximately one year (26 September 1998 to 17 September 1999), during which storage aid was granted for approximately 426,000 tonnes of pigmeat (see Table 2.13) (2.4% of the total EU production) and total cost of approximately €167 million.

Table 2.13: Private storage under Regulation 2042/98 (tonnes)

Product / Member State		Entry	Exit	Stock
0203 11 10	Carcasses	67,786	66,793	993
0203 12 11	Jambons	38,066	36,397	1,669
0203 12 19	Epaules	28,029	27,824	206
0203 19 11	Parties avant	24,780	24,096	684
0203 19 13	Longes	15,560	15,403	156
0203 19 15	Poitrines	17,217	17,266	-48
0203 19 55/1	Poitrines.s/c.	59,681	59,710	-30
0203 19 55/2	Vds. Desosees	167,540	167,393	147
0203 19 55/3	Mlx. Desosses	3,993	3,465	528
0203 19 59	Mlx. N/desosses	3,581	3,566	15
Total		**426,233**	**421,913**	**4,320**
Belgique		17,130	17,130	0
Danmark		156,145	156,145	0
Deutschland		63,713	63,713	0
Ellas		130	0	130
Espana		23,341	23,341	0
France		53,967	53,967	0
Ireland		1,794	0	1,794
Italia		34,369	31,974	2,395
Luxembourg		0	0	0
Nederland		65,887	65,887	0
Österreich		4,424	4,424	0
Portugal		0	0	0
Finland		911	911	0
Sverige		1,398	1,398	0
United Kingdom		3,024	3,024	0
EU-15		**426,233**	**421,913**	**4,320**

Source: DG Agriculture.

The private storage aid measure was again implemented in 2002 under Regulation 2179/02 after the outbreak of swine fever in Belgium, France, Germany and Luxembourg. The period of operation lasted for just under 3 months (9 December 2002 to 19 February 2003), during which storage aid was granted for approximately 111,000 tonnes of pigmeat (see Table 2.14) (0.6% of the total EU production) and total cost of approximately €41 million.

Table 2.14: Private storage under Regulation 2179/02 (tonnes)

Product / Member State		Entry	Exit	Stock
0203 11 10	Carcasses	161	161	0
0203 12 11	Jambons	14,795	14,795	0
0203 12 19	Epaules	4,428	4,428	0
0203 19 11	Parties avant	1,838	1,838	0
0203 19 13	Longes	5,341	5,393	-52
0203 19 15	Poitrines	3,189	3,189	0
0203 19 55/1	Poitrines.s/c.	17,912	17,865	47
0203 19 55/2	Vds. Desosees	60,654	60,648	5
0203 19 55/3	Mlx. Desosses	2,862	2,862	0
0203 19 59	Mlx. N/desosses	189	189	0
Total		**111,368**	**111,368**	**0**
Belgique		5,183	5,183	0
Danmark		48,979	48,979	0
Deutschland		9,025	9,025	0
Ellas		0	0	0
Espana		8,981	8,981	0
France		13,050	13,050	0
Ireland		543	543	0
Italia		9,190	9,190	0
Luxembourg		0	0	0
Nederland		12,332	12,332	0
Österreich		1,366	1,366	0
Portugal		0	0	0
Finland		1,347	1,347	0
Sverige		417	417	0
United Kingdom		956	956	0
EU-15		**111,368**	**111,368**	**0**

Source: DG Agriculture

The private storage aid measure was implemented again in 2002 under Regulation 2246/03, in response to low market prices for pigmeat caused by the strong Euro and slow consumer demand. The period of operation lasted for just under 2 months (22 December 2003 to 5 February 2004), during which storage aid was granted for approximately 94,000 tonnes of pigmeat (see Table 2.15) (0.5% of the total EU production) and total cost of approximately €39 million.

Table 2.15: Private storage under Regulation 2246/03 (tonnes)

Product / Member State		Entry	Exit	Stock
0203 11 10	Carcasses	347	293	55
0203 12 11	Jambons	12,752	7,997	4,755
0203 12 19	Epaules	3,028	3,302	-274
0203 19 11	Parties avant	4,516	3,754	762
0203 19 13	Longes	2,561	3,585	-1024
0203 19 15	Poitrines	2,980	1,899	1,081
0203 19 55/1	Poitrines.s/c.	10,813	10,748	65
0203 19 55/2	Vds. Desosees	50,162	49,365	797
0203 19 55/3	Mlx. Desosses	6,832	4,765	2,067
0203 19 59	Mlx. N/desosses	51	0	51
Total		**94,042**	**85,709**	**8,333**
Belgique		3,489	3,489	0
Danmark		39,328	39,328	0
Deutschland		11,168	11,168	0
Ellas		0	0	0
Espana		10,955	10,955	0
France		7,998	7,998	0
Ireland		414	414	0
Italia		8,053	0	8,053
Luxembourg		0	0	0
Nederland		8,983	8,983	0
Österreich		1,885	1,885	0
Portugal		0	0	0
Finland		1,550	1,271	280
Sverige		49	49	0
United Kingdom		169	169	0
EU-15		**94,042**	**85,709**	**8,333**

Source: DG Agriculture.

The analysis of the historic functioning of the private storage instrument indicates that private storage has been used countercyclically at a time when prices for pigmeat producers were particularly low. The intention therefore has been to seek to stabilise the market during these periods.

2.2.4.2. Statistical analysis

An econometric model was used to answer the question of the impacts of private storage aid on the volume of supply in the short and medium term.

Assumptions and limitations

The statistical analysis used the longest time series possible that was available on a consistent basis i.e. EU-15 data from 1995-2004. The use of a longer time series would have been desirable as it would have increased the data points and hence the

reliability of the results but such series were not available on a sufficiently uniform basis. For pigmeat production, the amounts in private storage and prices only monthly data was available with the result that it was not possible to observe weekly changes in the net amounts on the market this reducing the detail available for analysis. It should also be observed that average monthly prices may conceal considerable in-month variations and thus there may be a reduction in the statistically measurable effects of private storage on price.

Finally it should be noted that even if there is a demonstrable and statistically significant[75] change in price levels following the introduction of private storage this in itself does not imply causality although it is strongly suggestive of it. Any result in this respect also do not allow comments to be made regarding the efficiency of the measure in terms of whether the timing of application was correct or whether there was deadweight in that market prices would have recovered even without the application of the instrument.

What impacts do the aid measures for private storage have on fluctuations in the volume of supply in the short and medium term?

The fluctuation in the volume of supply can be measured by the variance in the time series of the net amount of pigmeat on the market. The net supply on the market is calculated as the slaughter amount minus export plus import minus amount into private storage plus amount released from private storage. First, we analyse the data for the EU-15. Monthly data of net supply on the market and amounts into and released from private storage in the EU-15 from January 1994 till February 2004 provided by the EU, and monthly data from Eurostat on the amount of live pigs, pigmeat and pigmeat products imported in and exported from the EU-15 from January 1995 till February 2004. For the calculations we use the time series from January 1995 until February 2004 because this is the maximum available continuous time series for the EU-15. Figure 2.8 shows the time series of the net supply of pigmeat on the market and the amount in private storage in 4 periods with aid for private storage.

[75] The hypotheses were tested forstatistical significance at the 95% confidence level. This would mean that there would be a 95% certainty that the results are statistically significant.

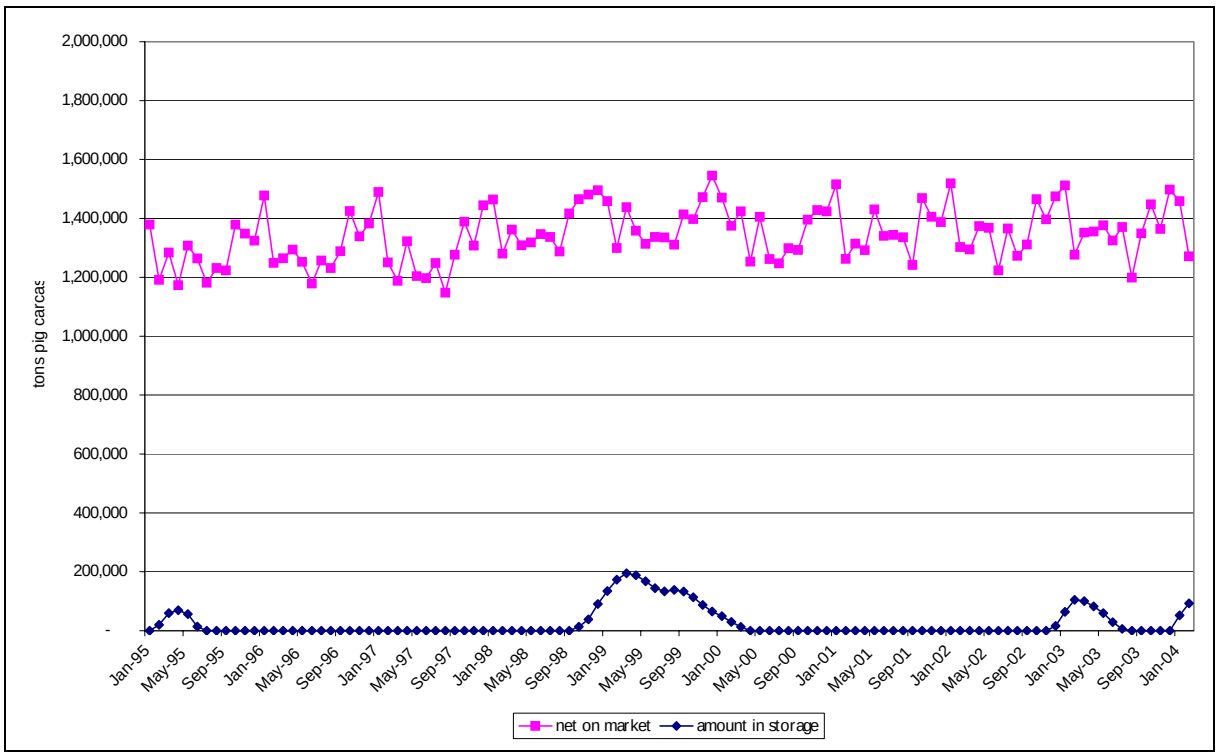

Figure 2.8: Net amount on market and amount in private storage

Source: LEI.

t-test and Levene's test

Figure 2.8 does not indicate that the average supply on the market and the fluctuation in supply are significantly lower in an intervention period. Therefore, we test the null-hypothesis of equal means and variances of net supply on the market in intervention ('1 if something in stock'=1) and non-intervention periods ('1 if something in stock'=0) using an independent sample t-test and a Levene's test. We define a period with private storage intervention as the period when pigmeat is stored into storage, released from storage, or both. Thus, we include the period of release from storage in the intervention period. The results are shown in Appendix 5 Box A.9. Levene's test for equality of variances shows no significant difference (F value = 0.093 and significance level = 0.761) between the variance in intervention periods and non-intervention periods. Assuming equal variances, the t-test shows no significant difference in means between these two groups.

No significant influence of the aid for private storage on the fluctuations in the volume of supply in the EU-15 has been determined, using the 99% confidence level. However, at the 95% confidence level, a significant influence of private storage on the volume of supply was found.

What impacts do the aid measures for private storage have on the level and development of pigmeat prices?

Figure 2.9 gives the monthly average EU-price of pig-carcasses and net entry into private storage (the amount of meat stored minus the amount released to market from private storage) from 1986 until February 2004. This shows that prices usually drop before the intervention and this fall is arrested during a period with private storage.

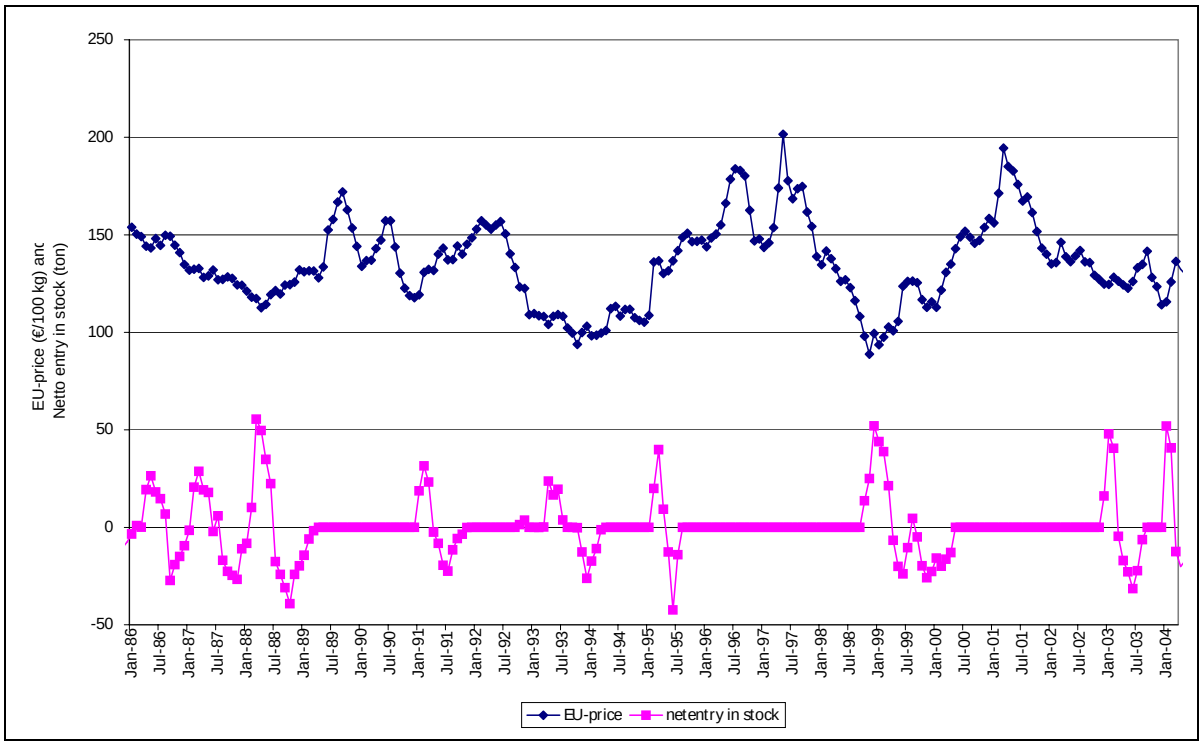

Figure 2.9: Average EU-price of pig-carcasses and the net amount of meat stored or released from private storage

Source: LEI.

A variety of methods were used to determine the effect of private storage on the pig carcass price. First, it was assumed that the net amount on the market influences the level of the average EU pig carcass price. We therefore divided the net amount on the market by the net amount produced (this is the amount produced by farmers plus imports minus exports of live animals, meat and meat products as given in Eurostat) and the net entry into private storage (the amount stored minus the amount released). Both the net amount produced and the net entry into private storage should theoretically have a statistically significant influence on the average EU pig carcass price. Therefore as explained below we estimated the trend of the

average EU pig carcass price including the net entry into private storage as explanatory variables using a time series from January 1995 till February 2004.

Linear regression

First we estimated the price of pigmeat by using the following linear regression model:

$EU\text{-}Price_t$ = constant + a * net_prod_t + b * $netentry\ in\ stock_t$ + $epsilon_t$,

Where:

$EU\text{-}Price_t$ = Average EU-price of pig-carcasses in €/100 kg on t,
Constant = Constant,
Net_prod_t = Net production volume in the EU in tonnes on t (slaughter + imports -/- exports),
$Net\ entry\ into\ stock_t$ = Net amount in private storage in tonnes on t (amount into storage -/- amount released from storage onto market),
$epsilon_t$ = Error term on t.

If the coefficient of an explanatory variable is significantly different from zero, this variable is considered to have a significant impact on the dependent variable, i.e. the EU-price. This means that the net amount into private storage significantly determines the EU-price when the coefficient b is significantly non-zero. Appendix 5 Box A.10 shows a significant impact of the net amount produced and the constant and that the coefficient of the variable 'net entry into stock', the amount stored minus the amount released, is not significantly different from zero. The adjusted R square of this model is 0.198, which indicates the model does not represent the data very well (an adjusted R square close to 1 means that the model closely represents the original data).

The low R square value suggests that there are more (unobserved) variables that determine the price. Assuming that these are inherently included in the price, we use the prior values of the price (or lags of price) as substitutes for these unobserved variables. Therefore we add the prior three values of the price to the model. This results in the following regression:

$EU\text{-}Price_t$ = constant + a * net_prod_t + b * $netentry\ into\ stock_t$ + c * $EU\text{-}Price_{t-1}$ + d * $EU\text{-}Price_{t-2}$ + e * $EU\text{-}Price_{t-3}$ + $epsilon_t$,

Where
$EU\text{-}Price_t$ = Average EU-price of pig-carcasses in €/100 kg on t,

Constant = Constant,
Net_prod_t = Net production volume in the EU in tonnes on t (slaughter + imports -/- exports),
$Net\ entry\ into\ stock_t$ = Net amount in private storage in tons on t (amount into storage -/- amount released from storage onto market),
$epsilon_t$ = Error term on t.

Appendix 5 Box A.11 shows the results from this estimation with the use of the price history. The adjusted R square of this model is 0.897, indicating that the model predicts about 90% of the variance. In this model the constant and the coefficients of the variables 'net production', 'lag1pric'[76] and 'lag2pric' are significant at the 1% level. The coefficients of the variables 'netentry into stock' and 'Llag3pric' are not significantly different from zero.

Auto Regressive Integrated Moving Average

When not all explanatory variables are known the Auto Regressive Integrated Moving Average (ARIMA) method can be used to determine the trend. ARIMA uses the prior values of price as explanatory variables. An AR-model or Auto Regressive model is a linear regression of the current value of a time series against one or more prior values. An I-model or Integrated model is a model using a transformation of the original data because the original time series is not stationary (i.e. mean, variance and autocorrelation structure change in time). An MA-model or Moving Average model is a linear regression of the current value of the series against one or more prior residual errors of the series. The residuals follow a white noise process meaning that the residual errors are uncorrelated and the variance is independent of time.

The type of model at hand can be determined using the autocorrelation plot (ACF) and partial autocorrelation plot (PACF) of the average EU pig carcass price as shown in Figure 2.10. Because the ACF shows a rapid decay in autocorrelation, the series is stationary. The rapid decay further indicates that there is no moving average. The sinusoidal shape of the ACF indicates an autoregressive time series of an order greater than 1. The PACF shows that the AR-order of the time series is 2. In short the model is an ARIMA (2,0,0)-model.

[76] 'Lag1pric' is the price of the prior period, 'Lag2pric' is the price of two periods before, etc.

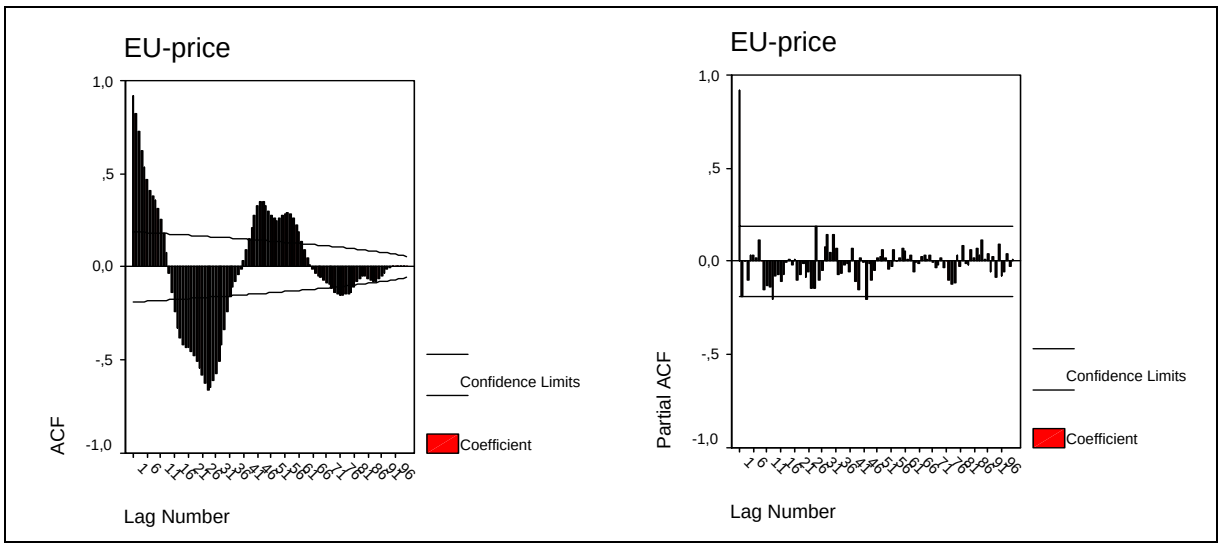

Figure 2.10: ACF and PACF

Source: LEI.

Because we assume the net production volume and the net entry amount into private storage influence the average EU-pig carcass price we add these explanatory variables to the ARIMA (2,0,0)-model. Appendix 5 Box A.12 provides the results.

From these results, it follows that both the Akaike Information Criterion (AIC) and the Schwartz Bayesian Criterion (SBC) are high. This means that the suggested ARIMA (2,0,0) model does not fit the price level data very well. Furthermore, the coefficient of the variable 'netentry' is not significantly different from zero in this model, indicating that the net entry into storage does not significantly help to predict the price. Correcting the time series of the pig carcass price for an annual seasonal trend yields the same results.

Summarising, both linear regression and ARIMA-models to estimate the average EU pig carcass price level do not produce a significant coefficient for the variable net entry into private storage (amount entering less amount leaving private storage).

Comparing private storage periods and non-private storage periods

Because no direct influence on the price level could be determined by the above methods, we compare periods with and without private storage. Assuming that taking out part of the production decreases the periodic fluctuation in the average EU pig carcass price, the variance in periods with private storage should be less than the variance in periods without private storage.

We therefore test the null-hypotheses that the mean and variance of the price level in the periods with and without private storage are equal. Levene's test for equality of variances shows that this hypothesis can be rejected at the 1% confidence level (P-value = 0.003, Appendix 5 Box A.13). The standard deviation of the periods with intervention (15.2) is significantly smaller than the standard deviation of the periods without intervention (21.5). Furthermore, the mean price level in the periods with intervention (€125.40/100 kg) is significantly lower than in the periods without intervention (€144.90/100 kg). This is to be expected, because intervention only takes place when the price levels drops too far.

Appendix 5 Box A.13 shows that the decline in price level before a period with private storage is higher than during the period when private storage is applied. Thus, it seems that private storage helps to arrest or even stop a drop in the price level. The decline in price level can be measured by the price difference in sequential periods. A drop in price level in period t to t+1 means a negative mean price difference. Slowing down the drop means that the price difference in period t+1 to t+2 is mathematically higher (or less negative) than the price difference in the prior period t to t+1. We therefore sought to determine whether the mean of the periodic price level differences in private storage periods is significantly higher than the one in pre-private storage periods. We define the length of the pre-private storage period as the 6 months period before the start of a period with private storage-intervention. Table 2.12 gives the pre-private storage and private storage data used in the calculations. The mean periodical price level difference in month t is calculated as the absolute difference between the price level in month t and in month t-1. We calculated the periodic price level difference for pre-private storage periods and for private storage periods. We tested the null-hypothesis that the mean periodic price level difference in private storage periods is equal to the one in pre-private storage periods. First, the differences on all available data were calculated and then the data were selected.

Results in Appendix 5 Box A.14 show that Levene's test for equality of variances cannot be rejected. Assuming equality of variances, the mean of the periodical price differences in periods with private storage is significantly higher (€ 0.93/100 kg) than in the pre-private storage periods (– € 3.52/100 kg). This means that during a period with private storage the EU pig carcass price increases by € 0.93 per month on average, while the six months prior to the intervention prices dropped by € 3.52 per month on average. This result strongly suggests that the private storage instrument has been used successfully to countercyclically dampen the price decline resulting from an excess stock of pigmeat on the market although it should be noted that the test undertaken does not allow a firm attribution of causality.

2.2.4.3. Secondary data and interview results

If impacts can be identified, are they significant, in particular in relation to other determining external factors? If impacts are significant, what is their dimension and are they achieved at reasonable budgetary cost?

Table 2.16 gives an indication of the budgetary costs for the aids for private storage since 1991. The costs vary over this period from €227 to €525 per tonne of pigmeat stored. For the total amount of carcasses produced in the months when pigmeat enters into storage, aid costs ranged from €0.65 to €0.93 per 100kg. (This is equivalent to between 0.51% and 0.96% of the EU price for pig carcasses in the periods concerned.) Where aid costs are less than the difference between the EU price when aid has been granted and the EU price when aid has not been granted, this would suggest that the aid for private storage has been achieved at 'reasonable budgetary cost'. An important consideration in this respect is the issue of efficiency, i.e. whether prices might have recovered similarly even in the absence of the measure, whether the measure might have had a greater impact if it had been applied earlier in the cycle, or whether another instrument might have been more efficient. The modelling results described above do not allow an answer to this question since there is no proof of causality, i.e. it cannot be established with certainty that the aid induced the change in price, although it is strongly indicative of this. Interviews with the industry also did not identify a consensus view on these points and thus a final judgement on this point is not possible.

Table 2.16: Budgetary cost of private storage of pigmeat

	Budgetary cost (€ million)	Costs assigned to period	Amount in storage (tonnes)	Costs (€/tonnes stored meat)	Amount produced (tonnes)	Aid costs (€/100 kg produced)	Average price (€/100 kg produced)	Aid as % of price (%)
1991	17.0	1/1991 to 4/1991	74,791	227.30			128.49	
1992 1993 1994	11.2 2.4 21.9	10/1992 to 7/1993	73,751	481.35			111.06	
1995 1996 1997	17.9 18.1 0.2	2/1995 to 4/1995	69,161	523.42	3,881,894	0.93	134.27	0.69%
1998 1999 2000 2001 2002	0.0 45.9 91.8 4.9 2.7	10/1998 to 11/1999	426,233	340.89	21,181,300	0.69	108.40	0.63%
2003	39.8	12/2002 to 3/2003	111,353	357.42	6,148,432	0.65	125.94	0.51%

Source: LEI.

2.2.4.4. Synthesis of results from the tools used and conclusions

Drawing on the results of the above analyses of historical data and the efforts to model the impact of private storage on price as well as the interviews with stakeholders the following conclusions can be drawn in relation to the specific evaluation sub-questions:

The analysis of the **historic data** on the functioning of the private storage instrument indicates that private storage has been used countercyclically at a time when prices for pigmeat producers were particularly low. The intention of management policy has therefore been to seek to stabilise the market during these periods and is therefore in line with the intervention logic for this instrument

What impacts do the aid measures for private storage have on the level and development of pigmeat prices?

The **statistical analysis** has generated a number of further results with respect to the relationship between private storage aid and pigmeat prices as follows:

- the net amount stored or released from private storage or the amount in storage does significantly influence the absolute price level;

- the absolute price level during periods with private storage is significantly lower than in periods without private storage (this is what would be expected a priori, because private storage is only used in periods when a low price level prevails);
- the fluctuation in price levels is significantly lower in periods with private storage resulting in a more stable price level; and,
- the observed price level drop prior to private storage periods does not continue during periods with private storage.

What impacts do the aid measures for private storage have on the fluctuations in the volume of supply in the short and medium term?

The above results indicate that private storage successfully reduces EU-15 volumes on the market at a critical point in the production cycle, thereby arresting the decline in prices experienced and thus contributing to the objective of price stabilisation as intended. This finding is consistent with the views of the industry, as revealed the **stakeholder interviews** in the Member States. The interviewees considered that private storage aid was an important measure to help counteract the workings of the 'pig cycle' (i.e. by removing excess supply from the market during periods of surplus production and introducing supply back onto the market when there is a shortfall in supply) thereby reducing price volatility.

If impacts are significant, what is their dimension and are they achieved at a reasonable budgetary cost?

This leaves open the question of whether the budgetary expenditure incurred can be considered 'reasonable'. The evaluators consider that whether or not such expenditure is reasonable is not one they can make as it involves questions of equity between different segments of the population. This having been said we note that the evaluation has highlighted the nature of the choice to be made and pointed out that alternative means of achieving the same objective should be considered.

Box 2.4: Main conclusions on private storage aid

The results of the above analysis are suggestive of the fact that private storage is used in the manner intended, but they do not allow a firm attribution of causality, i.e. they do not prove that private storage has been the driver for the price changes observed rather than other factors. They are, however, strongly suggestive of this fact. It should also be noted that the results do not allow a judgement as to whether the measures have been applied in the most efficient manner i.e. whether prices might have recovered similarly even in the absence of the measure or the measure might have had a greater impact if it had been applied earlier in the cycle.

While a definitive judgement on these points is not therefore possible, it should be noted that stakeholders generally had no criticism to make of the measure and generally considered that its

application operated as intended i.e. to stabilise market prices at times of crisis and thereby contribute to the objective of the CMO. This having been said, it is noted that other private sector means (e.g. futures markets) of risk management could be reviewed to establish whether these would offer any advantages.

2.2.5. Question 5: Exceptional market support measures in the pig sector

This evaluation question concerns the application of exceptional market support in cases of epizootic diseases. This evaluation question has been addressed qualitatively through a case study of the outbreak of Classical Swine Fever in the Netherlands in 1997, during which over 10 million pigs had to be destroyed. For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.4.

2.2.5.1. Description and analysis of the historic functioning of the instrument

Exceptional market support measures during the outbreak of Classical Swine Fever in the Netherlands in 1997

Following this outbreak, a number of veterinary (control and prevention) measures were implemented, including: the immediate slaughter and disposal of all pigs on infected farms and the disposal of contaminated material; cleansing and disinfection of infected premises; imposition of animal movement bans in protection zones and surveillance zones surrounding infected herds; ban on exports to Classical Swine Fever free countries; and, implementation of a ban on intra-community trade of live pigs and pig semen originating from the Netherlands to control the spread of the disease. These measures were later followed by a pre-emptive slaughter of herds that had come into contact with infected herds or that were located within a 500m radius (1,000m from mid-June 1997) of infected herds. In addition, a number of further measures (e.g. increased hygienic measures, bi-weekly screening of all herds by veterinary practitioners and reduction of the transportation movements for welfare reasons) were implemented.

A number of market support measures were also adopted. Initial ceilings were set for the number of animals for each category that could be bought up under the measures. The market support measures were amended to reflect the spread of the disease (increased ceilings) and to change the categories/weights of animals eligible for support and the rates of aid payable. In addition, a category of very young piglets was added, an insemination ban was introduced and cull sows were also foreseen for market support.

2.2.5.2. Analysis of results

Did the measures help to avoid market disturbances which could have occurred as a consequence of the veterinary measures applied for the eradication and/or prevention of the disease in question?

In total, the outbreak and these veterinary and market support measures led to the destruction of 11 million pigs, representing 77% of the Dutch pig inventory prior to the outbreak, and a fall in pigmeat production by around 248,400 tonnes (15%). Consequently, this had a huge impact on the supply of pigmeat. As a result, the price of pork in the Netherlands (as well as in other EU member states) increased initially by over 50% (Figure 2.11). This price increase led to a number of other Member States increasing their production, namely Spain and Denmark, causing prices to fall (i.e. the classical downward spiral of the so-called 'pig cycle'). Between 1997 and 1999, pigmeat prices fell by around three-quarters to just over €0.5 per kg. Accordingly, the findings of the country case study suggest that these market support measures did not in themselves stabilise the price evolution or contribute to avoiding disturbance in the pigmeat market (this is not to say, however, that without such measures the fall in price would not have been greater).

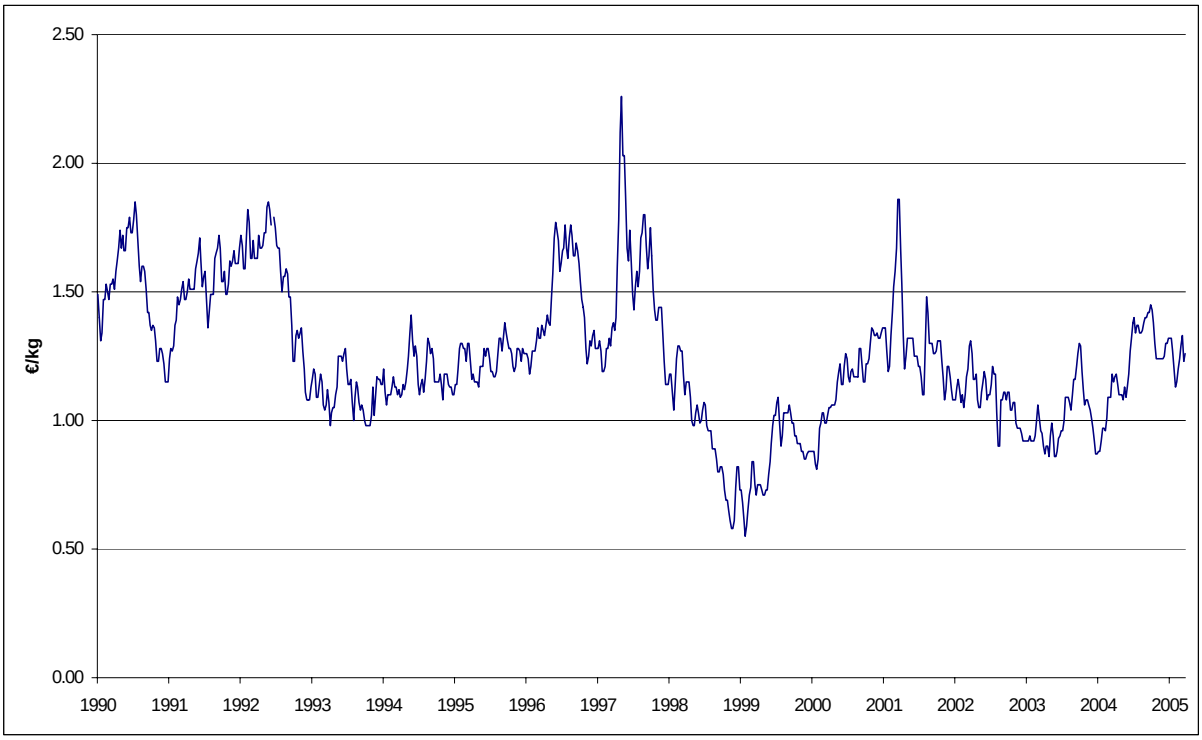

Figure 2.11: Evolution of the Encebe/Dumeco weekly price quotation for slaughter pigs

Source: LEI.

Did the measures help to secure the incomes of the holdings concerned?

In spite of the implementation of veterinary and market support measures, the country case study revealed that overall the disease outbreak had a negative impact on income levels within the sector. The direct cost of the outbreak for affected producers is estimated at €1,198 million (Table 2.17). The short term impact on the incomes of the holdings directly affected by the disease outbreak were largely compensated for, in the medium-term it is reported that the disease outbreak had a negative influence on the average price level during 1997 to 2000 (for farms remaining in production). However in the medium term, other market disturbances reported, namely increasing supply from countries like Spain and Denmark and the loss of markets (trading relations), have also had a negative impact on income. Although prices did rise initially after the outbreak, this increase was too short to compensate for the rather long period of low prices after the 1997 peak.

Moreover, at the height of the epidemic, an area of about 8,000km² (approximately a quarter of the national territory) was under disease restrictions. Consequently, over 60% of pig farms in the Netherlands were subjected to various control measures. This resulted in consequential income losses of €384 million to the agricultural sector as a result of idle production resources (following depopulation and welfare slaughter), supply and delivery problems due to movement bans and the cost of repopulation (Table 2.17). This consequential income loss was not compensated for.

Table 2.17: Cost of the Dutch classical swine fever outbreak, 1997-98

	€ million
Direct costs	
Depopulation – stamping out infected herds	94.4
Depopulation – pre-emptive slaughter	167.0
Welfare slaughter – pigs ready to be delivered	549.1
Welfare slaughter – weaned piglets	103.5
Welfare slaughter – piglets 3-17 days	120.7
Breeding prohibition	38.1
Organisation costs	125.2
Sub-total	***1198.9***
Consequential losses	
• Agricultural sector	
Idle production factors (depopulated farms)	99.8
Idle production factors (other farms)	124.3
Supply and delivery problems	17.2
Losses from repopulation (depopulated farms)	98.9
Losses from repopulation (other farms)	43.6
Sub-total	***383.9***
• Related industries	
Animal feed suppliers	92.6
Breeding organisations (own farms involved)	176.1
Breeding organisations (clients involved)	15.4
Slaughterhouses	206.9
Animal traders	50.8
Sub-total	***540.9***
Total cost	**2,123.7**
(% of GDP)	(0.7%)
Public cost	981.1
Private cost	1,142.6

Source: Meuwissen, M. P. M., Horst, H. S., Huirne, R. B. M. and Dijkhuizen, A. A. (1999). A model to estimate the financial consequences of classical swine fever epidemics: principals and outcomes. *Preventive Veterinary Medicine*, 42: 249-270.

Was compensation necessary and if so, was the amount adequate?

The rationale for the provision of compensation is to ensure that producers are freely willing to report on an outbreak of disease on their production units without the fear that such a report will result in a consequential severe loss in income. If this rationale is accepted some form of compensation policy for losses incurred as a direct result of a disease outbreak may be considered necessary for the future maintenance of animal and human health.

On the issue of the adequacy of the amount of compensation provided it is inevitable that there will be a conflict of views depending on whether losses incurred were compensated for or not. Those producers on directly affected farms i.e. those

unit where pigs had to be destroyed because of the presence of disease will tend to consider the compensation adequate while those affected but not receiving compensation e.g. on adjacent but not infected units will tend to consider the scheme to be inadequate. It is considered to be beyond the scope of this evaluation to form a judgement on what is essentially a political issue to be determined on the basis of what is ultimately desirable for animal and human health protection.

2.2.5.3. Synthesis of results obtained from tools used and conclusions

Box 2.5: Main conclusions on exceptional market support

Did the measures help to avoid market disturbances that could have occurred as a consequence of the veterinary measures applied for the eradication and/or prevention of the disease in question?

In summary based on this **case study analysis** of historical data, the exceptional market support provided appears to have had no substantial impact on the level of market disturbance arising from veterinary measures imposed;

Did the measures help to secure the incomes of the holdings concerned?

In summary based on this **case study analysis** of historical data, the exceptional market support provided:

- did not compensate for the consequential income losses of some €383.9 million arising from enforced idleness/need to restock;
- did not compensate for the longer term losses resulting from the other factors including increased production in the Netherlands and other EU Member States and loss of export markets; and,
- appears to have substantially compensated for the short term losses of €1.199 million incurred as a result of veterinary measures applied immediately following the disease outbreak and thereby contributed to the objective of supporting farm incomes as set out in the intervention logic for this measure.

More generally, if one assumes that a subsidiary objective of having a compensation scheme in place at all is to ensure that producers feel free to report on animal diseases without fear of incurring a loss and thereby ensuring that animal and ultimately human health is protected, it is clear that this objective is being met. The fixing of the appropriate level of compensation (and size of budget) is therefore also an issue that needs to be determined with respect to what is adequate to meet the desired objectives in terms of animal health protection.

2.2.6. Question 6: Overall market impacts

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.5.

Can a joint impact of the different CMO measures on market equilibrium and on price development be identified? If this is the case, what is the interaction between the individual measures and their relative importance?

2.2.6.1. Introduction to the question and tools used

The answers to Evaluation Question 2-5 have systematically addressed the impact of the CMO instruments for the three markets separately over the period covered by this evaluation by:

- historical analysis of the use of the market management instruments;
- using modelling in particular to review the impact of the counterfactual i.e. the removal of the export refund/import protection instruments in three separate time periods;
- undertaking a case study of the exceptional measures taken in respect of classical swine fever in the Netherlands;
- by assessing the impact of the private storage aid on prices via statistical analysis, and;
- by means of interviews with key stakeholders.

Question 6 builds on and extends these analyses to review the issue of whether a joint impact of the different CMO measures for each sector can be identified and if so, how the measures interact and what the significance of these impacts is.

2.2.6.2. Limitations of the tools used

The historical analysis provides a useful context for the analysis, as well as providing an understanding of how specifically the use of the instruments has evolved over time and what commodities and/or Member States have been focused on. However, it is limited in that it does not allow a quantified assessment of joint impacts on price, market equilibrium, or the assignment of causality/relative significance to such impacts. Such quantification must rely on a modelling approach as has been used here which allows a precise quantification of price and market equilibrium effects by allowing an assessment of the counterfactual. Such a quantification is of course subject to the general limitations applicable to modelling and the CAPSIM model in particular which are set out in the relevant answers to the evaluation questions as well as in detail in Appendix 3. The limitations to the results obtained

here via modelling are that they treat the sector in aggregate and for the EU-15 as a whole thus not allowing a differentiated approach with respect to individual sub-sectors or Member States. With respect to Evaluation Question 6 specifically in relation to pigmeat a further limitation is that the CAPSIM model does not cover the assessment of the impact of private storage aid or exceptional measures as such and thus does not allow a specific weighting of the significance of each of these four instruments simultaneously. This gap could and should theoretically have been addressed by stakeholder interviews, but as is well known, such interviews extract the 'subjective' perspective of whosoever is being interviewed and any result obtained thus depends on the degree of overview of all the relevant issues held by the interviewee. Given that the one instrument 'exceptional support' was only applied to a significant degree following the classical swine fever outbreak in the Netherlands in 1997 and that the use of private storage aid has been primarily focused on 3-4 Member States (see for example Table 2.13) the interviews conducted in most Member States could not be expected to yield much detailed comment on these measures. Finally it should be noted that since the URAA import protection has occurred via fixed tariffs and as such this instrument is not particularly 'visible' to market participants on a regular basis thus making it more difficult for many to assess its significance. Subject to these limitations the following results have been obtained.

2.2.6.3. Impacts of the market instruments

Inter-relationships between private storage aid and export refunds in the pigmeat sector and comparison of effectiveness and efficiency. To what extent are production cycles counterbalanced by the CMO measures?

As is shown in Figure 2.12 which uses historical data to chart the evolution of pigmeat production, of prices as well as the use of export refunds and private storage, the use of the instruments of private storage and export refunds has coincided with the troughs in price generated by excess supply on the EU internal market. Thus as has been confirmed by the **historical analysis** for both these instruments, a **correlation** on time series relating to price and export refunds as well as **interviews with stakeholders** the instruments have been used countercyclically to stabilise the market as prescribed by the intervention logic. It should be noted that the sequence of events in market intervention has generally been to open private storage, with export refunds being used to replace private storage if the measure is seen as insufficient. While the nature of the modelling undertaken does not allow a quantification of the precise degree of dampening of the 'pig cycle' which has occurred the results of modelling the counterfactual for export refunds indicate that the application of the measures resulted in prices which are marginally higher across the sector as a whole than they otherwise would have been (by 1.1%, 0.6% and 0.2% respectively in the

three periods addressed (1990-92,1995-1997,2000-02) while the **statistical analysis** on private storage has indicated that prices fell less sharply during period when private storage was applied.

Figure 2.12 supports this analysis and shows that following the application of both these instruments prices have tended to recover, suggesting that the measures are effective. This does not demonstrate causality but analysis shows that there is a moderate inverse relationship between the reference price and total refunds (correlation coefficient of –0.66) strongly suggesting that such a link exists. For private storage it is certainly conceivable that earlier application of the measure might have resulted in a greater impact thus increasing effectiveness but a final judgement on this issue is not possible.

While no direct comparison of the efficiency of the above measures is possible since private storage was not subject to a counterfactual analysis it can be noted that the analysis of the export refund instrument suggested that there was a significant deadweight effect[77] associated with the measure in the sense that a substantial proportion of exports which took place with refunds would have been likely to have occurred even without the application of the measure. This judgement was to a limited extent confirmed by stakeholders in a major exporting country.

In conclusion it can be stated clearly that as intended by the CMO the joint impact of the export refund and private storage aid instruments has been effective in operating to stabilise the market and significantly reduce the downward fluctuations of the pig cycle. This having been said, at least with respect to the export refund instrument, the existence of a deadweight effect[78] attributed to this measure in terms of supporting export volumes suggests (but does not prove) that there is a lack of economic efficiency attached to its use. In this context it should be noted that the CAPSIM modelling system did not investigate efficiency with respect to the stabilisation objective, given the deterministic character of this system.

In this context it is noted that the existence of such public market stabilisation measures may also impede the potential development of alternative private risk management strategies as it limits the scope for futures markets (and similar instruments) by reducing the need for such private sector income stabilisation tools. The potential for such tools has, for example, been analysed by Wichern in respect of

[77] See Footnote 2 and Box A1 in Appendix 4.
[78] See Footnote 2 and Box A1 in Appendix 4.

gross margins for pig producers in Northern Germany. This analysis indicated that such tools would have allowed producers to significantly stabilise their returns[79].

[79] Wichern, Rainer. 'Economics of the Common Agricultural Policy', page 32, European Economy No.211, August 2004, Directorate-General for Economic and Financial Affairs, European Commission.

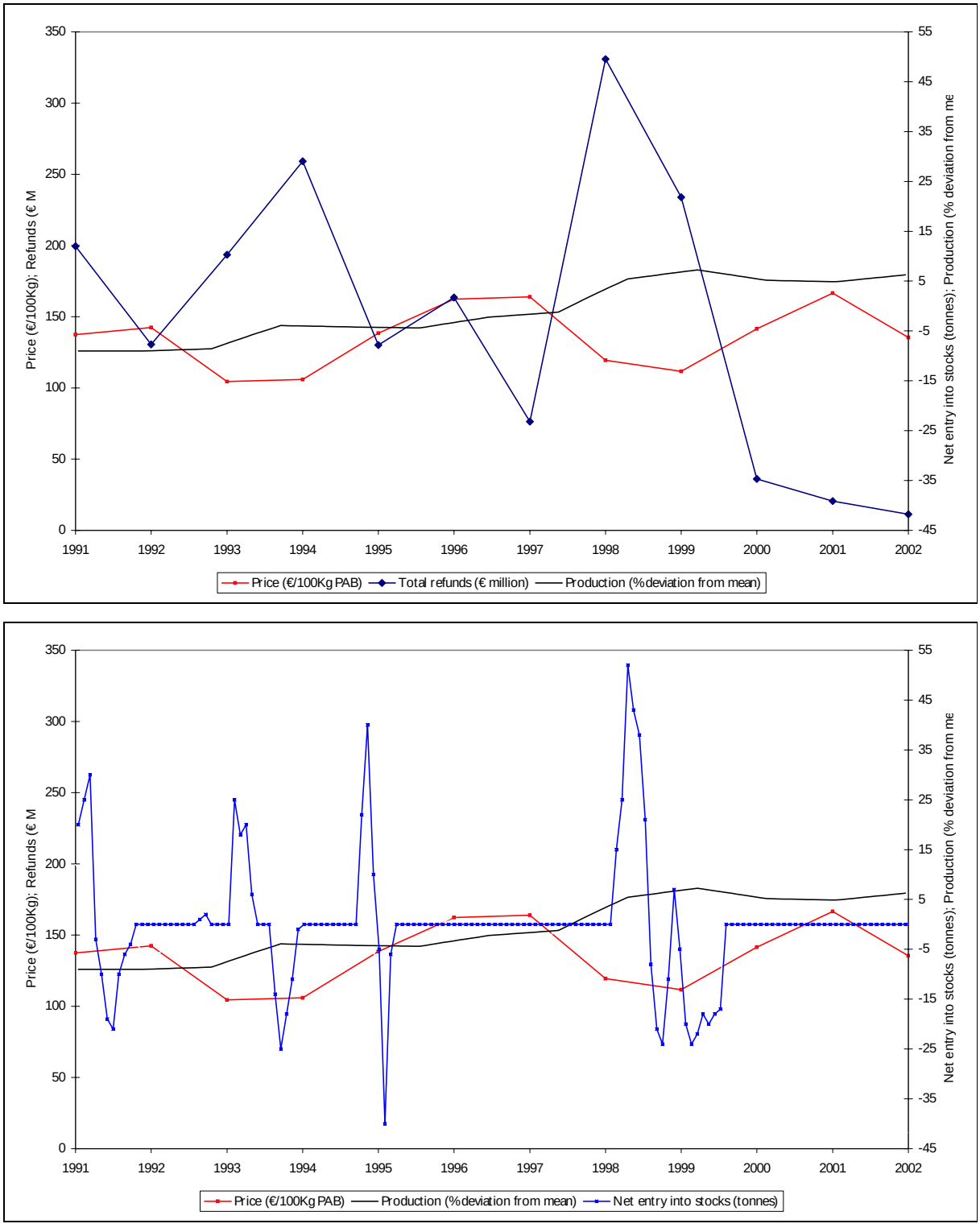

Figure 2.12: Comparison of reference price, production, export refunds and net entry into storage, 1991-2002

Source: Eurostat, DG Agriculture, LEI.

Long term impacts of all market support instruments on production and identification of feedback loops

The CAPSIM model has used the estimated the impact of the two major instruments of market support, import tariffs and export refunds by modelling the counterfactual (i.e. removal of these instruments) on production. As has been noted previously it would not be meaningful to consider a full removal of import tariffs without at the same time removing export refunds since in reality allowing in a free flow of imports could then simply generate displacement of EU production that would then receive a refund. The results of this modelling work were as follows:

As would be expected a priori (in terms of the direction of impact) the removal of import protection (and export refunds) is estimated to have resulted in a reduction in annual domestic pigmeat production in all three of the reference periods examined (of 2.6%, 1.8% and 1.4% respectively). In this context the modelling also indicates that the impact of import tariffs is more significant than that of export refunds in terms of maintaining supply above what it would have been in the absence of these instruments.

This relatively modest result in terms of impact of the instruments suggests that the combination of these instruments alone has not generated significant feedback loops in that domestic production (and hence a need for further support) in the absence of the instruments would not be very significantly higher. The above conclusion holds even when considering the other two measures, private storage aid and exceptional support as by their nature, as has been shown in the historical analysis, these interventions are more sporadic and, as has been shown in the intervention logic, they are in any case not designed to permanently change the market balance. Thus private storage is designed to smooth the price adjustment path when severe market imbalances occur and exceptional support is designed to compensate specific groups of producers for disease induced income losses. This having been said, it is inevitable that any intervention which involves direct or indirect transfers to producers (e.g. by reducing the risk attributable to disease outbreaks) will generate potential feedback loops in that production will tend to be higher than it otherwise would have been thus perhaps generating a higher future support requirement.

It should, however, be noted that the overall conclusion reached here is partially derived from the fact that a significant but not fully quantified proportion of import protection is derived from the fact that third countries are unable to comply with the EU sanitary requirements. If these had not been in place over the period under review the impact outlined here would almost certainly have been considerably

more significant. It should also be noted that the analysis has been undertaken only for period 1990-2002. It is possible, given that support via these measures is likely to have been higher in the pre-1990 period, that if this analysis were to be extended over a longer timeframe (potentially using different supply elasticities) the impact on production and the existence of more significant feedback loops would be established.

In conclusion the evidence reviewed here does not support the contention that the CMO measures have significantly increased production and thus generated significant feedback loops. This is partially the consequence of the fact that in particular the reduction in imports which has occurred cannot be clearly attributed to the import tariffs alone since sanitary barriers have also played a significant role.

Importance of the impacts of the CMO instruments amongst other determining factors on supply and demand

As is clear from the above results of the modelling showing the potential impact of the removal of two of the instruments (import tariffs and export refunds) on production other factors such as the degree of protection afforded by sanitary measures are of considerable significance in determining the supply and demand position for pigmeat. Another important factor determining the market position of pigmeat is feed costs. A simulation of the impact of a reduction in such costs (assuming a cut in cereal intervention prices (and derived border protection) by 15% in each of the three sub-periods reviewed by the CAPSIM model shows the sector's contribution to the Economic Accounts for Agriculture would have similar effects in terms of order of magnitude as the removal of export refunds. Finally the historical analysis has shown that total exports in the period between 1992 and 2003 have grown from 587,100 tonnes in 1992 to 1,570,900 tonnes in 2003 while the proportion supported by refunds has fallen from 92% to 15%. This in itself is a strong indicator, further supported by the results of stakeholder interviews, which indicated that, as was hypothesised at the outset of this evaluation, factors other than the CMO instruments themselves (such as EU and world demand growth, consumer trends and the marketing efforts of EU enterprises) have contributed strongly to the supply and demand position.

2.3. Theme 2: Producer income

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.2.1.

2.3.1. Question 7: Income level and development

Do the measures of the CMOs have a significant joint impact on the level and development of producers' incomes? If impacts can be identified, can they be specified (impacts through the volume of production, prices, and/or costs) and quantified?

As discussed in Section 2.1.1, two of the overarching objectives of the CMO for pigmeat (relevant to this evaluation question) are *to stabilise markets*, thereby stabilising incomes, and *to ensure a fair standard of living for farmers*. It can therefore be hypothesised that (to the extent that support is forthcoming given that the CMO for pigmeat is a relatively lightly supported sector), any intervention over the evaluation period will have had a positive effect on the level and development of producers' incomes.

This evaluation question was answered based on an analysis of Farm Accountancy Data Network (FADN) data[80] (much of which was based on a specific study carried out by DG Agriculture (see Appendix 6)) and other secondary data. The findings of this quantitative analysis were supplemented by interviews with industry stakeholders in the EU pigmeat sector to provide contextual information as to any link between changes in income levels and the role of the pigmeat CMO.

Table 2.18 shows the FADN sample sizes used for analysing income level and development over the evaluation period based on different categories of pigmeat producers. The key indicator used to measure income, and assess the effect of the CMO, is Farm Net Value Added (FNVA) per Annual Work Unit (AWU)[81]. The FNVA represents the payment for factors of production (work, land and capital), whether

[80] When using FADN data, the following caveats must be noted:

- FADN is designed to monitor only the professional farms. The smallest holdings are excluded from the sample. This is done using a threshold of minimum economic size for inclusion in the sample. This varies from Member State to Member State.
- FADN information is principally based on the financial accounts of the holding. This has some implications about the availability of certain information, especially on the input side. (eg: while FADN registers the total labour cost, it can not split up this cost according to the speculation).
- FADN data monitor the situation of the agricultural holdings in the EU. This means that data from Austria, Sweden and Finland are only included since 1995. Furthermore, 1995 marks the inclusion of data from the new German Bundesländer in FADN.

[81] Where FNVA per AWU = ((output + subsidies)-(intermediate consumption + taxes))/annual work units.

they are external or family factors. The AWU measures the total labour input of holding expressed in annual work units (equal to full-time person equivalents).

For practical reasons, the smallest holdings (unless otherwise stated) have been excluded from the sample of the analysis presented in Appendix 6, none the less at least 90% of agricultural production is still covered by the analysis. In addition, all financial analysis has been done in real terms with 1995 as the reference year; deflators have been applied at Member State level and aggregated to EU-15 level. In order to compare the different types of livestock farms, all numbers of animals have been calculated to livestock units using the appropriate conversion rate (piglets = 0.027 LU, breeding sows = 0.5 LU, pigs for fattening = 0.3 LU and other pigs = 0.3 LU).

Table 2.18: Pigmeat sector sample size

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Specialist rearing and fattening combined [1]	477	494	492	676	676	624	773	733	722	728	719	692	633	690	706
Specialist rearing[2]	134	142	137	211	206	190	283	227	253	274	307	319	324	477	541
Specialist fattening[3]	85	81	85	110	125	106	149	159	165	184	222	229	244	291	384
Other	5,442	5,274	5,022	5,025	4,829	4,601	5,706	5,800	5,832	5,524	5,623	5,388	5,324	5,237	4,951
Total	**6,138**	**5,991**	**5,736**	**6,022**	**5,836**	**5,521**	**6,911**	**6,919**	**6,972**	**6,710**	**6,871**	**6,628**	**6,525**	**6,695**	**6,582**

[1] Specialist rearing and fattening combined: at least 2/3 of the total SGM of a farm is linked to some pig production and is not included in the above pig fatting or pig rearing categories.

[2] Specialist pig rearing: at least 2/3 of the total standard gross margin of a farm is linked to breading sows

[3] Specialist pig fattening: at least 2/3 of the total SGM of a farm is linked to pigs for fattening and other pigs

Source: FADN.

2.3.1.1. Analysis of FADN data

Size of the holding or enterprise in livestock units

Figure 2.13 shows the evolution in the number of pigs and scale of production, expressed in livestock units, in the EU-15 between 1989 and 2003. Over this period, the level of pig production has expanded considerably with the number of LU having increased by 53%, from 20.0 million LU to 30.6 million LU. However, the scale of pig production has increased by a much greater rate with the average size of pig holdings[82] having increased by 131% from 68 LU to 155 LU.

[82] Both specialised and non-specialised pig holdings.

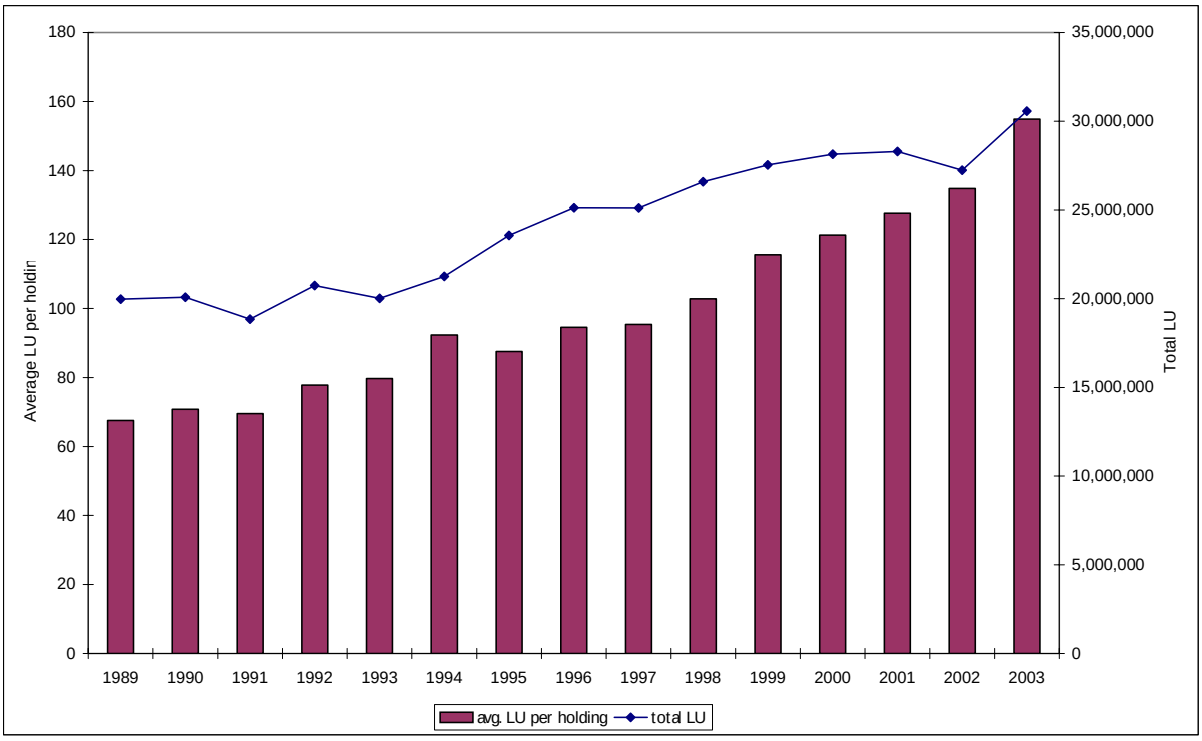

Figure 2.13: Evolution of the level and scale of pig production in the EU-15 (LU)

Source: FADN – processing DG AGRICULTURE G3.

A contributing factor to this marked increase in the scale of pig production over the evaluation period has been the pursuit of economies of scale in the production process. Table 2.19 examines the relationship between income level (expressed in FNVA/AWU) and the size of pig holdings (expressed in LU). Despite data limitations[83], income levels increase as the scale of pig production increases from a FNVA/AWU of €12,253 for holdings with <50 pigs to a FNVA/AWU of €46,838 for holdings with 1,000 <5,000 pigs. Moreover, for the size classes presented in Table 2.19, there are no general diseconomies of scale in pig production[84].

[83] The share of, for example, specialised pig holdings varies between the different size classes of pig holdings.

[84] Table 2.19 represents data on all farms that have at least one pig. However, the FADN sample size of pig holdings with more than 5,000 LU is too small to draw conclusions and hence the category>5,000 LU has not been analysed.

Table 2.19: Income by size of pig holding (expressed in LU), for the accounting year 2003

Number of pigs (LU)	FNVA/AWU (€)
< 50	12,253
50 < 100	21,786
100 < 150	22,054
150 < 250	24,238
250 < 500	28,375
500 < 750	35,894
750 < 1000	36,591
1000 < 5000	46,838

Source: FADN – processing DG AGRICULTURE G3.

Figure 1.2 illustrates how income in the sector has evolved between 1989 and 2003 on all pig holdings in real terms. Despite an increase in the scale of pig production and associated economies of scale in the EU-15 over the evaluation period, average annual income in the first half of the evaluation period is slightly lower to that in the second half of the period. Between 1989 and 1996, average annual FNVA per AWU for all pig holdings was €23,750 compared to €24,214 between 1997 and 2003.

However, the cyclical nature of pig production (often referred to as the pig cycle) and the impact of disease outbreaks has mask the overall trend in income over the period under examination. As shown in Figure 2.14, income in the sector is cyclical. Incomes were relatively high at the beginning of the period, with cyclical peaks reached in 1996 and 2000 and cyclical lows recorded in 1993, 1998 and 2002.

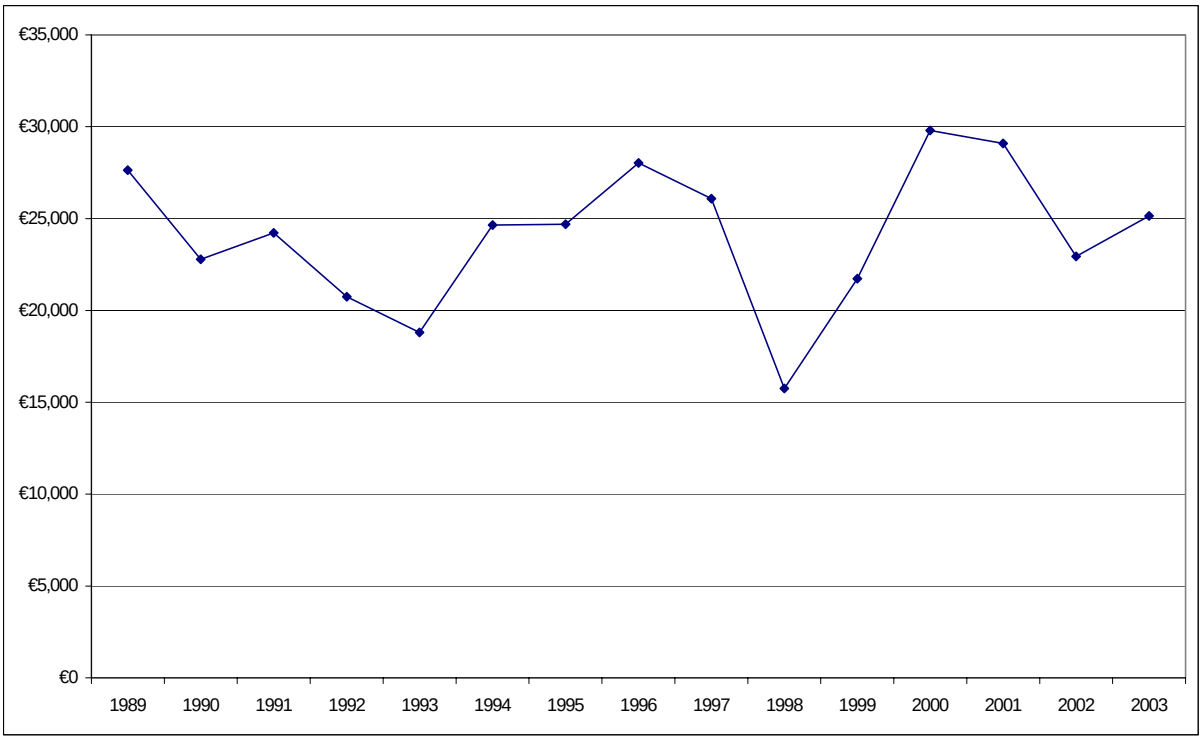

Figure 2.14: Evolution of Average FNVA per AWU real terms for all pig holdings, 1989-2003

Source: FADN- processing DG Agriculture G3.

This cyclical development in income over the period has occurred for all pig holdings regardless of farm size. Figure 2.15 shows the evolution in FNVA per AWU in real terms for three different ESU categories[85]. Consistent with the data in Table 2.19, higher levels of income are associated with larger sized enterprises. However, data presented in Figure 2.15 suggests that income levels are more volatile on smaller sized holdings than on larger sized holdings. On small enterprises (16 < 40 ESU), income fluctuated by 55% above and 71% below the average for the period compared to 33% above and 42% below the average for larger enterprises (≥ 100 ESU) (Table 2.20).

[85] ESU is defined as the enterprise gross margin divided by value of ESU. For the period under study the ESU value is 1,200 Euro/ECU. Source: FADN RI/CC 882.

Figure 2.15: Average farm net value added per annual work unit comparison by farm enterprise size categories (real terms)

Source: FADN.

Table 2.20: Average, minimum and maximum FNVA per AWU, by farm size (ESU) (1989-2002)

	Average	Minimum		Maximum	
	€	€	% deviation from average	€	% deviation from average
(D) 16 - <40 ESU	16,512	4,810	-71%	25,541	55%
(E) 40 - <100 ESU	26,665	10,245	-62%	35,739	34%
(F) >= 100 ESU	42,241	24,499	-42%	56,135	33%

Source: FADN.

Table 2.21 shows the level of and development in incomes by Member State between 1989 and 2002, illustrating the extent to which incomes vary between Member States. Average annual incomes have generally been higher in Belgium (€35,979) and the Netherlands (€36.653) over the period and lower in Portugal (€8,063) and Greece (€10,758). In addition, the data shows that there has been significant variation in income levels within Member States between years. Portugal has shown the lowest annual variation in income levels between years. In contrast,

the Netherlands and Belgium have shown the highest variation in income levels between years.

Table 2.21: Average FNVA per AWU for Member States in real terms.

Country	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Average 89-02
BEL	53,097	47,226	54,721	19,134	27,019	30,805	37,016	55,600	34,936	9,746	31,254	45,152	37,939	20,061	35,979
DAN	35,885	27,856	40,690	22,237	18,695	30,814	39,346	42,214	42,639	5,319	24,326	44,129	48,747	20,776	31,691
DEU	31,176	18,435	34,098	15,301	14,917	20,689	32,122	26,893	26,986	14,388	22,778	34,636	27,676	16,079	24,012
ELL	16,762	18,295	26,382	18,917	11,729	5,360	7,708	7,253	5,959	5,093	5,211	8,089	10,119	3,732	10,758
ESP	13,984	15,484	16,909	26,287	14,959	14,676	18,068	22,137	23,244	18,772	12,940	22,223	24,191	18,908	18,770
FRA	25,291	24,628	27,703	25,990	13,931	17,980	24,186	33,035	30,649	9,233	14,883	20,355	30,933	13,766	22,326
IRE	24,011	22,772	19,940	26,375	16,146	17,461	25,005	23,132	18,860	9,211	8,732	14,910	22,093	14,520	18,798
ITA	28,826	26,992	33,416	33,595	27,601	32,283	34,500	28,112	30,935	30,210	24,529	32,569	34,826	46,697	31,792
LUX	18,374	16,146	13,015	32,308	19,946	28,053	27,924	30,821	20,627	17,912	24,998	33,051	47,091	23,107	25,241
NED	63,720	55,784	60,939	35,268	21,469	34,291	41,285	59,803	65,910	- 10,012	11,161	42,585	23,543	7,391	36,653
OST							21,019	21,816	20,797	16,976	19,748	21,094	25,012	20,244	20,838
POR	15,368	8,764	7,078	10,796	3,223	5,413	5,872	5,519	6,558	1,458	8,075	9,665	11,378	13,711	8,063
SUO							15,815	18,200	18,836	14,545	13,596	20,352	22,222	26,347	18,739
SVE							11,218	44,363	23,786	- 1,406	9,035	4,449	18,515	4,913	14,359
UKI	24,100	16,645	16,641	21,093	14,227	17,311	31,367	37,190	20,121	11,021	19,182	29,329	20,376	17,605	21,158
EU-15 average	**27,634**	**22,790**	**24,217**	**20,745**	**18,801**	**24,651**	**24,695**	**28,035**	**26,081**	**15,752**	**21,727**	**29,802**	**29,086**	**22,943**	**24,069**

Note: The income data is for the whole of pig sector including small holders and non-specialised farmers.
Source: FADN

Production systems

Table 2.22 illustrates the evolution in the scale of pig production over the evaluation period by production system. The data shows that there have been considerable differences in the rate of growth by production system. On specialist pig holdings, the scale of pig production on combined rearing and fattening pig production has increased by a lesser amount (41%) than on holdings specialising in either pig rearing (72%) or pig fattening (73%). As a result, the share of total EU-15 pig production accounted for by combined specialist rearing and fattening production systems has fallen by 17% to 22% over the period while that from pig rearing systems and pig fattening systems has increased by 75% to 10% and 200% to 24%, respectively (Table 2.23).

In contrast, the scale of pig production on 'other' pig holdings has increased by the greatest amount (93%) over the period, albeit from a low level (Table 2.22). Thus, given the relatively small-scale nature of production on these pig holdings, the share of total EU-15 pig production accounted for by these pig holdings has declined by 26% over the period to 44%.

Table 2.22: Evolution of the average number of pigs (in LU) by production system

	1989 (LU)	1995 (LU)	2003 (LU)	Evolution 1989-2003 (%)
Specialist rearing	142	137	243	+71.7
Specialist fattening	325	278	562	+73.0
Specialist rearing and fattening combined	256	279	360	+40.9
Other	46	59	88	+92.9

Source: FADN – processing DG AGRICULTURE G3.

Table 2.23: Evolution of the production share of the different by farm type (% LU)

	1989 (%)	1995 (%)	2003 (%)	Evolution 1989-2003 (%)
Specialist rearing	5.6	6.1	9.8	75%
Specialist fattening	8.0	9.1	24.0	200%
Specialist rearing and fattening combined	26.2	28.0	21.8	-17%
Other	60.2	56.7	44.4	-26%

Source: FADN – processing DG AGRICULTURE G3.

Figure 2.16 shows the importance of specialised pig production systems by Member State. While over half of EU-15 pig production takes place in specialised production systems, this varies significantly by Member State. In most Mediterranean countries, the vast majority of pig production takes place on specialised farms. In contrast, in

Germany (which is the largest producer of pigs in the EU) and in Denmark (which is a significant exporter of pigmeat), production mainly takes place on (non-specialised) mixed farms.

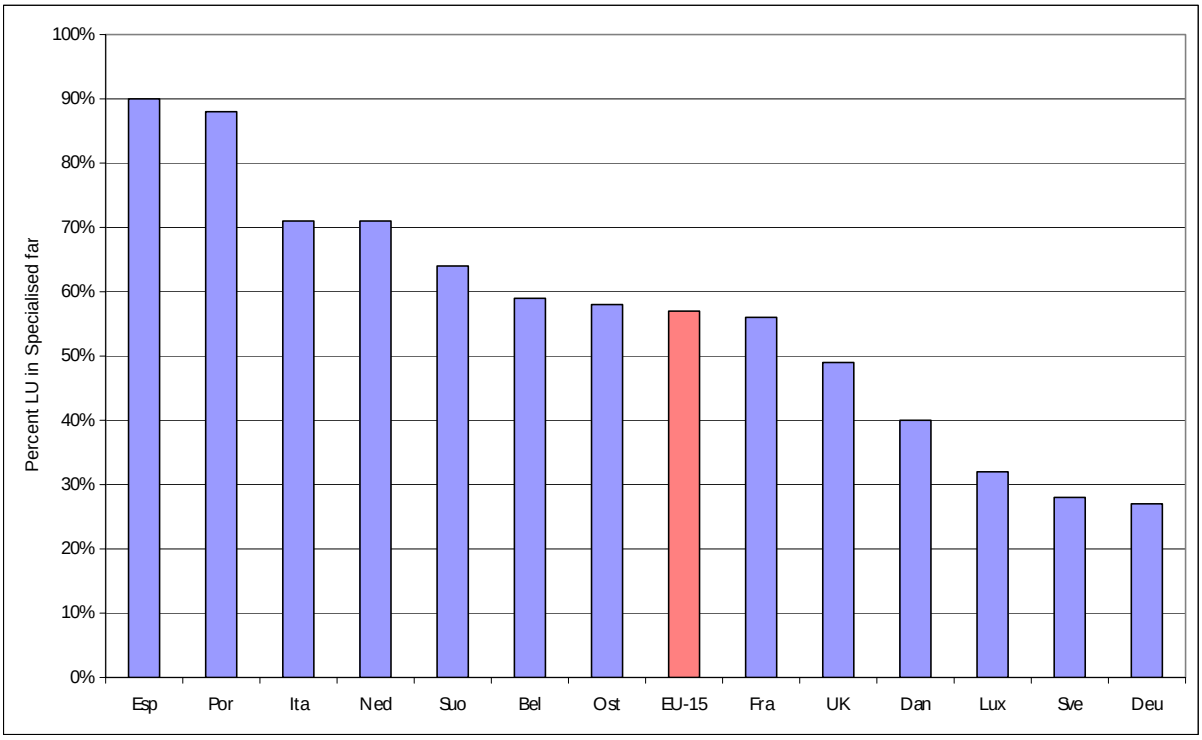

Figure 2.16: Importance of specialised pig production systems by Member State (2003)

Source: FADN – processing DG AGRICULTURE G3.

Table 2.24 examines the relationship between income level (expressed in FNVA/AWU) and production system. Average income between 1989 and 2003 has been highest on specialist fattening systems. These systems have also shown the greatest increase in the share of total EU-15 production over the period (Table 2.22).

In general, average income between 1989 and 2003 has been higher for specialised pig production (€30,221 to €40,266) than for pig production that takes place on (non-specialised) mixed farms (€23,710).

Table 2.24: Average income of pig holdings (>16 ESU), by production system (1989-2003)

Type of farming	Average FNVA/AWU (€)
Specialist rearing	32,567
Specialist fattening	32,867
Specialist rearing and fattening	34,853
Other pig producers	22,200
Total pig farms	**23,967**

Source: FADN – processing DG AGRICULTURE G3.

Figure 2.17 illustrates the evolution in FNVA per AWU in real terms by production system over the evaluation period. This cyclical development in income over the period has occurred for all pig holdings regardless of production system. Consistent with the data in Table 2.24, higher levels of income are associated with specialised production systems than (non-specialised) mixed production systems.

However, Figure 2.17 shows that income levels are more volatile on specialised production systems than on (non-specialised) mixed production systems. On (non-specialised) mixed production systems, income fluctuated by 26% above and 23% below the average for the period compared to 49% to 57% above and 57% to 89% below the average for specialised production systems (Table 2.25).

Figure 2.17: Evolution of the income (FNVA/AWU) by production system (1989-2003)

Source: FADN – processing DG AGRICULTURE G3.

Table 2.25: Average, minimum and maximum FNVA per AWU by production system (1989-2003)

	Average	Minimum		Maximum	
	€	€	% deviation from average	€	% deviation from average
Rearing & Fattening	34,853	8,000	-77%	52,000	49%
Fattening	32,867	14,000	-57%	49,000	49%
Rearing	32,567	3,500	-89%	51,000	57%
Other Pig Producers	22,200	17,000	-23%	28,000	26%

Source: FADN.

The most important determinants of the level of income over the evaluation period are the value of total output and the value of immediate consumption. Figure 2.18 provides more detail on the determinants of income, by assessing how the value of costs and the value of output have developed by production system over the evaluation period. The main findings from this include:

- The value of output and the value of inputs are generally higher for specialist pig producers than for non-specialist ('other') pig producers.

- The value of output and the value of inputs are relatively volatile, especially for specialist breeders and specialist breeders-fatteners combined. In some years over the evaluation period, the value of output has been lower than the value of inputs (1998 for breeders and breeder-fatteners, 1993 for breeders).

- For specialist fatteners (and to a lesser extent specialist breeders), there has been a dramatic increase in both the value of output and the value of inputs since 1998. For specialist fatteners, the value of output has tended to follow the same trend.

- For non-specialist pig producers, there has also been a steady increase in the value of inputs since 1998. However, the value of output has not followed the same trend. Consequently, for both 2002 and 2003 income has been negative.

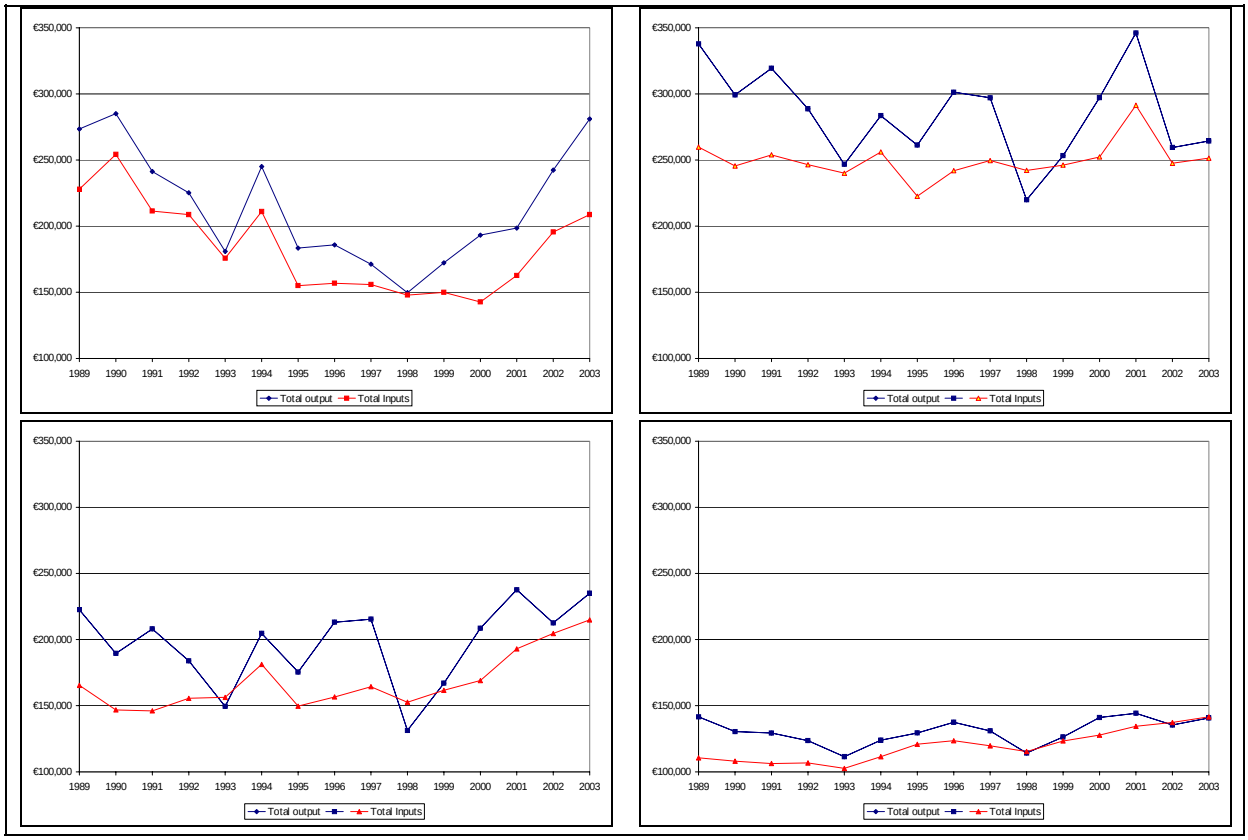

Figure 2.18: Evolution of the value of outputs and inputs (in real terms - 1995) by production system, 1989-2003

Source: FADN – processing DG AGRICULTURE G3.

Although income levels are higher on specialist pig holdings, subsidies have limited importance for the specialist pig producers. In 2003, on average a specialist fattener received €6,660 in payments, a specialist in rearing €11,141, a breeder-fattener €14,273. In contrast, non-specialist 'other' pig farmers received €23,518 on average, which represents almost 17% of the value of their output.

Form of vertical integration

The level of vertical integration in pig production has increased over the period. The proportion of farms with contract rearing has increased from 1.3% in 1989 to 5.2% in 2002 (Figure 1.7). *A priori* it would be expected that *economically rational* pig producers would only vertically integrate their production process if it were economically viable to do so. Accordingly, it would be expected that incomes for these producers would be higher having vertically integrated than they would otherwise have been.

According to analysis undertaken by FADN (Appendix 6), the proportion of holdings undertaking contract rearing increases with scale of production, accounting for less

than 1% of production on small pig holdings compared to 7.5% of the large pig holdings. Moreover, the importance of contract rearing differs by Member State. For example, 34.3% of pig holdings in the UK undertake contract farming compared to virtually none in Germany.

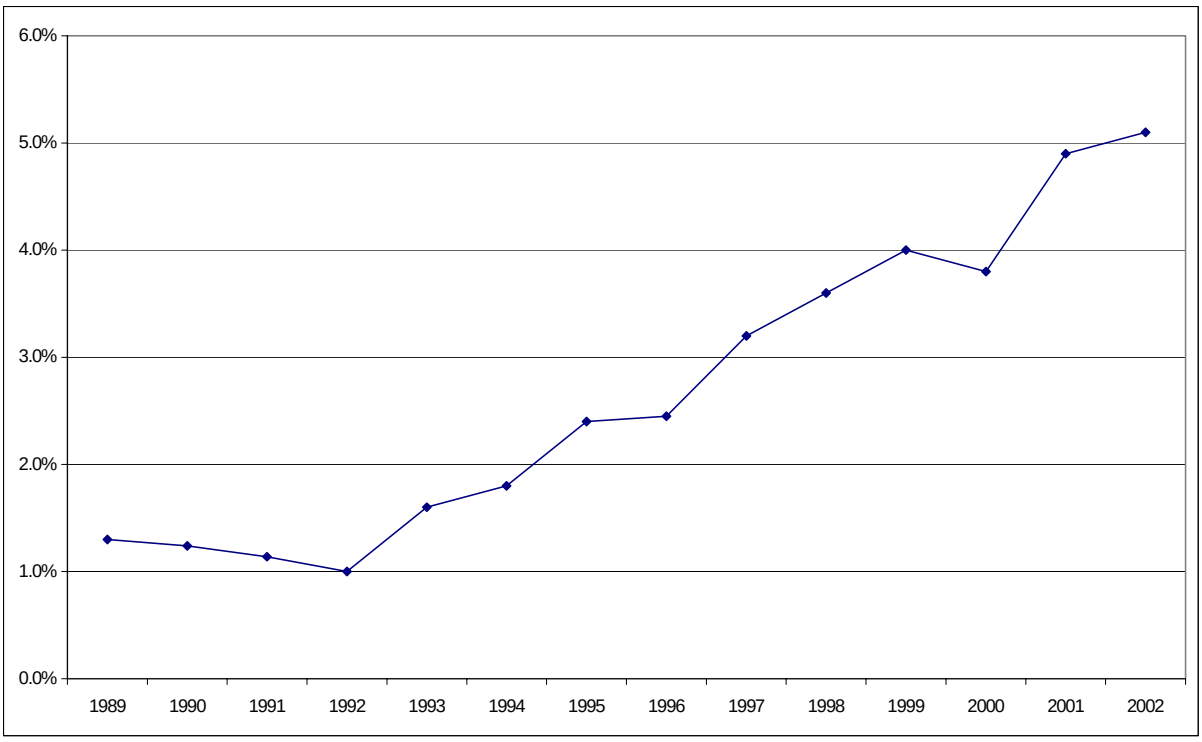

Figure 2.19: Evolution of contract rearing farms (%)

Source: FADN – processing DG AGRICULTURE G3.

Region

For certain regions in the EU, pig production accounts for an important share of agricultural activities. Analysis of the FADN data for granivores at NUTS2 level (Appendix 6) shows important concentration of production in Belgium (in the provinces of Limburg and Antwerpen and the West of Flanders), the Netherlands (in the provinces of Noord-Brabant and Limburg), Spain (in Cataluña) and Germany (in certain areas of Nordrein-Westphalen (Münster)). In these areas, granivores make up at least 66% of the total livestock units and there are at least 2LU of pigs per ha of UAA. Other important areas of pig production within the EU include Denmark and parts of France (namely, Bretagne), where granivores make up at least two-thirds of total livestock although the density is less then 2 LU per ha UAA.

Analysis of the FADN data (Appendix 6) reveals that these important and concentrated pig production regions account for approximately one-third of total pig production in the EU. The analysis shows that pig holdings in these regions tend

to operate on a larger scale. In 2003, pig holdings in these regions had 263LU of pigs, on average, compared to an average of 127 LU outside these regions. However, analysis of income data shows that in 2003 there was little difference in income level. On average, income during 2003 totalled €25,154 compared to €25,093 outside these regions (in 1995 terms).

Moreover, the FADN analysis (Appendix 6) reveals that income levels for specialist pig producers within the concentrated pig production regions totalled €22,794 in 2003, 39% lower than average incomes achieved (€37,579) by those specialist pig holdings outside these regions. However, analysis of the relative incomes of specialist pig holdings within and outside these concentrated pig production areas varies between years. In 2001, for example, specialist pig producers within these higher pig density regions had an average income of €55,747 (59% more), compared to €35,047 for the specialist pig producers in the less dense pig production regions. These results suggest that income is more volatile for specialist pig producers in the more concentrated pig production regions.

Figure 2.20 illustrates how incomes have evolved between 1989 and 2002 for the specific case study regions where there is a high concentration of pig production. As would be expected *a priori* given that these regions tend to have the largest and highest income units, income levels in most of these regions are above the EU average over the period. The only real exception is Cataluña in 1989 to 1990 and 1999 to 2000. In particular, the highly developed (technically and large scale) sectors of Denmark and the Netherlands consistently perform well above the EU average (except in the case of the Netherlands in 1998 which was particularly affected by the outbreak of classical swine fever in that year).

Incomes in all regions show significant (generally parallel) cyclical fluctuation throughout the period.

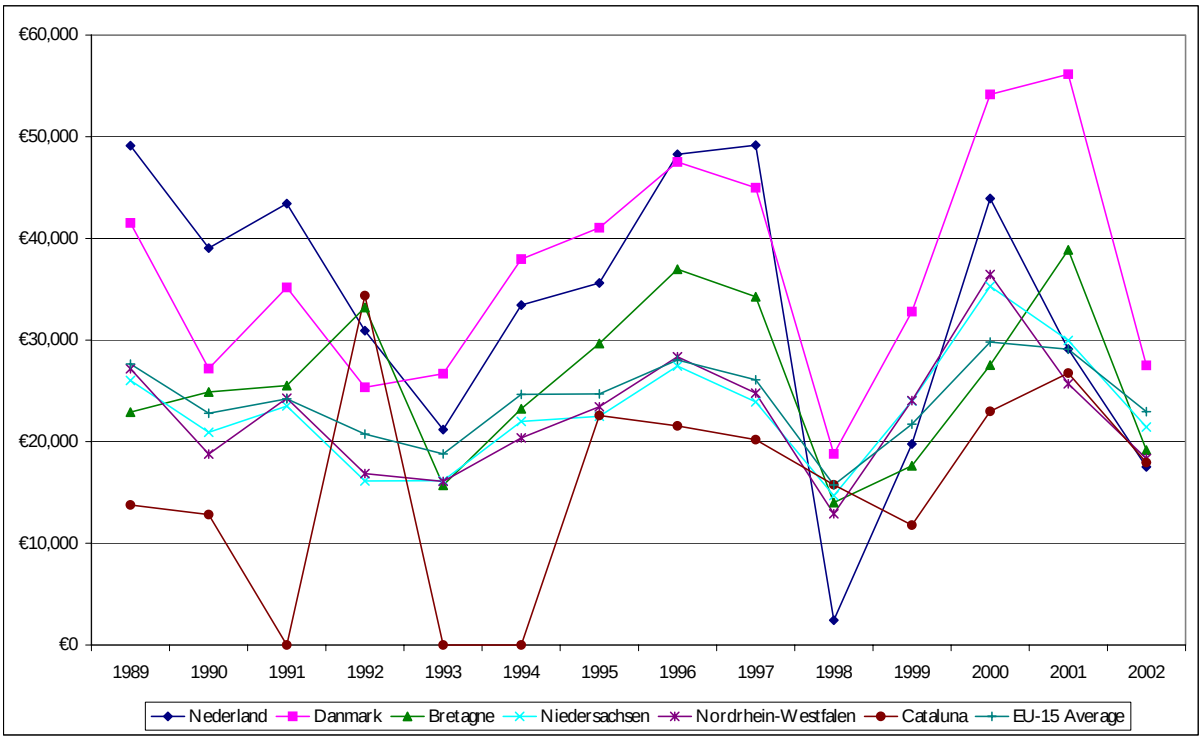

Figure 2.20: Case study region comparison of average FNVA per AWU between 1989 and 2002 (in real terms)

Note: in the case of Denmark and the Netherlands no sub-national level data are available.
Source: FADN.

Comparison of the pig sector with other sectors

Figure 2.21 shows the development of average incomes in the pig sector over the evaluation period compared to total agricultural income. This analysis demonstrates that average incomes for pig producers are generally higher than average incomes for the agricultural sector as a whole. However, the aforementioned volatility in pig producer income means that in some years during the evaluation period (i.e. 1993, 1998 and 1999) average incomes in the pig sector were lower than those achieved by the sector as a whole.

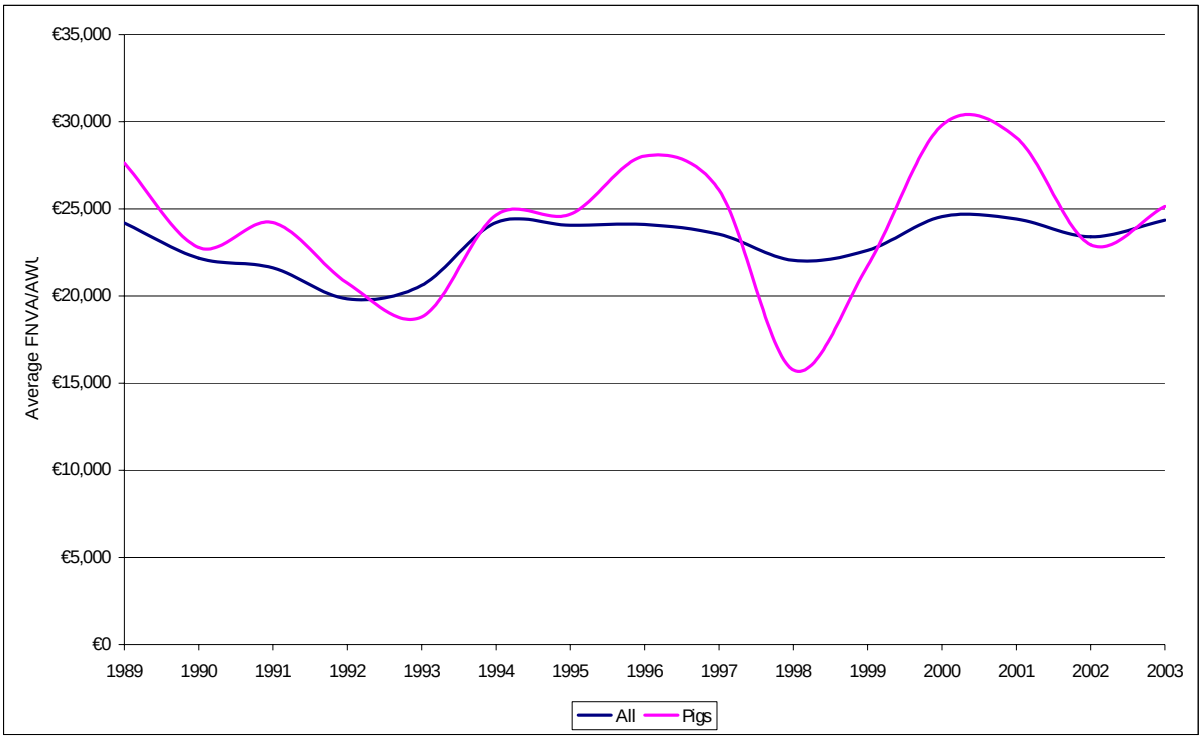

Figure 2.21: Evolution of the average incomes of pig producers compared to all agricultural sectors

Source: FADN – processing DG AGRICULTURE G3.

2.3.1.2. Synthesis of results from the tools used and conclusions

Although it is difficult to quantify the joint impact of the CMO on income, the analysis of the FADN results has provided a number of general conclusions on the level of and development in pig producers' income over the evaluation period, which in conjunction with the findings of the other Evaluation Questions and the stakeholder interviews can be used to form a judgement in relation to the following specific evaluation questions:

Do the measures for the CMO for pigmeat have a significant joint impact on the level and development of producers' income?

If impacts can be identified, can they be specified (impacts through the volume of production, prices and/or costs) and quantified?

Box 2.6: General conclusions on the level and development in pig producers' income over the evaluation period

- **In terms of the pig sector as a whole,** incomes are generally higher and more volatile in the pig sector than for the agricultural sector as a whole. There has been a general increase in pig producers' incomes over the period, although much of this increase has been due to an increase in the scale of production from the associated economies of scale. Income levels over the period are cyclical with peaks recorded in 1996 and 2000 and cyclical lows recorded in 1993, 1998 and 2002.

- **In terms of size**, income levels are lower and more volatile on smaller holdings than on larger holdings.

- **In terms of production system and degree of specialisation**, incomes are higher, but more volatile, on specialist pig holdings (particularly combined rearing and fattening units) compared to non-specialist holdings. In this respect, the difference between the value of income and costs is greater for specialist pig producers compared to non-specialist producers. Subsidies form a greater share of income for non-specialist producers compared to specialist pig producers. Income levels for specialist pig producers in concentrated pig producing regions in the EU tend to be higher and more volatile than production in less dense regions.

- **In terms of vertical integration**, integration in the sector has increased, particularly on larger farms, with pig producers supplying pigs on contract having higher incomes.

- **In terms of geography**, there is substantial income variation between countries as well as substantial annual variation within countries.

- **Impact of the CMO on the level of producer's income.** The FADN analysis found that, in general, the level of average income for pig producers (in terms of FNVA) has been higher over the evaluation period than for the agricultural sector as a whole. The extent to which the CMO measures have attributed to this 'higher' level of income was quantified by the modelling results in answer to Evaluation Questions 2 and 3. The results found that export subsidies and import tariffs have generally had a significant joint impact on the profitability of pig production in the EU by maintaining higher internal producer prices at higher levels of production than would otherwise have been the case. The modelling results found that the direct (positive) impact of export subsidies and import tariffs on producer pigmeat prices and production was 2.6% and 2.6% respectively in the 1990-92 period, 2.3% and 1.8% respectively in the 1995-97 period and 2.3% and 1.4% respectively in the 2000-02 period. As a result, income levels were found to be 6.9%, 6.0% and 5.9% higher in the three reference periods.

  In addition, statistical and financial analysis carried out Evaluation Questions 4 and 5 would suggest that private storage aid and exceptional market support measures have also had an impact on income. Although the analysis was unable to quantify the impact on price (in the case of private storage aid) and income (in the case of both private storage aid and exceptional market support measures), it is likely that cyclical income lows (hence average income levels over the period) would have been lower without the intervention of these measures.

- **Impact of the CMO on the development of producer's income.** Based on the FADN analysis there has been a general increase in pig producers' incomes over the period. Much of this increase in income over the period was found to be due to an increase in the scale of production from associated economies of scale. Moreover, as discussed above, the impact of the contribution of the CMO measures on income in the sector fell slightly from 6.9% in 1990-92 to 5.9% in 2000-02.

  The FADN analysis also found that the development in incomes in the pig sector was more volatile than in the agricultural sector as a whole. Income levels over the period reached cyclical peaks in 1996 and 2000 and cyclical lows in 1993, 1998 and 2002. Much of the volatility over the period has been caused by the impact of disease outbreaks on production and price. As discussed above, without the use of private storage aid and exceptional measures, in addition to export subsidies and import tariffs, the cyclical development of incomes over the period would likely have been more volatile.

However, it should be noted that the extent to which producers have directly (or indirectly) benefited from the CMO measures varies significantly both within and between Member States. As the FADN analysis demonstrated, the level and development in pig producers' income over the evaluation period varied according to, for example, farm size, degree of specialisation, production system, level of vertical integration and geography.

This evidence of the significance of the CMO is reinforced by the interviews with stakeholders particularly in Denmark, the Netherlands, France and more recently Spain, which have been the major beneficiaries of the CMO expenditures in the form of export refunds, private storage aid and exceptional support:

- **In terms of export refunds and import tariffs**, for those Member States, Denmark, the Netherlands and France, which obtain, or at least used to obtain, significant benefit from export refunds, particularly in the Russian market, it is acknowledged that this measure has, if not opened[86], then at least helped sustain the EU presence in these markets. More generally, stakeholders in almost all Member States took the view that the combination of export refunds and import protection provided by the CMO enabled production and prices for producers in the EU to be sustained at a marginally higher level than they would otherwise have been. On the issue of import protection it was, however, not fully clear amongst sector observers whether this was derived directly from the tariffs or rather from the veterinary and sanitary barriers currently in place for major potential exporters.

- **In terms of exceptional market support**, for the major beneficiary of exceptional market support, the Netherlands in the CSF outbreak in 1997/1998, it is acknowledged that this support contributed greatly to the maintenance of incomes of those affected by the control measures taken.

- **In terms of private storage aid,** it is the general view of the major beneficiary of private storage aid interviewed that the application of this aid has been effective in reducing the extent to which incomes have fallen during the cyclical lows in the *pig cycle*.

More generally, those sectoral participants interviewed noted that other factors rather than the CMO measures primarily determine income levels *per se*. These

[86] In Denmark the sector noted that it had already developed exports to some major markets prior to accession in 1973. In France, the sector noted that refunds on exports to Russia were instrumental in opening the market, but were now partially sustained by the fact that the EU had market access quotas.

include demand conditions (including levels of retailer concentration) as well as the ability of the sector to develop the institutional structures, knowledge systems, export marketing strategies and branding. In this latter respect researchers in Denmark saw the CMO as having potentially adverse long-term income effects by encouraging the production of standardised products.

Looking more specifically at the **impact by type of production system**, no differentiation was seen in CMO impact on any particular type of system, except that it was noted that it had less impact on niche markets such as organic, outdoor, etc.

No differentiation in terms of CMO impact was ascertainable by **form of vertical integration**, but analysis by **size of holding** found that the bulk of the indirect income benefit of the CMO goes to the largest producers in those regions which account for a high proportion of output in Denmark, France, the Netherlands, Spain and Germany which between them account for the bulk of EU production.

Box 2.7: Main conclusions on the level and development of income

In conclusion, the evidence presented in this chapter, in association with the findings of Evaluation Questions 2 to 6, would suggest that the measures of the CMO for pigmeat have had a joint impact on the level and development of producers' incomes over the evaluation period:

- **In terms of the joint impact on the level of income**, the FADN analysis has illustrated that, in general, the level of average income for pig producers (in terms of FNVA) has been higher over the evaluation period than for the agricultural sector as a whole. Both export refunds and import tariffs were found to have jointly maintained producer prices and production (hence income) at levels above which would otherwise have been the case. Similarly, evidence would suggest that without private storage aid and exceptional market support measures, cyclical income lows would have been lower, thereby depressing average income levels over the period. *Thus, the joint impact of the CMO measures on the level of income has been fairly significant*. Consequently, the measures have, to a certain extent, fulfilled the objective of the CMO to *ensure a fair standard of living* for producers.

- **In terms of the joint impact on the development of income**, the FADN analysis found that although there has been a general increase in pig producers' incomes over the period, much of this increased level of income was due to an increase in the scale of production. Evidence presented in Evaluation Question 9 suggests that the CMO measures have only had a minor and indirect impact on the evolution of the number and size of holdings. Thus, much of the development in incomes over the period, in this respect, has been due to other factors. Moreover, the contribution of export refunds and import tariffs in maintaining income at higher levels than would otherwise be the case has fallen slightly over the evaluation period.

  That said, the CMO measures have had a joint impact on the cyclical development of income over the period. While the FADN analysis illustrated the extent of the cyclical income lows recorded in 1993, 1998 and 2002, it is generally considered that without private storage aid and exceptional market support measures the cyclical income lows over the evaluation period would likely have been greater. *Thus, the joint impact of the CMO measures on the development of income has been fairly significant during cyclical lows*. Moreover, the buffering of the extent of the cyclical lows has gone some way to fulfilling the objective of the CMO to *stabilise markets* and help *ensure a fair standard of living* for producers.

2.3.2. Question 8: Analysis of production costs

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.2.2.

The impacts of the different CMO instruments and of other related policies

As discussed in Section 2.1.1, one of the overarching objectives of the CMO for pigmeat (relevant to this evaluation question) is *to ensure a fair standard of living for farmers*. It can therefore be hypothesised that given that the CMO for pigmeat is a relatively lightly supported sector, the impact of other related policies will have had a greater effect on the level of production costs over the evaluation period, and hence the level and development of producers' incomes.

This evaluation question was answered based on an analysis of Farm Accountancy Data Network (FADN) data[87] (much of which was based on a specific study carried out by DG Agriculture (Appendix 6)) and other secondary data. The findings of this quantitative analysis were supplemented by interviews with industry stakeholders in the EU pigmeat sector to provide contextual information as to any link between changes in income levels and the role of the pigmeat CMO.

2.3.2.1. General analysis of production costs

Figure 2.18 compares the average cost structure of pig producers in the EU between 1989 and 2003. This comparison shows that the structure of production costs has changed over the evaluation period with the importance of specific costs[88] decreasing, at the expense of external factors[89] and overheads[90]. Analysis of the 2003 FADN data (Appendix 6) shows that:

- The most important cost is feed, accounting for 63% of the *specific costs*.
- In the composition of the *external factors,* wages are the most important cost, accounting for 40% of total external costs. The remaining costs associated external factors are rent and interest, accounting for a more or less equal share of the remaining 60% of external costs.
- For *overheads*, the main cost elements are energy (24%) maintenance costs for building and machinery (21%) and contract work (17%).

[87] As discussed in the introduction to Question 7 (Section 2.3.1).
[88] Specific costs include costs such as feed (both farm-grown and purchased) and other livestock specific costs.
[89] External factors include costs such as wages paid, rent paid and interest paid.
[90] Overheads include costs such as electricity and water.

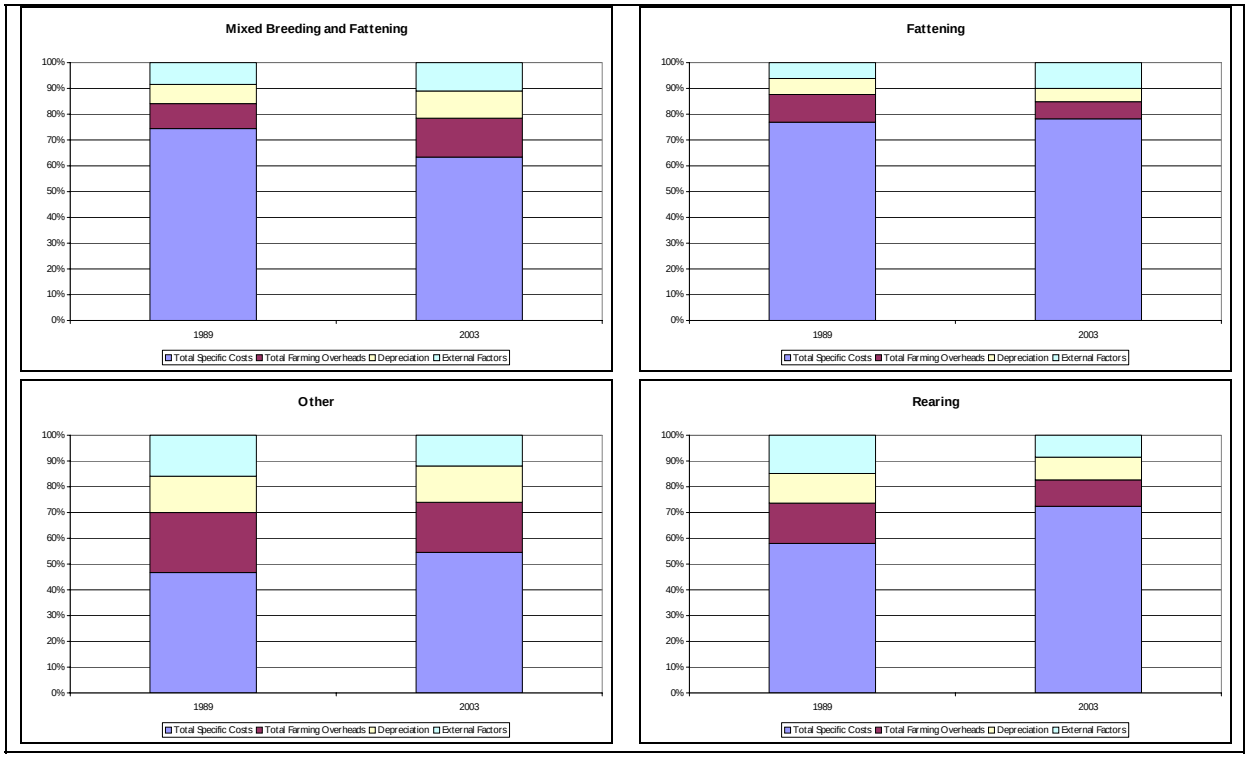

Figure 2.22: **Comparison of the average cost structure of pig producers (1989 and 2003)**

Source: FADN – processing DG AGRICULTURE G3.

Analysis of the FADN data by production system (Appendix 6) shows that there has been a similar decrease in the importance of specific costs, at the expense of external factors and overheads, for all production systems between 1989 and 2003. However, average cost structures differ significantly by production system. For example, specific costs account for the greatest share of total costs for specialist fattening systems (75%) and the least for non-specialist (mixed) systems (47%).

In addition, analysis of the of the 2003 FADN data (Appendix 6) shows that the cost structure of pig production in the EU varies significantly according to the size of the farm. For example, specific costs account for only 38% of the costs on farms with less than 50 LU pigs, compared to nearly 60% on farms with up to 5000 LU pigs. On these larger farms external factors (namely salaried labour) becomes more important, accounting for 18% of costs, compared to 12% for smaller farms consisting of up to 50 LU.

Figure 2.23 shows the total production costs per kilogram deadweight in 2002 for a number of Member States[91]. Production costs in these Member States range from €1.30 per kg deadweight in Spain to €1.65 per kg deadweight in the UK. Italy and the Netherlands also have fairly high production costs at €1.60 per kg deadweight and €1.53 per kg deadweight, respectively. The cost of production in Belgium, Denmark, France and Germany are similar, ranging from €1.44 per kg deadweight to €1.49 per kg deadweight.

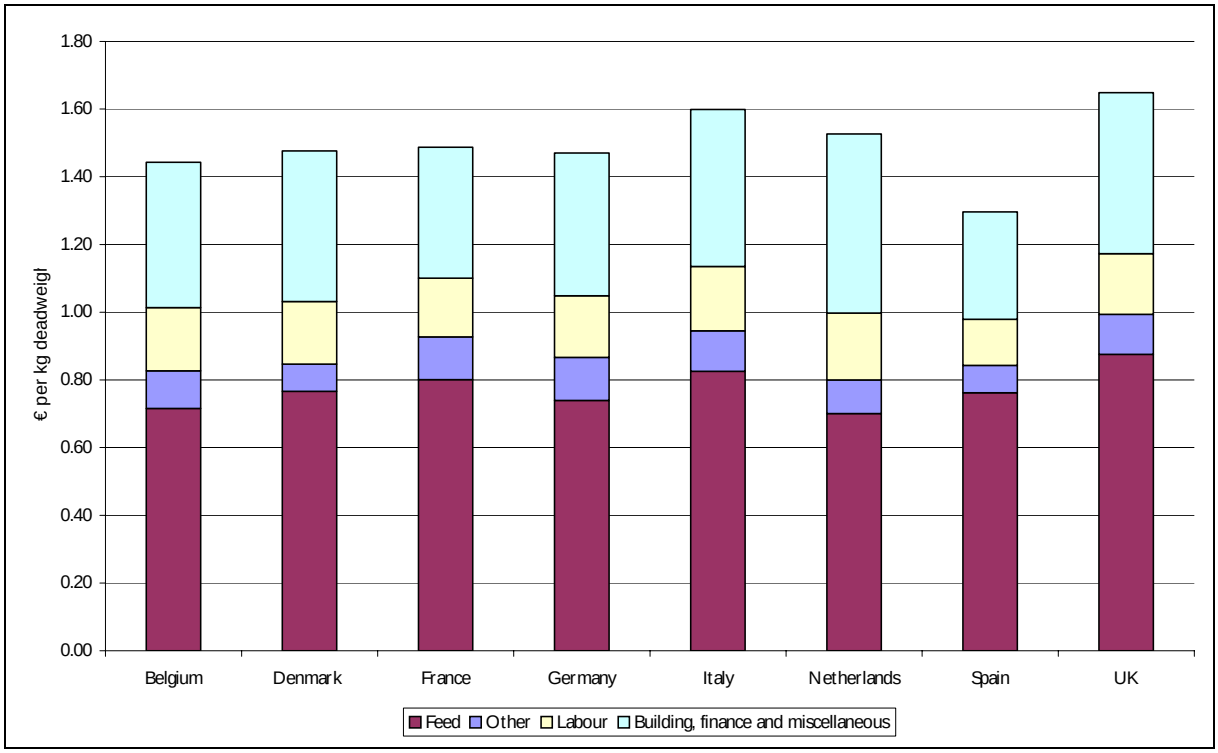

Figure 2.23: Total costs of EU pig production, 2002

Source: MLC-BPEX, UK.

The largest single cost in the production of pig meat is feed. Feed costs average 52% of total EU production costs, ranging from 46% of total costs in the Netherlands to 59% of total costs in Spain. The cost of buildings and finance is the second most important cost category, averaging at 30% of total production costs in the EU (ranging from 22% of total costs in Spain to 37% of total costs in the Netherlands). The other main cost category is labour, which accounts for an average of 12% of total production costs in the EU (ranging from 9% of total costs in Spain to 14% of total costs in the Netherlands).

[91] These costs were collected by the UK Meat and Livestock Commission's British Pig Executive from various sources, including the British Pig Executive, Danske Slagterier, Institute Technique du Porc, LEI University of Wägeningen, Centro Ricerche Produzioni Animali, Asociation National de Productores de Granda Porcino and University of Lleida, Zentralverband Der Deutschen Schweineproduktion (ZDS) and Belgium National Institute of Statistics and Centre of Agricultural Economics.

2.3.2.2. Analysis of feed costs

Influence of arable sector price levels

« Secondary data analysis »

The EU arable sector has important linkages with other agricultural sectors, particularly the livestock sector. According to the industry interviews, cereals form a significant ingredient of livestock feed rations in the EU livestock sector, accounting for around 60% of the overall feed ration. This is particularly so in the EU pigmeat sector, where animal feed forms the main cost in the production of pigmeat.

In 2002 feed costs ranged from €0.70 per kg deadweight in the Netherlands to €0.88 per kg deadweight in the UK (Figure 2.24). Feed costs were significantly higher in the UK and this was the main reason why the UK had higher overall production costs than the other selected Member States. Italy also had relatively high feed costs at €0.82 per kg deadweight. One of the main reasons why both the UK and Italy have higher feed costs is because of the poor daily live-weight gains of their pigs. As a result, in order for pigs in the UK and Italy to convert feed into kilograms of pig meat, they must eat more food, and this results in an additional cost for UK and Italian pig producers.

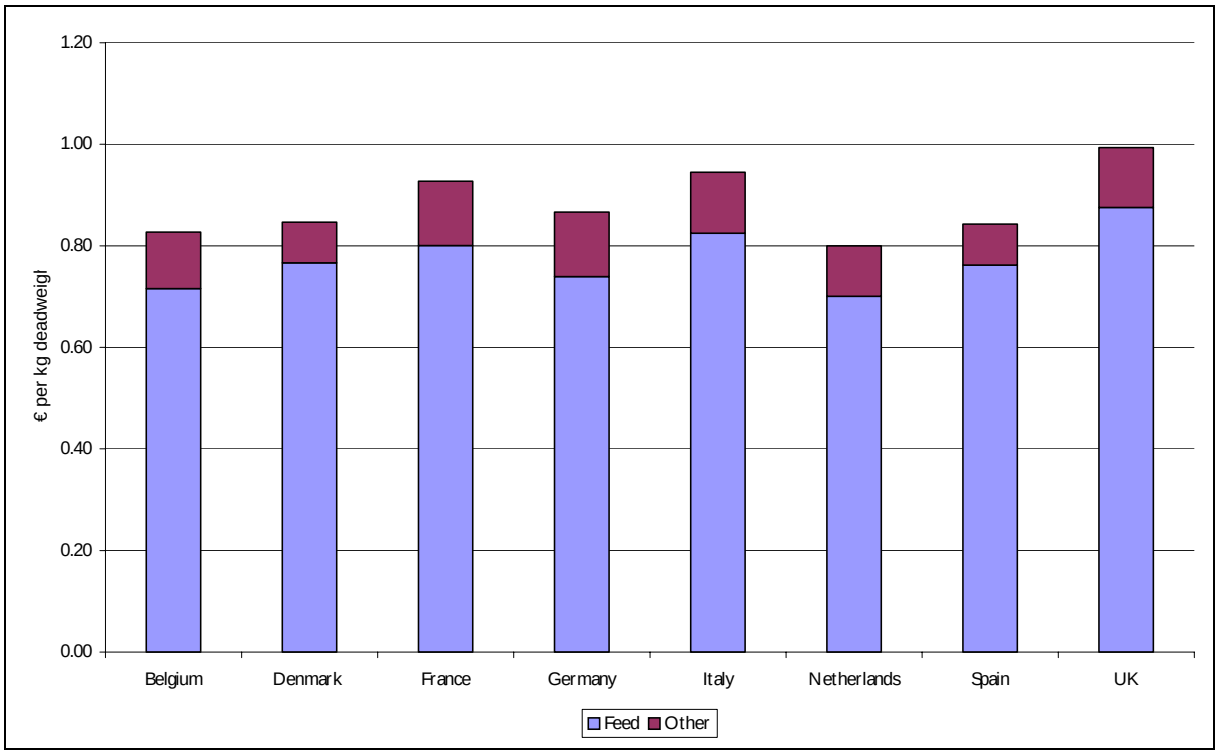

Figure 2.24: Variable costs of EU pig production, 2002

Source: MLC-BPEX, UK.

In addition, the difference in feed costs per kg pig meat produced is attributable to differences in pig feed ration costs in each Member State. Overall sow ration prices per tonne do not vary greatly between the selected Member States (Table 2.26). However average prices for rearing and finishing feed rations in the UK and Italy were significantly higher in 2002 than in the majority of the other Member States. From the data collected it is not possible to determine if this is a result of unit cost of ingredients, dominant purchasing method (i.e. raw material plus), ration formulation or dominant feeding method (liquid or dry, purchased compound or home mill and mix).

Table 2.26: Comparison of feed costs in the EU, 2002 (€ per tonne)

Feed type	Denmark	France	Germany	Italy	Netherlands	Spain	UK
Sow	196.48	182.00	233.00	198.01	181.61	165.52	175.08
Rearer	285.29	290.00	229.00	312.00	284.50	355.27	304.81
Finisher	188.40	187.00	180.00	188.00	183.50	183.02	200.76

Source: MLC, UK.

Given the importance of cereals in the overall feed ration for pigs and the importance of feed costs in total production costs, the absolute level of, and developments in, EU cereal prices therefore have important implications for the cost competitiveness of the EU pigmeat sector. Consequently, any change in the CMO for cereals that affect cereal prices would *a priori* be expected to have a considerable impact on the cost competitiveness of pigmeat production.

During the period under examination in this evaluation, there have been two major reforms to the CMO for cereals; the MacSharry 1992 reform and the Agenda 2000 reform. These reforms have progressively reduced the EU intervention price for cereals (with these price reductions being compensated for by direct payments to farmers based on the area under production). As a result of the MacSharry 1992 reform, the intervention price for common wheat was reduced by 34.8% over a three-year period, after which time it remained unchanged (apart from a 7.5% increase as a result of revisions to the agro-monetary rules[92]) until the Agenda 2000 reforms which led to a further 15% reduction in cereal prices over a two year period

[92] In 1995 changes were introduced in the agro-monetary rules and the intervention price was set at 119.19 ECU per tonne, an amount deemed to be equivalent to the proposed 100 ECU per tonne target price under the old rules.

(Figure 2.25). These reforms have had a direct impact on the EU market price for cereals. Between 1992 and 2001, the intervention price was cut by 30.6%. As a result, EU cereal market prices fell by similar amounts, with the price for wheat, barley, maize and oats falling by 32.3%, 29.7%, 28.3% and 26.7%, respectively.

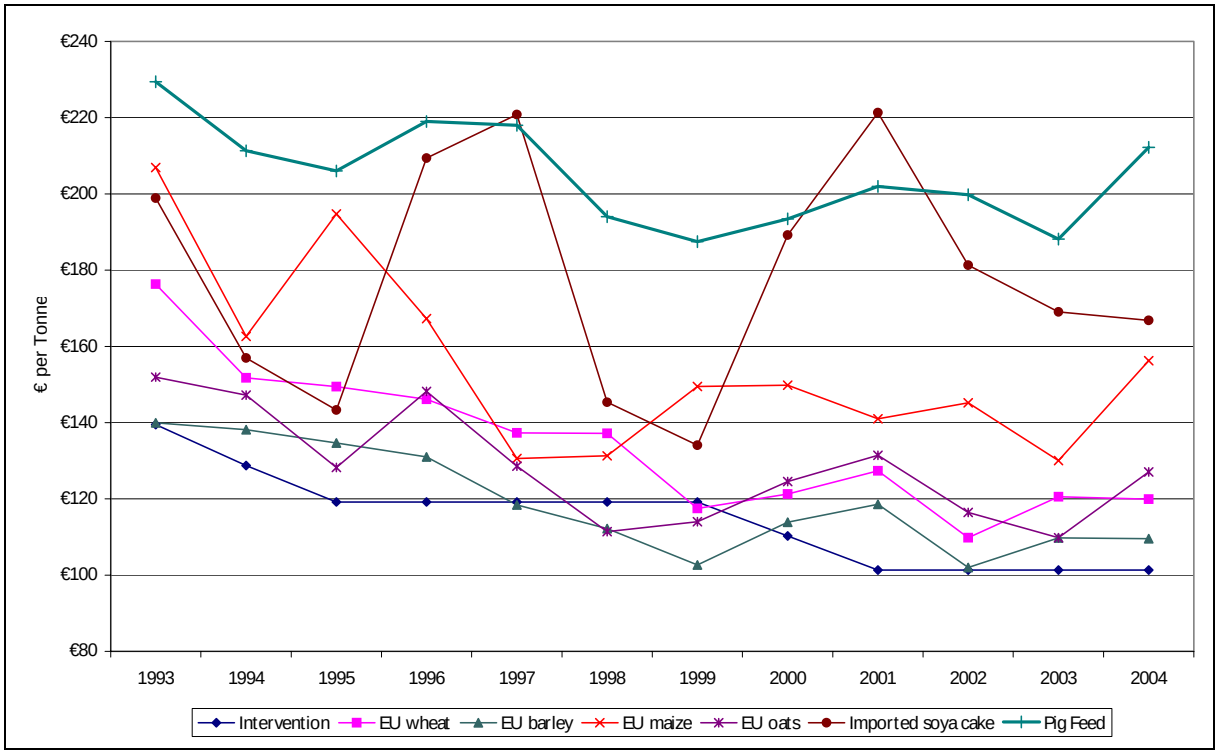

Figure 2.25: Pig feed and pig feed component prices, 1993-2004 (€/tonne)

Source: Toepfer.

As might be expected *a priori*, given the reductions in intervention price and cereal market prices, the price of pig feed fell over the period 1993 to 2003 by 18.0% according to the data from Toepfer. However, the extent to which the price of pig feed has fallen over the period has been considerably less than the reduction in intervention price (27.3%) and cereal market prices (21.6% to 37.2%) over the same period.

There are a number of possible contributory factors that could explain this trend. Firstly, there are other ingredients used in the production of livestock feed rations, such as soya. Soya is an important source of protein used in the production of livestock feed rations. The market price for imported soya has not fallen in line with the intervention price and EU cereal market prices over the period. Although the intervention price and cereals market prices fell by 26.7% and 32.3%, respectively, between 1992 and 2001, according to Toepfer data the price for imported soya actually increased by 11.3%. Secondly, changes to the Community's feed legislation

has resulted in additional costs being transferred to producers through feed prices, particularly at the end of the evaluation period following the introduction of the ban on meat and bonemeal (as discussed below). Thirdly, the increase in fuel costs over the period is likely to have been passed on to producers in terms of a higher feed price.

The MacSharry 1992 reform and the Agenda 2000 reforms were necessary as the system of price support for cereals was placing an unsustainable financial burden on the EU budget as the system of price support had encouraged excess production and discouraged domestic usage. As a result, particularly of the low duty access for oilseeds granted by the EU during the 1962 Dillon Round of the GATT, imported cereal substitutes had also gained an increasing share of the market for use in the production of livestock feeds, at the expense of domestic cereal production.

However, this trend was reversed following the aforementioned cereal intervention price cuts and subsequent fall in EU cereal market prices, as the cost competitiveness of EU cereal production improved. As shown in Figure 2.26, there is a clear inverse relationship between the EU intervention price and the volume of EU cereal production used in industrial compound feed in the EU. Between 1992 and 2001, the volume of EU cereal production used in the production of livestock feed in the EU increased by an average 548,989 tonnes for every €1 per tonne reduction in the intervention price.

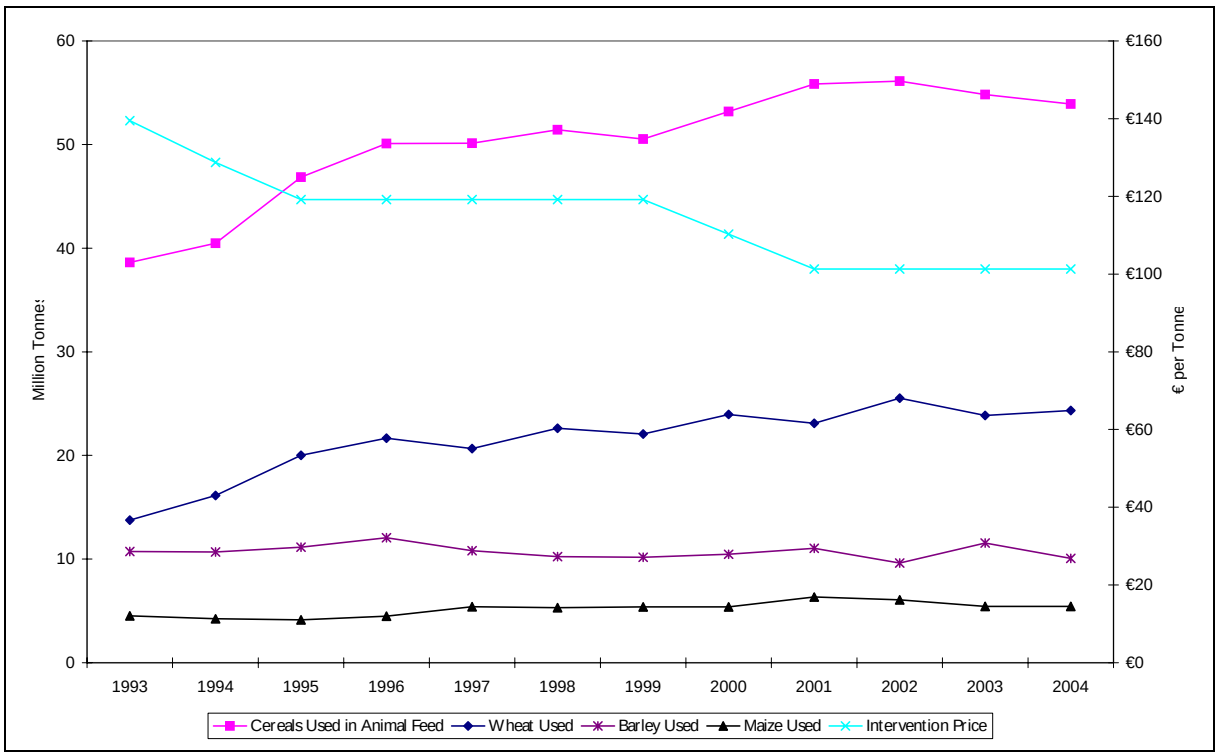

Figure 2.26: EU intervention price and cereals used in animal feed, 1993-2004

Source: European Commission, FEFAC and Toepfer.

« FADN analysis »

Analysis of FADN data suggests that when expressed on a livestock unit basis, average on-farm pig feed costs for all commercial producers with pigs have also declined over the period (Figure 2.27) in line with the cut in intervention price and price for pig feed. For example, between 1992 and 1995 (i.e. the first period of intervention price cuts), the on–farm cost of pig feed fell by 17.1%, compared to an 18.4% reduction in intervention price.

A corresponding trend in the cost of pig feed per Livestock Unit (LU) can also be seen in Figure 2.27. However, it should be noted that although the cost of feed per LU has fallen over the evaluation period, due to the increasing scale of pig production expenditure by pig holdings on feed has increased since 1989.

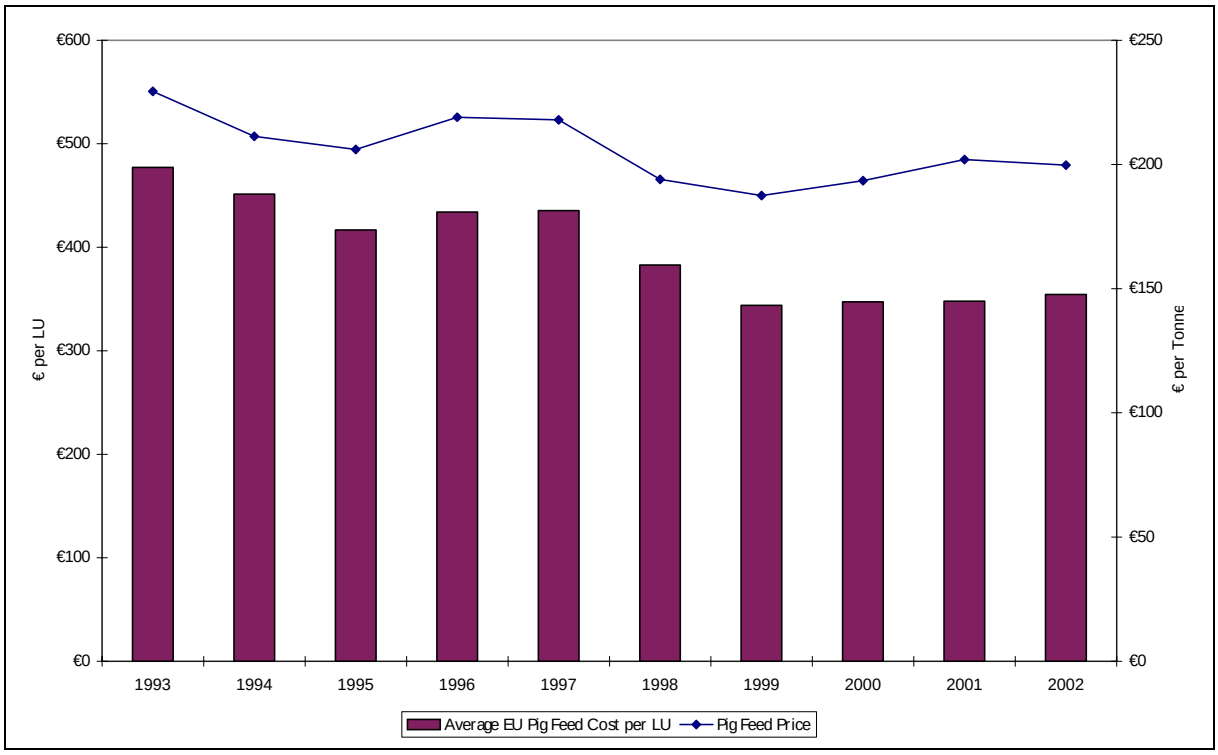

Figure 2.27: Average EU pig feed costs (€/LU) and price (€/tonne), 1993 to 2002

Source: FADN and Toepfer.

Most pig producers in the EU use purchased feed. Based on the analysis of the FADN data for 2003 (Appendix 6), purchased pig feed accounts for 97% of all expenses on pig feed. In contrast, even on mixed farms purchased pig feed accounts for a relatively high share (81%) of total expenditure on feed. Figure 2.28 provides an evolutionary overview the impact of the aforementioned reduction in feed price on the cost structure of pig production[93]. For specialist pig production systems, the cost of pig feed as a percentage of total livestock specific costs have fallen over the evaluation period, although the cost of feed still remains the single most important livestock related cost. For non-specialist (mixed) production systems, the level and trend over the period differs as the livestock specific costs also contain expenditures for other animals.

[93] This analysis excludes the contract farming.

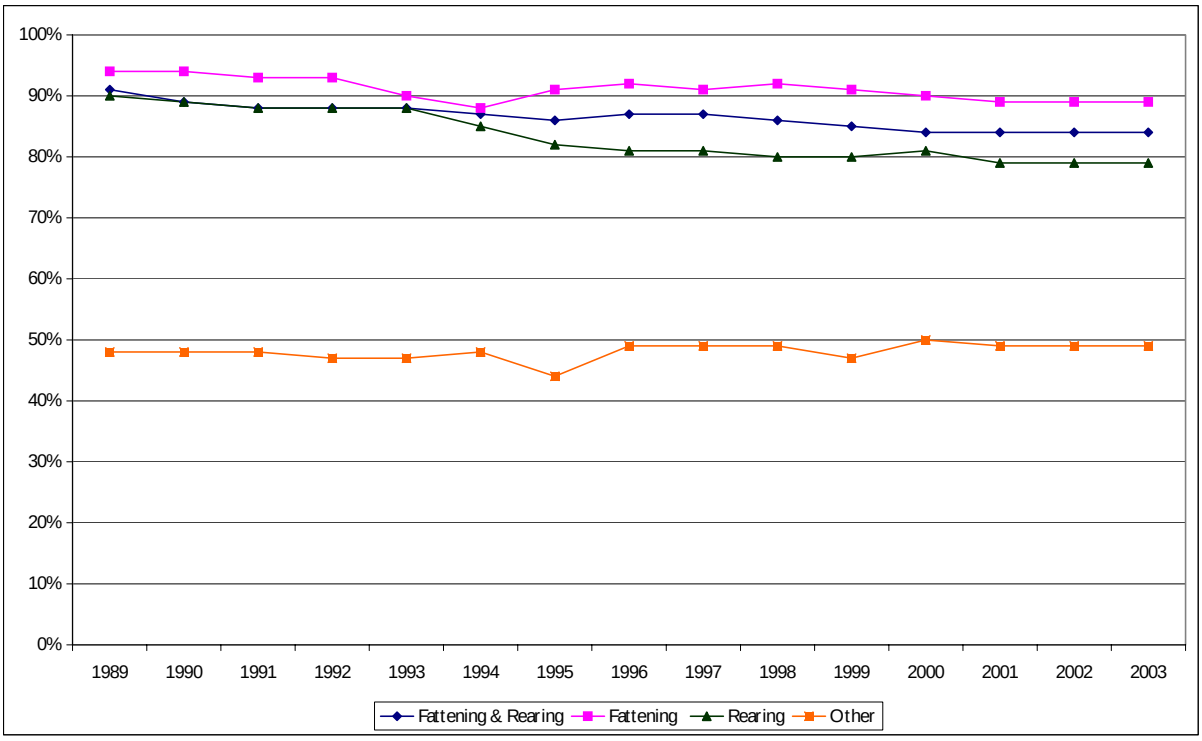

Figure 2.28: Evolution of pig feed expenses as part of the farm total livestock specific cost

Source: FADN – processing DG AGRICULTURE G3.

Influence of community feed legislation

In January 2001, the EU Agriculture Council approved an EU wide ban on feeding processed animal proteins to farm animals. However, for the UK this ban had been in force since 1996. The feeding of processed animal proteins was a cost-effective way to increase the levels of protein and/or minerals in animal diets and complemented protein from grain ingredients to improve dietary protein quality. Accordingly, this ban has added additional costs to the production of animal feed which may account to some extent for the slight increase in feed prices during 2001 and 2002, as shown in Figure 2.27 above. However, as illustrated above the cost of pig feed in the EU has fallen in absolute terms over the evaluation period.

« Secondary data analysis »

The European Feed Manufacturers' Federation FEFAC (Agra Europe, 2000), estimated that the extra cost of replacing meat and bonemeal with soybean meal would result in a 7% rise in pig feed prices. However, analysis carried out by the

Institut Technique du Porc[94] for France has estimated that the imposition of the feed ban has cost the French pigmeat sector €5.2 million. This is equivalent to an increase in the price of feed by €0.75 per tonne (3-4%).

According to the UK's Food Standards Agency[95], it was estimated that the annual cost to pig and poultry producers in 1998 of using alternative, more costly feed supplements was £14 million (approximately €22 million).

« Interview results »
Our interviews found that it was the general consensus of the industry that the feed ban had added costs to the industry. However, limited data was available to quantify the extent of these additional costs on the sector.

2.3.2.3. Analysis of manure disposal and emission reduction costs

EU environmental protection measures have imposed additional costs on EU pig production concerning manure disposal and reductions of emissions. However, it should be noted that these measures do provide environmental and cost benefits to society as a whole.

« Secondary data analysis »
Comparative costs for manure management for individual Member States are not readily available at either the EU or national level. This is in part because such individual costs are not recorded at the farm level. However, some estimates do exist.

A study carried out by the OECD (Table 2.27) found that the cost of manure management in Denmark ranges between €2.11 and €2.77 per pig on smaller farms (with a breeding herd of 125 sows), €1.77 and €2.40 per pig on medium sized farms (with a breeding herd of 249 sows) and €2.53 and €3.39 per pig on larger farms (with a breeding herd of 499 sows).

[94] Gourmelen, C., Ilari, E., Dagorn, J., Daridan, D., van Ferneij, J.P., Marouby, H., Rieu, M. et Teffene, O. (2003) Le coût des contraintes réglementaires pour la production porcine française. Rapport d'étude, Institut Technique du Porc, France.
[95] In its BSE controls final report (20 December 2000).

Table 2.27: Environmental costs in Denmark, by farm size

	Type A 125 AU[1]	Type B 249 AU	Type C 499 AU
Number of Pigs produced per year	2,568	5,116	10,252
Manure Produced (t)	1,968	3,921	7,858
Costs (in €[2])			
-Storage	1.55-1.72	1.26-1.38	1.22-1.34
-Storage cover	0.29-0.35		
-Land Application	1.54-1.97		
-Transport to place of land application	-		0.67-0.84
-Documents kept (planning balance etc)	0.23	0.18-0.20	0.31-0.39
Gross Cost (in €)	*3.61-4.27*	*3.27-3.90*	*4.03-4.89*
Value of the manure (in €)	1.50		
Net Cost (in €)	*2.11-2.77*	*1.77-2.40*	*2.53-3.39*
Total cost of gross production (in €)	53.02	50.90	48.21
Proportion of total cost spent on managing manure	4.0-5.2%	3.5-4.7%	5.2-7.0%

[1] 1 animal unit (AU) = 1 sow and 22 pigs produced in the year.

[2] the costs are given in €/pig produced (pigs of around 100kg).

Source: OECD - Agriculture trade and the environment in the pig industry. Joint working party on agriculture and environment.

« FADN analysis »

Although the FADN data does not record manure management costs *per se*, such costs for manure management would be included under the 'other' specific cost category. According to the FADN analysis (Appendix 6), the increase in these costs over the evaluation period may in part be due to those costs associated with increased manure management.

« Interview results »

Industry interviews suggest that manure is often used as a fertiliser in other enterprises and as such has a financial benefit to those enterprises. Where this is the case, the cost of manure disposal is borne by the enterprise which uses it as a fertiliser. Accordingly, the pig holding does not necessarily incur a cost for disposing the manure.

However, where manure management measures do incur a cost to the pig farm, the industry interviews found that these costs differ considerably due to differences in production systems, location of the farm, size of farm, etc. Thus, while it is difficult to provide actual costs for manure disposal, some industry interviewees did provide the following indication of what these costs may be:

- In **France**, the cost of manure spreading is estimated by the Institut Technique du Porc to amount to €2.4/m^3 (€0.021/kg carcass). Assuming that one pig produces 1 m^3 of manure over its lifetime, then this would equate to a cost of €2.4 per pig.

  To treat manure, the average total economic cost for a new treatment plant in France is estimated at €9.4/treated m^3 (€0.65/kg carcass) (of which €5.4/treated m^3 is for depreciation and financial costs and €4/treated m^3 is for operational charges).

- In **Spain**, the results of the industry interviews suggested that the cost of manure management typically ranges from €2 to €4 per m^3. Assuming that one pig produces 1 m^3 of manure over its lifetime, then this would equate to a cost of €2 to €4 per pig.

2.3.2.4. Analysis of costs due to animal welfare standards and animal health provisions

Pig welfare concerns are reflected in increasing legislative activity, at both national and EU level. Council Directive 2001/88/EC (amending Council Directive 91/630/EEC) lays down minimum standards for the protection of pigs, including an EU-wide ban on close confinement sow stalls, to be fully in place by 1 January 2013. Although the requirements of this Directive fall outside the evaluation period, the use of close confinement stall systems and the use of tethers for housing dry sows have been banned in the UK from 1 January 1999.

« Secondary data analysis »

According to analysis undertaken by the UK's Department for the Environment, Food and Rural Affairs (Defra)[96], the banning of close confinement sow stalls has had the following theoretical impact on the cost of pigmeat production in the UK. In such an analysis, there are three elements to take into consideration when calculating the cost to the UK pig producers of the stall and tether ban:

- differences in running costs between stall/tether production and loose housed systems;
- differences in building costs for switching to an alternative housing system;
- the early write off of capital investment in existing buildings (as a consequence of the stall and tether free system being implemented over a seven-year period rather than allowing producers the 15-year write off period).

[96] Defra (2002). Final regulatory impact assessment for the welfare of farmed animals (England) (Amendment) Regulations 2003. December 2002.

Differences in running costs occur because technical factors differ according to housing systems. The technical factors include stocking density, quality and quantity of labour, food requirements and efficiency rates, mortality and production output. Running costs for loose-housed systems are higher than for confinement systems because of increase labour input, food requirements and straw provision. The increased running costs were calculated as £23.10 (€34.71) per sow per year and £1.05 (€1.58) per pig produced per year. According to Defra's calculations, the price of weaners would need to be increased by £0.88 (€1.32) to offset the increased variable costs associated with the stall and tether ban, thereby returning gross margins to pre-ban levels. However, if these increased costs could not be passed onto the market (i.e. £0.88 (€1.32) per weaner), there would be a reduction in pig producer gross margins by 7%.

According to Defra's calculations, the early capital write-off costs are estimated at £36.1 million (€54.2 million), which is a cost per sow per year of £3.01 (€4.52) (on a 15-year write-off period). The total cost to the farm level industry as a whole is estimated as £22,891,400 (€34,394,021) per year, which is £26.11 (€39.23) per sow (£1.19 (€1.79) per weaner).

« Interview results »
Interviews with the UK industry suggest that these additional welfare costs have not been passed on in full to the consumer. As such, the cost of this animal welfare measure has had a negative impact on production costs for the UK pigmeat sector. As shown in Figure 2.23, the UK has the highest production costs in the EU, including those cost categories directly affected by increased welfare standards (such as labour and buildings).

While it is reported by the industry that such high costs of production put the UK at a competitive disadvantage *vis-à-vis* those Member States that have not yet implemented these standards, it was also acknowledged that the early implementation of this Directive does offer the UK a *first mover* advantage in the long-term. In addition, although these measures incur a cost at farm-level, it should be noted they do provide environmental and cost benefits to society as a whole.

2.3.2.5. Synthesis of results form the tools used and conclusion

Drawing on the results of the above analysis as well as the findings of the Evaluation Questions 2 and 3, the following conclusions can be drawn in relation to this specific Evaluation Questions which required:

An analysis of production costs in the pigmeat sector to identify the impacts of the different measures of the CMO as well as other policies related to them (namely manure disposal and emission reduction, animal welfare and animal health).

Analysis of the impact of the different measures of the CMO on production costs

Based on the modelling results presented in Evaluation Questions 2 and 3, it was found that the use of export subsidies and import tariffs over the evaluation period had a positive effect on production of pigmeat in the EU. Accordingly, production was 2.6%, 1.8% and 1.4% higher in the three reference periods (1990-92 period, 1995-97 period and 2000-02 period, respectively) than it otherwise would have been. The modelling results presented also calculated that the increased feed cost associated with this increased production amounted to 3.0%, 2.1% and 1.6% in the three reference periods. However, on a per animal basis there is no impact on feed cost from the CMO measures.

Analysis of the impact of other policies relating to the CMO on production costs

The above analysis quantified the impacts of the other CMO instruments and other related policies on production costs. The following general conclusions were identified, with respect to their impact on production:

- The main cost element in the production of pigmeat is the **feed cost** and this has primarily been affected over the evaluation period by the CAP reform induced reduction in cereal intervention price. Moreover, the fall in the cost of pig feed over the evaluation period as a result of the reduction in intervention prices has more than offset increases in feed costs as a result of community feed legislation.

- Compared to the positive impact of the CAP reform induced reduction in cereal intervention prices on the cost of pig feed, the individual impact of changes in policies on **manure disposal and emission reduction**, **animal welfare** and **animal health**, although resulting in costs[97] to farmers, have *in general* been relatively small. That said, evidence from the case studies would suggest that the impact of these policies on costs differed *considerably* both between and within Member States, particularly with respect to the additional costs associated with manure disposal and emission reduction because of the wide ranging implementation standards and environmental conditions within the EU.

[97] While this Evaluation Question only concerns an analysis of the impact of different measures of the CMO as well as other policies related to them on production costs, it should be noted that such measures *may* accrue additional production benefits to producers as well as society as a whole.

Table 2.28: Summary of the impact of other CMO measures and of other related policies on production costs

	Impact on production costs
Influence of arable sector price levels	+++
Community feed legislation	-
Manure disposal and emission reduction	-
Animal welfare standards	-
Animal health provisions	-

Note: - negative impact, + positive impact.

Box 2.8: Main conclusions on production costs

In conclusion, with respect to the **CMO measures for pigmeat** themselves the evidence suggests that they have not had a significant impact on production costs on a per animal basis.

With respect to **other CMO measures and other related policies**, the evidence does not suggest that the overall impact of the other CMO measures and other related policies on the sector have been negative with respect to production costs. This is because the above analysis suggests that *in general* the increased costs associated with the Community feed legislation, manure disposal and emission reduction, animal welfare and animal health are likely to have been offset by the impact of the CAP reform induced reduction in cereal intervention price on animal feed prices, given the extent of this reduction and the relative importance of feed in total production costs. However, it has not been possible to quantify whether the overall impact on the sector has actually been positive.

Nevertheless, it would seem unlikely that overall these other CMO measures and other related policies will have added significant cost to the production of pigmeat during the evaluation period, thereby contributing to the objective of the CMO to *ensure a fair standard of living for farmers*.

Compared to the positive impact of the CAP reform induced reduction in cereal intervention prices on the cost of poultry feed, the individual impact of changes in policies on manure disposal and emission reduction, animal welfare and animal health, although negative, have in general been relatively small (although it is recognised that such measures may provide additional production benefits to producers (in terms of both higher daily liveweight gains and improved meat quality) as well as society as a whole). That said, the impact of these policies was found to differ considerably both between and within Member States.

Although, as is evident from the intervention logic, it is not the direct objective of the CMO to address the issue of production costs which are incurred as a result of other regulatory action it is clear that the CMO has helped raise incomes above the level they would have been in the CMO's absence and have therefore helped the sector to absorb these costs.

2.4. Theme 3: Rural development and the environment

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.3.1.

2.4.1. Question 9: Impacts on rural development and the environment

This question has been addressed through an analysis of available secondary data in conjunction with interviews conducted in the case study regions (see Appendix 7). The primary limitation in answering the evaluation questions and sub-questions is the lack of adequate secondary data, particularly at regional level. Similarly, given the 'light' nature of the CMO regime, it is understandable that interviewees place greater emphasis on more tangible direct impacts on the sector arising from other factors. However, it is accepted that the CMO regime is likely to have influenced production decisions, thereby influencing the process of regional concentration and distribution of production, the evolution of the size and number of holdings, the specialisation of holdings and also the relationships between upstream and downstream industries, even though there may be little or no direct evidence to quantify their direct or indirect impacts on rural development and the environment. Therefore it is important for the reader to note the scale of the simulated impacts of the CMO measures set out previously when reading the analysis, in order to put the evidence presented into context.

2.4.1.1. Regional distribution of production and concentration of production in certain regions

Community situation and development

The size of the EU-15 pig herd increased by nearly 50% between 1990 and 2003, according to data from Eurostat. The five Member States with the largest share of total pig numbers (Denmark, Germany, Spain, France and the Netherlands, from which the case study regions in this analysis have been selected) have increased their combined share of EU-15 pig numbers from two-thirds to three-quarters over the same period. Only Spain has substantially increased pig numbers over the period (by 65%), with most other Member States remaining relatively stable over the period. The exception is the Netherlands, where overall pig numbers declined by one-third over the period (see Table 2.29 and Figure 2.29).

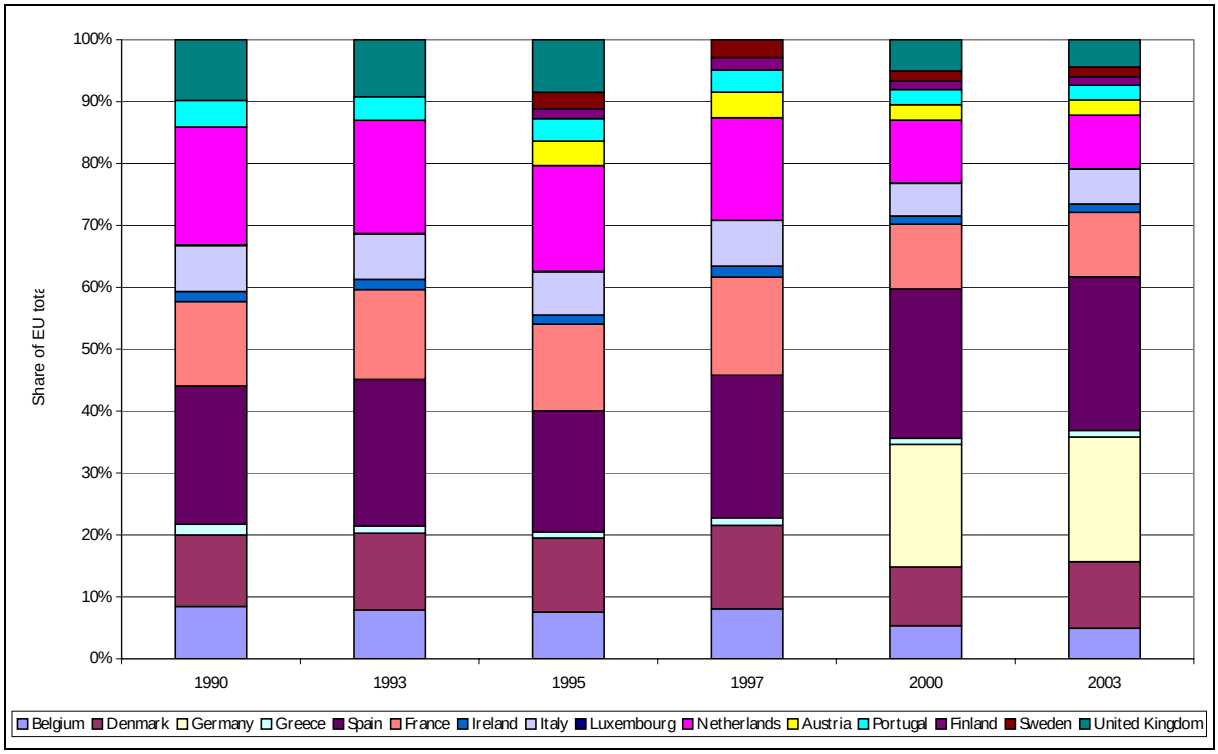

Figure 2.29: Member State shares of total EU-15 pig numbers, 1990-2003

Note: Germany 2000-2003; Finland and Sweden 1995-2003.
Source: Eurostat.

Table 2.29: Total EU-15 pig numbers, 1990-2003 ('000 head)

	1990		1993		1995		1997		2000		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Belgium	738	8.4	765	7.9	741	7.5	756	8.1	720	5.3	640	4.9
Denmark	**1,015**	**11.6**	**1,198**	**12.4**	**1,175**	**12.0**	**1,263**	**13.5**	**1,284**	**9.5**	**1,402**	**10.8**
Germany									**2,681**	**19.8**	**2,621**	**20.1**
Greece	149	1.7	110	1.1	99	1.0	116	1.2	129	1.0	138	1.1
Spain	**1,958**	**22.4**	**2,290**	**23.7**	**1,922**	**19.6**	**2,162**	**23.1**	**3,266**	**24.1**	**3,233**	**24.8**
France	**1,194**	**13.6**	**1,402**	**14.5**	**1,378**	**14.0**	**1,485**	**15.8**	**1,416**	**10.5**	**1,356**	**10.4**
Ireland	141	1.6	159	1.6	141	1.4	169	1.8	177	1.3	173	1.3
Italy	651	7.4	710	7.3	690	7.0	693	7.4	715	5.3	736	5.7
Luxembourg	11	0.1	9	0.1	10	0.1			10	0.1	8	0.1
Netherlands	**1,667**	**19.0**	**1,766**	**18.3**	**1,677**	**17.1**	**1,556**	**16.6**	**1,373**	**10.1**	**1,127**	**8.7**
Austria				0.0	388	3.9	385	4.1	333	2.5	320	2.5
Portugal	375	4.3	368	3.8	355	3.6	338	3.6	334	2.5	306	2.4
Finland					154	1.6	187	2.0	184	1.4	178	1.4
Sweden					266	2.7	270	2.9	220	1.6	205	1.6
UK	860	9.8	890	9.2	835	8.5			684	5.1	576	4.4
EU-15	**8,759**	**100.0**	**9,667**	**100.0**	**9,831**	**100.0**	**9,379**	**100.0**	**13,527**	**100.0**	**13,018**	**100.0**

Note: Germany 2000-2003; Finland and Sweden 1995-2003.
Source: Eurostat.

Case study regions

Information on the regional distribution[98] and concentration[99] of production in the case study regions can be found in Appendix 7 section A7.1. The case study regions selected (see Appendix 1 Table A.1) are:

- Denmark - Ringkøbing and Nordjylland
- France - Brittany
- Germany – Weser-Ems and Münster
- Netherlands - Noord-Brabant and Limburg
- Spain - Lérida

The secondary data gathered and the evidence from the interviews conducted with industry experts in each of the case study regions show that the sector has experienced substantial growth over the evaluation period and that production is concentrated in certain regions. It is clear that geographical and historical factors have played a significant role on the regional distribution and concentration of production. In all regions, the evidence presented suggests that the impact of the CMO on the regional distribution and concentration of production is likely to have been minor and indirect (see conclusions below in the context of the other factors outlined below and set out in detail in Appendix 7 section A7.1.1.1).

The development of regional concentrations of pigmeat production in **Spain (Lérida)** and **Germany (Münster)** is historically due to a combination of physical and economic factors, in particular, the suitability of the regions for feed production.

- **Lérida** was an important cereal production region, with an abundance of flourmills, but few livestock enterprises. In the 1950s, small farmers began seeking sources of complementary income and the development of animal feed plants provided the necessary ingredients for intensive livestock production. In the 1960s, the principal feed companies established vertical-integration contracts, which were fundamental to the rapid development of intensive pig production. It should be noted that the development of the sector in Spain and the process of structural change and adaptation to market conditions had already started prior to Spain's accession to the EU in 1986.

- **Münster** has traditionally relied upon farm-produced cereals for feeding and has developed over the last 25 years due to technical progress in maize production (above all the shift of the production frontier towards the north) and in particular,

[98] The number of pig farms by specific geographic region.
[99] The spatial distribution of pig farms within a specific geographic region.

the high liquid manure tolerance of maize makes the region's light soils well suited for the combination of maize and pig production. In addition, high rates of rural unemployment in the local rural population provided good incentives for farmers to diversify into enterprises that offered higher productivity and income and for farmers using existing land and labour resources.

The development of regional concentrations of pigmeat production in **Denmark (Ringkøbing and Nordjylland)** and the **Netherlands (Noord-Brabant and Limburg)** is historically due to a combination physical and regulatory factors.

- **Ringkøbing and Nordjylland** are characterised by sandy soil that is unsuitable for arable production but particularly suited to intensive livestock production. The main regulatory factor explaining the evolution of Danish pig sector is the harmony requirements, which stipulates that in order to expand production, land allocations have to be arranged either by purchase or lease. This has lead to a "regulatory dispersion of pig production" regardless of any economic rationale, or lack thereof.

- **Noord-Brabant and Limburg** also have unfertile sandy soil that is unsuitable for arable production, but suited to intensive livestock production. In addition (as in France (Brittany) and Germany (Weser-Ems) below) proximity to the maritime port of Rotterdam enabling relatively inexpensive imports of feed stuffs and in particular, imports of lower cost cereal substitutes prior to the 1992 McSharry reforms of the CAP. The most significant driver of pig production in the Netherlands was the tax incentive scheme WIR (Investment Account Act) dating from around 1980 and lasting until 1985, which gave an important financial incentive for the strong development of intensive livestock farming in the country.

The development of regional concentrations of pigmeat production in **Germany (Weser-Ems)** and **France (Brittany)** (also the **Netherlands**) is primarily due to geographical and economic factors.

- **Weser-Ems** is characterised by the proximity of maritime ports (e.g. Germany - Wilhelmshaven, Bremerhaven, Bremen) and navigable rivers, enabling relatively inexpensive imports of feed stuffs and in particular, imports of lower cost cereal substitutes prior to the 1992 MacSharry reforms of the CAP. However, when cereal prices fell as a result of CAP reforms in 1992, this competitive advantage ceased, although the competitiveness of pigmeat production in the region continued to increase, due to the agglomeration advantages and economies of scale that had already been established.

- **Brittany** developed its pigmeat production industry also as a result of the proximity of maritime ports (e.g. Brest and Lorient), for the same reasons outlined above.

Conclusion

The evidence suggests that the development of the pig sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of protection for the EU market and consequently have provided an incentive for to increase pigmeat production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

However, according to the simulations and analysis undertaken for the previous evaluation questions, it seems that the direct impact of the CMO on both price and production were small, resulting in prices that were around 2.4% higher and production that was around 1.9% higher as a result of the CMO measures (see section 2.2.3.2).

The impact of the CMO on the patterns of regional distribution and concentration of production was both minor and indirect, although it is plausible that the CMO measures may have actually reduced the pace of structural change by providing a favourable economic environment for producers to remain in production which would not have otherwise existed.

2.4.1.2. Evolution of the number, size and specialisation of holdings or enterprises

Community situation and development

In the EU as a whole, there has been a process of rapid structural development in the pigmeat sector. Figure 2.30 shows the decrease in the number of holdings with breeding sows in the EU and by Member State, which is also an indicator of the productive capacity of pigmeat production (breeding sow numbers) at the member State and EU level. This shows that the decrease in holding numbers has taken place across the whole EU, with the largest absolute losses occurring in those member states with the largest shares of total production. As would be expected *a priori*, given the decline in the productive capacity of Community pigmeat production illustrated above, other pig numbers have also declined over the period, as shown in Figure 2.31 below.

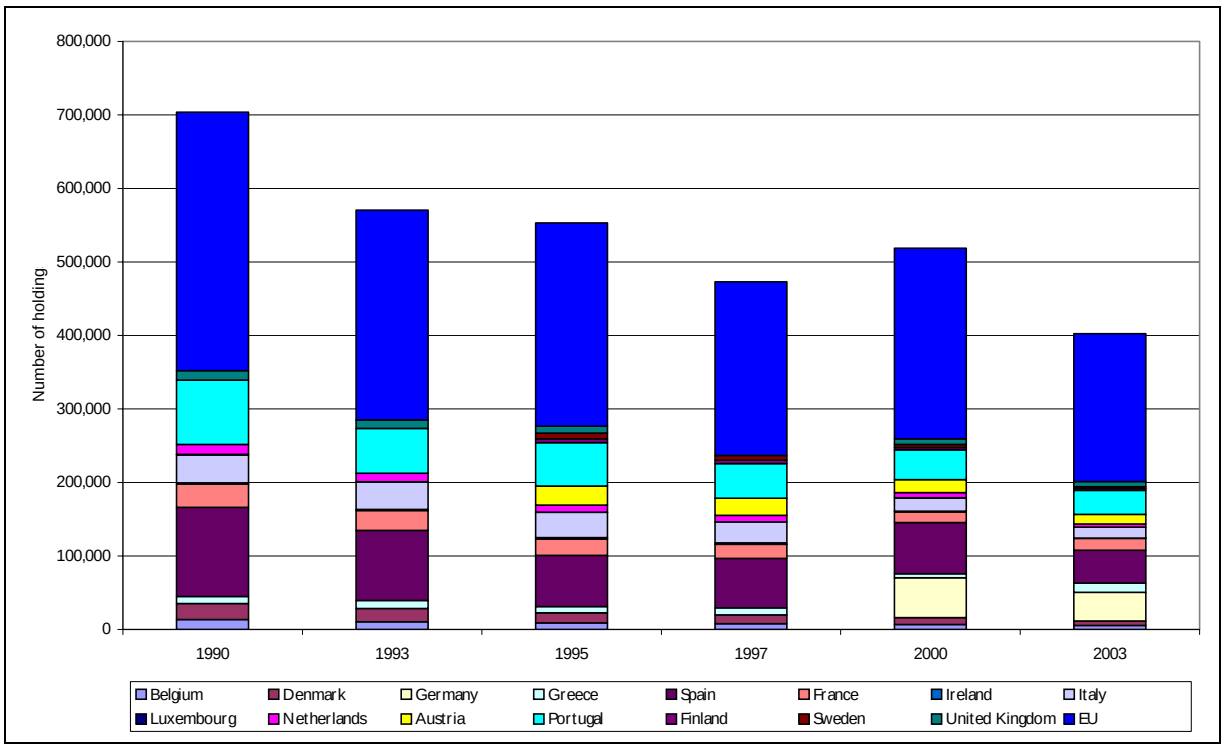

Figure 2.30: EU holdings with breeding sows, 1990-2003

Note: Germany 2000-2003; Finland and Sweden 1995-2003.
Source: Eurostat.

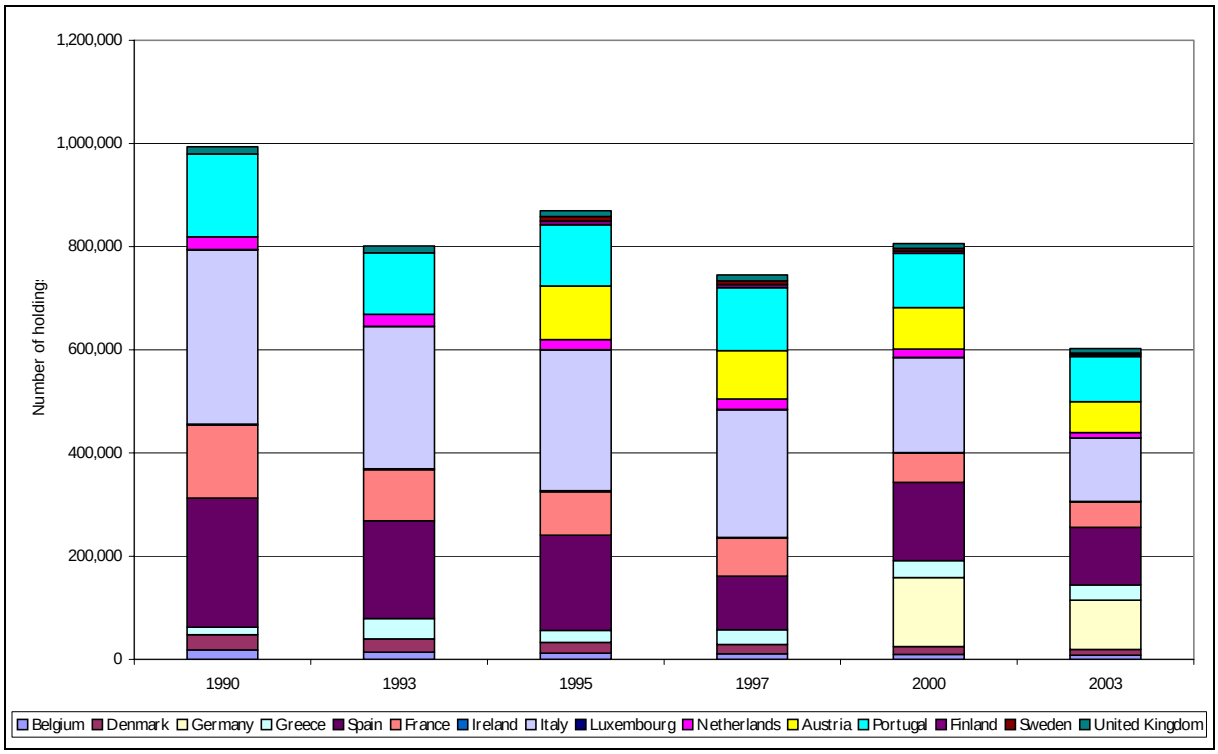

Figure 2.31: EU holdings with other pigs, 1990-2003

Note: Germany 2000-2003; Finland and Sweden 1995-2003.

Source: Eurostat.

The process of structural change taking place in the EU has resulted in an increase in the average number of both breeding sows and also other pig numbers (Table 2.30) per farm holding. This trend is seen in all Member States to varying degrees, with the exception of Greece, although structural change is most pronounced in those Member States with the highest pig populations.

Table 2.30: Average number of breeding sows and other pigs per holding, 1990-2003

	1990		1993		1995		1997		2000		2003	
	Sows	Other	Sows	Other	Sows	Other	Sows	Other	Sows	Other	Sows	Other
Belgium	54.4	223.9	71.7	312.1	82.5	369.4	93.2	413.7	104.7	471.9	112.8	502.5
Denmark	46.6	178.1	66.9	270.9	86.5	316.0	107.4	359.3	138.9	448.8	231.1	690.6
Germany									49.5	125.4	67.2	178.3
Greece	15.3	29.6	10.1	10.6	11.4	19.9	11.8	17.9	22.3	17.6	11.1	17.4
Spain	16.2	28.6	24.1	39.5	27.6	42.3	32.2	79.1	47.0	87.6	72.2	110.5
France	37.9	51.9	52.1	83.6	62.0	99.1	77.2	119.8	98.0	141.0	85.5	171.2
Ireland	71.8	456.2	88.5	504.7	78.8	532.7	95.3	583.2	194.3	1018.8	283.0	919.6
Italy	17.1	18.6	19.2	22.1	20.0	21.7	24.2	24.7	38.9	34.4	50.5	50.1
Luxembourg	20.6	57.4	27.5	86.6	33.7	100.2		114.3	42.5	145.4	57.4	229.5
Netherlands	122.4	284.5	148.6	325.2	172.6	362.9	175.6	370.9	200.7	430.4	247.6	522.9
Austria					15.1	22.7	16.6	24.9	18.9	27.7	24.5	34.9
Portugal	4.3	7.6	6.1	12.2	6.0	10.7	7.1	11.2	8.3	13.2	9.4	13.5
Finland					29.8	110.0	39.4	140.1	56.5	166.7	66.7	214.4
Sweden					33.8	145.0	45.2	178.9	53.5	232.9	82.8	341.8
UK	67.0	326.9	74.3	356.0	89.8	438.3		427.0	91.1	439.1	84.3	343.9
EU-15	**24.9**	**44.5**	**33.9**	**60.2**	**35.6**	**60.1**	**39.7**	**72.7**	**52.2**	**91.8**	**64.7**	**117.7**

Note: Germany 2000-2003; Finland and Sweden 1995-2003.
Source: Eurostat.

Figure 2.32 shows the change in pig holding numbers by size class. A clear trend is visible, which shows that the number of smaller sized holdings has decreased over the period 1990 to 2003 in the majority of Member States, while the number of larger sized holdings with more than 200 pigs has increased. Overall, the total number of holdings has decreased over time (Figure 2.30 and Figure 2.31), so while the number of holdings has decreased, the size of holdings in terms of pig numbers has increased, indicating an increase in intensity.

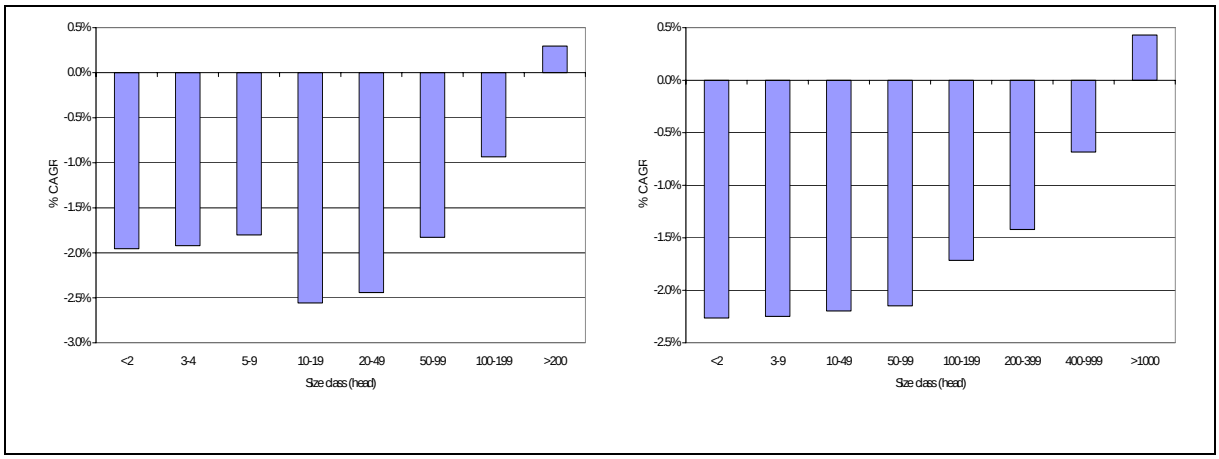

Figure 2.32: Evolution of EU-15 breeding sow (left graph) and other pig (right graph) holding numbers by size class, 1990-2003 (% CAGR)

Source: Eurostat.

Figure 2.33 shows that the numbers of breeding sows and other pigs located in the larger sized holdings by area (>20 hectares) has increased substantially over the period, while the numbers of pigs in holdings of less than 20 hectares has decreased over the period. This indicates an overall trend in increasing numbers of livestock per unit of land area, evidence for which can also be seen in the first column in the graph that shows a 6.3% increase (CAGR) in breeding sow numbers and a 4.0% increase in other pig numbers on holdings classified as zero hectares in size.

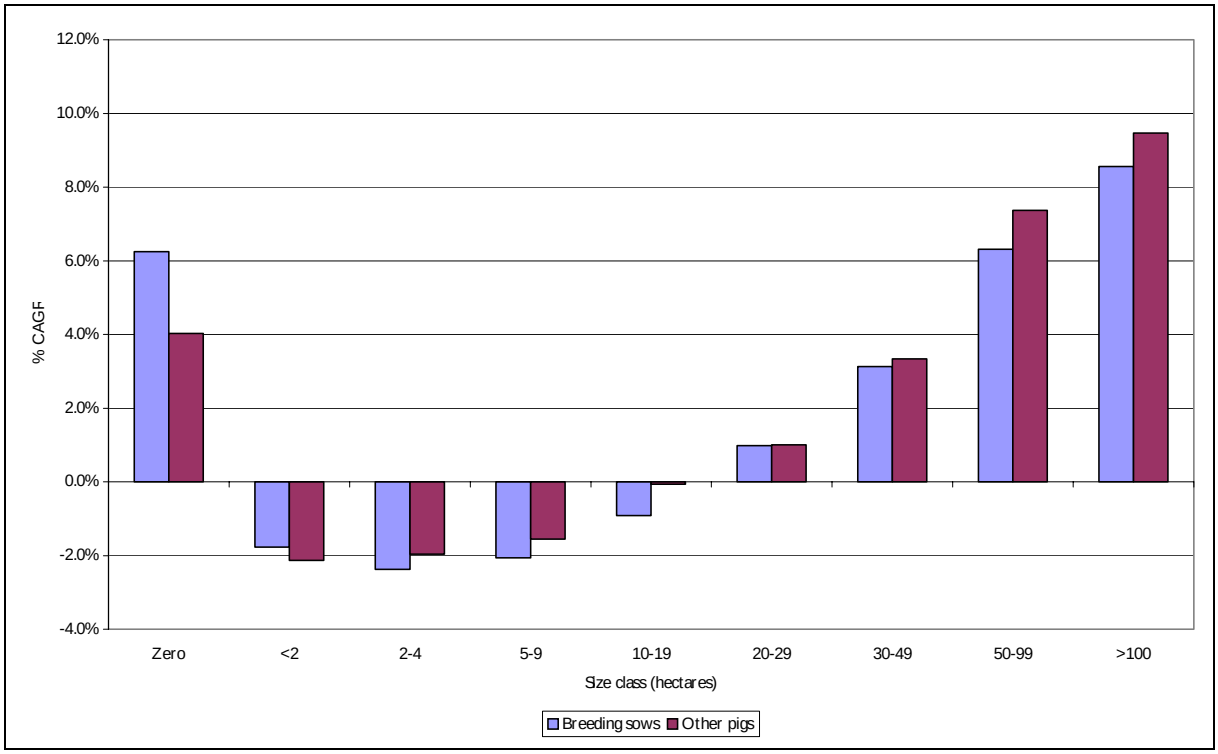

Figure 2.33: Evolution of EU-15 breeding sows and other pigs by holding area, 1990-2003 (% CAGR)

Source: Eurostat.

The data indicates that there has also been a gradual increase in the number of breeding sows and other pigs per hectare, although it should be noted that there is no satisfactory data that measures the ratio of livestock units to land area for the pig sector. This is largely because the majority of pigs in the EU are produced in indoor systems, with feed either home grown or bought in. For example, the Eurostat data includes grazing livestock (i.e. including sheep, cattle and goats), which renders a meaningful calculation of pig livestock units per unit of land area because of the differences in stocking density between species. This data may become available for future studies due to the introduction of minimum holding area standards based on livestock numbers for the disposal of manure, but it has not been possible for this evaluation.

FADN analysis indicates that the production share of specialist pig farms has increased over the evaluation period. The production share of specialist rearing farms increased by 75% from 5.6% in 1989 to 9.8% in 2003; the production share of specialist fattening farms increased by 200% from 8.0% in 1989 to 24.0% in 2003; while the production share of specialist rearing and fattening farms decreased by 17% from 26.2% in 1989 to 21.8% in 2003 (see Table 2.23 in section 2.3.1.1).

Figure 2.16 in section 2.3.1.1 shows the importance of specialised pig production systems by Member State. While over half of EU-15 pig production takes place in specialised production systems, this varies significantly by Member State. In most Mediterranean countries, the vast majority of pig production takes place on specialised farms. In contrast, in Germany (which is the largest producer of pigs in the EU) and in Denmark (which is a significant exporter of pigmeat), production mainly takes place on (non-specialised) mixed farms (see section 2.3.1.1).

Case study regions

Each of the case study regions has undergone significant structural change over the period covered by this evaluation, resulting in a decrease in pig farm numbers, an increase in the number of pigs per holding and also an increase in the number of livestock per hectare. It is clear that there are important geographical and historical reasons underlying the development of the sector. However, although there is no direct evidence, it is likely that the CMO regime has indirectly influenced the process of structural change taking place in the pig sector (see conclusions below), since scale-economies, market trends and competitiveness are indirectly influenced by the advantageous conditions created by the CMO (see Appendix 7 section A7.1.1.2).

In **all the case study regions**, structural change in the pigmeat sector has largely been driven by the existence of economies of scale. Furthermore, the decline in producer numbers is largely due to the effects of competition in the sector, with the least profitable producers dropping out of production, or smaller units closing when farmers retire. The reduction in grain prices due to reforms of the CMO for cereals are not generally considered to have been of great significance in the structural development of the sector because they are immediately reflected in the prices that the producers can obtain for the final product.

It should be noted that the development of the sector in **Spain (Lérida)** and the process of structural change and adaptation to market conditions had already started prior to Spain's accession to the EU in 1986. Therefore, while the CMO is likely to have influenced the sector since accession, it was not a factor underlying trends prior to this time.

Structural change in **Denmark (Ringkøbing and Nordjylland)** has been strongly affected by regulatory factors, as competition for land resources in order to fulfil the manure handling requirements of environmental legislation has resulted in competition for land with cattle production and thus the EU milk regime is indirectly affecting the pigmeat sector. Without the EU milk regime, it is likely that the

expansion and structural development of pig farming in Denmark would have been even greater and more rapid.

Conclusion

The evidence suggests that the development of the pig sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of protection for the EU market and consequently have provided an incentive for to increase pigmeat production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

However, according to the simulations and analysis undertaken for the previous evaluation questions, it seems that the direct impact of the CMO on both price and production were small, resulting in prices that were around 2.4% higher and production that was around 1.9% higher as a result of the CMO measures (see section 2.2.3.2).

The impact of the CMO on the evolution on the number and size of holdings was both minor and indirect, although it plausible that the CMO measures may have actually reduced the pace of structural change by providing a beneficial economic environment for producers to remain in production which would not have otherwise existed.

2.4.1.3. Relationships with the upstream and downstream industries, with particular attention to the development of integration of primary production with the compound feed and/or processing industry

Community situation and development

The analysis of the relationship of the pig production sectors with upstream (breeders, feed compounders, machinery manufacturers etc.) and downstream (slaughterhouses, processors etc.) industries indicates that any impact of the CMO is likely to have been small and largely indirect. The CMO measures have resulted in an economic environment that created a small incentive for production (see section 2.2.2.2) and that indirectly, other sector CMOs and agricultural policies served to create advantageous market conditions generally. Thus the process of vertical integration and expansion of production to take advantage of scale-economies was indirectly influenced by the market trends and competitiveness to which the CMO contributed.

The answer to this question has been derived using the case studies and other secondary literature. The following analysis therefore analyses how this integration process has occurred.

The process of integration within the pig production sector has been taking place ever since more modern methods of production for breeding, feeding, housing and poultry farm management were introduced (primarily from the US) in the period running from the 1950s to the 1970s. Integration in this sector is a world-wide phenomenon which is driven by *inter alia* the need to:

- optimise returns by achieving economies of scale;
- improve the competitive position of the sector vis-à-vis downstream operators, notably retailers;
- guarantee market outlets for suppliers of feed and other inputs;
- ensure traceability and uniform product quality;
- improve production planning and logistics.

While these factors are common to all the EU markets the pace, nature and degree of integration varies by country and region and is therefore now analysed in more depth by country.

Case study regions

The picture of integration presented varies from Member State to Member State with a high degree of integration observed in Denmark and France (driven in part by the co-operative structures) as well as in Spain and lower degrees of integration observed in the Netherlands and Germany (see Appendix 7 section A7.1.1.3). The CMO is likely to have influenced relationships with the upstream and downstream industries (see conclusions below) since scale-economies, market trends and competitiveness are indirectly influenced by the advantageous market conditions created by the CMO.

- **Ringkøbing and Nordjylland (Denmark)** - the level of upstream and downstream integration is high and has evolved over many decades. A key aspect of the integration process is the domination of the sector by co-operative structures. There is no particular regional aspect to the integration process as the whole of Denmark can be seen as a national 'production cluster'.

- **Brittany (France)** – market forces have driven the concentration of pig production in bigger, more specialised units with a high degree of regional integration. The move towards greater vertical integration has been spurred by the search of

economies of scale as well as the need to be on par with the most competitive European pig exporting regions.

- **Weser-Ems and Münster (Germany)** – the pig sector shows only a limited degree of upstream and downstream integration. There is co-operation amongst producers in Germany to bundle their purchase of inputs and pig sales. Producer relations with slaughterhouses are either managed by means of short (six month) supply contracts, or the slaughterhouses rely on market purchases, or on other intermediaries (traders).

- **Noord-Brabant and Limburg (Netherlands)** – the pig sector shows only a limited degree of upstream integration, although there has been concentration downstream amongst slaughterhouses and cutting plants (notably via the company Vion).

- **Lérida (Spain)** - approximately 90% of production is now considered to be integrated, with the main integrators being Grupo Vall Companys, C.A. Guissona and the COPAGA co-op. Downstream, it is estimated that only 25% of production from Lérida is now slaughtered in the region.

Conclusion

In summary the picture of integration presented varies from Member State to Member State with a high degree of integration observed in Denmark and France (driven in part by the co-operative structures) as well as in Spain and lower degrees of integration observed in the Netherlands and Germany (see Appendix 7 section A7.1.1.3).

The evidence suggests that the development of the pig sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of protection for the EU market and consequently have provided an incentive for to increase pigmeat production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

However, according to the simulations and analysis undertaken for the previous evaluation questions, it seems that the direct impact of the CMO on both price and production were small, resulting in prices that were around 2.4% higher and production that was around 1.9% higher as a result of the CMO measures (see section 2.2.3.2).

Therefore, it is likely that the CMO has had an indirect impact on the process of vertical integration and expansion of production to take advantage of scale-economies, since these are influenced by market trends and competitiveness and thus influenced by the advantageous conditions created by the CMO.

2.4.1.4. Economic importance (in terms of employment and gross value added) including the upstream and downstream industries in the production regions, in particular in those with a high concentration of production

Community situation and development

The assessment of the impact of the main instruments of the CMO on the economic importance of the sector in terms of gross value added has been assessed through the answers to Evaluation Questions 2 and 3. This has shown that in aggregate the contribution of these CMO instruments to the value added of the sector has been relatively limited. By extension this suggests that the impact in terms of employment has also been limited.

While clearly the employment impacts across the sector are not precisely quantifiable, to the extent there are impacts, there is no doubt that the greatest direct impact of the CMO measures will be in those regions, notably Denmark, which account for the highest proportion of EU and national production and particularly exportable production. In other regions, which do not have production focused particularly on exports, the employment impacts are more indirect and result from the combination of border protection and the fact that the EU internal market will not be absorbing the quantities exported with refund i.e. prices will tend to be higher than they otherwise might be.

Case study regions

The evidence and analysis indicates that the value added and employment generated by the pigmeat sector in regions with high concentration of production is considerably greater than that generated by the primary sector alone (see Appendix 7 section A7.1.1.4). The evidence suggests that the CMO has had an indirect impact on the development of the sector, since scale-economies, market trends and competitiveness are indirectly influenced by the advantageous market

conditions created by the CMO (see conclusions below). Some of the notable findings of the case studies are presented below:

- **Ringkøbing and Nordjylland (Denmark)** – at a national level most agricultural holdings combine the pig production with arable crops or other types of production, therefore national statistics include the whole primary sector. Generally, employment in the primary sector has decreased dramatically since 1984, although employment in food processing has remained stable. The importance of the primary sector has decreased in both case study regions, although agriculture is more important in Ringkøbing than in Nordjylland (where the manufacturing is more dominant).

- **Brittany (France)** –pig production accounts for some 21% of the total agricultural production of the region. It is estimated that the pig chain, with upstream and downstream linked industry directly employs more than 24,000 people.

- **Weser-Ems (Niedersachsen, Germany)** – the share of pig sector output in the case study region of Niedersachsen has remained stable at some 23% between 1991 and 2003. In Weser-Ems, which accounts for 64% of pig sector output within Niedersachsen, the value of pig sector output is estimated at 27% of total agricultural sector output. No data is available on output or employment for the downstream sectors in the region.

- **Noord-Brabant and Limburg (South Netherlands)** – value added in the pigmeat chain in diminished from 21.6% of total agricultural value added in 1990 to 20.2% in 2002; compared to 15% of national agricultural value added. The share of total agricultural employment accounted for by the pig chain in the southern part of the Netherlands decreased from 23,4% in 1990 to 20,4% in 2002.

- **Lérida (Spain)** - pigmeat production represents roughly 20% of the gross value added of the agricultural sector of Lérida and close to 2% of the total GVA of the province. Direct employment is close to 4,000 people

Conclusion

The evidence suggests that the development of the pig sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of protection for the EU market and consequently have provided an incentive for to increase pigmeat production. Thus the CMO has had an indirect impact on the

development of the sector through the creation of advantageous market conditions.

However, according to the simulations and analysis undertaken for the previous evaluation questions, it seems that the direct impact of the CMO on both price and production were small, resulting in prices that were around 2.4% higher and production that was around 1.9% higher as a result of the CMO measures (see section 2.2.3.2).

Therefore, it is likely that the impact of the CMO on employment and gross value added was both minor and indirect.

2.4.1.5. Synthesis of results from the tools used and conclusion

Regional distribution of production and concentration of production in certain regions

The secondary data gathered and the evidence from the interviews conducted with industry experts in each of the case study regions show that the sector has experienced substantial growth over the evaluation period and that production is concentrated in certain regions. However, the direct impact of the CMO on the regional distribution and concentration of production is less clear, whereas it is clear that geographical and historical factors have played a significant role. One cannot ignore, however, the fact that the border protection measures (import tariffs and export refunds) have resulted in an economic environment that created an incentive for production and that indirectly, other sector CMOs and agricultural policies served to create advantageous market conditions generally. These conditions, whether directly attributable to the CMO for pigmeat or not, are likely to have contributed to the process of increasing pigmeat production and to have resulted in the continuation of the pre-existing trend towards regional production concentration. It is to be noted that is perhaps equally plausible that indirectly, the CMO measures actually reduced the pace of this structural trend by providing a beneficial economic environment for producers to remain in production which would not have otherwise existed.

Evolution of the number, size and specialisation of holdings or enterprises

Each of the case study regions has undergone significant structural change over the period covered by this evaluation, resulting in a decrease in pig farm numbers, an increase in the number of pigs per holding and also an increase in the number of livestock per hectare. It is clear that there are geographical and historical reasons underlying the development of the sector. What is less clear is the impact that the CMO has had on this process of structural development and also what the indirect

impact of agricultural policies in other sectors have had on the pig sector. Most of the evidence suggests that the direct impact of the CMO has been relatively minor, supporting Agra CEAS' initial hypothesis. It is clear that border protection measures (import tariffs and export refunds) have resulted in an economic environment that created an incentive for production and that indirectly, other sector CMOs and agricultural policies served to create advantageous market conditions generally. These conditions, whether directly attributable to the CMO for pigmeat or not, are likely to have contributed to the process of structural change in the sector, although it equally plausible that indirectly, the CMO measures actually reduced the pace of this structural trend by providing a beneficial economic environment for producers to remain in production which would not have otherwise existed.

Relationships with the upstream and downstream industries, with particular attention to the development of integration of primary production with the compound feed and/or processing industry

In summary the picture of integration presented varies from Member State to Member State with a high degree of integration observed in Denmark and France (driven in part by the co-operative structures) as well as in Spain and lower degrees of integration observed in the Netherlands and Germany. More generally, the CMO is not considered a significant driver for this process, although it should be noted that the CMO measures have resulted in an economic environment that created an incentive for production and that indirectly, other sector CMOs and agricultural policies served to create advantageous market conditions generally. Therefore, it is likely that the CMO has had an indirect impact on the process of vertical integration and expansion of production to take advantage of scale-economies, since these are influenced by market trends and competitiveness and thus indirectly influenced by the advantageous conditions created by the CMO.

Economic importance (in terms of employment and gross value added) including the upstream and downstream industries in the production regions, in particular in those with a high concentration of production

As is set out by this detailed review of data the value added and employment generated by the sector in regions with high concentration of production is considerably greater than that generated by the primary sector alone;

For the pig sector the impact of the CMO specifically on the case study regions does not suggest that the CMO has a more significant impact than that already established by the answers to Evaluation Questions 2 and 3.

Quality of water and air, land use and landscape

The issue of the CMO impact on water and air, land use and landscape is fully addressed in chapter 5 on the joint environmental impact of the three sectors (see section 5.1.1.6).

2.5. Theme 4: Overall impacts

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.4.

2.5.1. General judgement of the CMO

Internal and external competitiveness of Community production

The results of the CAPSIM modelling and stakeholder interviews for Evaluation Question 3 found that the use of export refunds and import tariffs have strengthened the competitive position of the EU pigmeat sector on the world market in terms of total exports. The modelling here indicates that the application of these instruments increased the Community's net share of world trade would have from 4.2% to 22.4% in the 1990-1992 period, from 22% to 34.5% in the 1995-1997 period and from 23.7% to 29.9% in the final 2000-2002 period modelled. This suggests that as would be expected given the decreasing weight of these instruments (in terms of budgetary expenditure and the level of import protection provided) the combined impact of these mechanisms was particularly significant before the URAA and less so since. The diminishing significance of these refunds in supporting competitiveness is underlined by the fact that the historical data analysis has shown that total export volumes have doubled when comparing the 1992-1994 average with the 2000-2002 average while at the same time the proportion of exports receiving a refund has fallen sharply. This indicates that the competitiveness of the sector has improved even though the use of the export refund instrument has fallen. This picture is confirmed by stakeholder interviews which indicate that other factors, notably the decline in feed costs resulting from the reforms to the CAP cereals CMO, have been far more significant drivers of both internal and external supply and demand. The interviews with stakeholders also provided the additional comment that removal of import protection would almost certainly result in some displacement of internal production and internal trade with those producers in countries with higher production costs being most likely to cease production altogether or to only produce for niche markets.

An indicator of the impact of the CMO on the internal market is derived through the modelling of the counterfactual in respect of the EU self-sufficiency ratio which shows that the combination of export refunds and import tariffs is estimated to have increased the competitiveness of EU pigmeat production on the internal market by 3.0% in the 1990-1992 period, 2.3% in the 1995-1997 period and 1.9% in the 2000-2002 period. These relatively low numbers are an indication of the fact that other factors, notably sanitary barriers have also played a significant role in maintaining internal competitiveness.

In conclusion the results show that import tariffs (combined with the effect of export refunds) have the effect of significantly improving the position of the EU on third country markets in the sense that these instruments boosted the EU net share of world trade particularly in the pre- URAA period. The high deadweight effect[100] attached to the achievement of the result in terms of export volumes, particularly towards the end of the evaluation period does however suggest this result might have been achieved largely without the measure having been used. In this context it should be noted that since the start of the URAA implementation the effort to focus refunds on more added value products, apart from in periods of market crisis, will have contributed to reducing this deadweight effect, but as stakeholders in the major exporting country Denmark have noted, ultimately the competitiveness of the sector depends more on the sector's own efforts to improve efficiency along the production chain by improving cost efficiency, targeted research, innovation, attention to food safety, product quality and reliability and marketing.

Satisfaction of consumer demand in terms of price and quality

In terms of satisfying consumer demand with respect to price the impact of the CMO is at best indirect since the effects of changes at consumer level will ultimately depend on transmissibility down the food chain. No direct evidence on this issue has emerged during the course of this evaluation but as has been shown by the modelling analysis in all three sectors the effect of the two key support measures, export refunds and import tariffs have been to raise EU prices above the levels they would have been in the absence of the measure and thus have a potentially adverse effect on consumer 'welfare' although this cost must be set against greater security of supply.

In terms of satisfying consumer demand with respect to quality, the EU pig carcass classification scheme forms an important part of the price determination process for pigmeat. As discussed in Section 1.2.1, producers receive a price incentive for the production of leaner animals and a price penalty for the production of animals considered to be fatter than that demanded by consumers. In some Member States, these price adjustments are asymmetric in the sense that the penalty for producing fatter grades of pigs, which do not meet consumer demand, is greater than the premiums paid for producing leaner pigs demanded by consumers. Consequently, there has been a marked increase in the production of pigs of the more desirable 'S' and 'E' leanmeat grades and less in the undesirable 'III/O' and 'IV/P' grades over the evaluation period.

[100] See Footnote 2 and Box A1 in Appendix 4.

The above analysis indicates that the carcass classification system has played a useful role in guiding production in terms of better meeting consumer requirements. However, it should be noted that the proportion of pigs graded in the EU out of the total number of commercial pig slaughterings has remained more or less stable over the period at 70%. More generally, as has been noted above the sector's own efforts to meet internal and external consumers' demands in terms of price and quality are probably equally or more significant than the role of the CMO in this regard.

Transfers from consumers to producers via high price levels in the Community

As would be expected *a priori* the export refund and import tariff regimes have in effect redistributed income from consumers to pig farmers. Analysis using the CAPSIM model tested this hypothesis by quantifying the effects of a hypothetical abolition of tariffs and export refunds in the pigmeat sector.

The results found that there would be welfare gains for consumers (i.e. producer prices for pigmeat would fall) in each of the three periods considered if export refunds and import tariffs had been abolished. Consistent with the decreasing level of expenditure on import protection and export refunds over the period, estimated consumer welfare effects decrease over the evaluation period. The impact of the export refund and import tariff instruments on overall welfare has been assessed by modelling the counterfactual, i.e. the removal of export refunds and import tariffs on producer income expressed as gross value added at basic prices, EU expenditure on export refunds, revenues from variable levies and duties and the impact on consumer welfare via price. Taken together these estimates produce aggregate measures of the distribution of impact and allow a commentary on efficiency. The net results of this calculation indicate that suggests that while the expenditure incurred to achieve a relatively significant amount of producer income was relatively low the cost of the transfers made from taxpayers and consumers was in excess of the gains to producers suggesting that in the 1990-92 period the measure was lacking in efficiency. This overall picture is repeated for the simulation for the 1995-1997 period but for the 2000-2002 period an overall welfare gain from keeping the measures in place is estimated. As with all such estimates it must always be borne in mind that the absolute estimates must be treated with caution since they reflect a broad range of statistical inputs (with limitations in terms of definitions and scope of coverage) and assumptions notably concerning supply and demand responses and third country supply elasticities. Nevertheless it can be concluded that the lack of targeting of the import tariff measure makes it relatively inefficient in that it can lead to factor and product market distortions.

Economic cost of income support through prices

The modelling results in answer to Evaluation Questions 2 and 3 quantified the extent to which the CMO measures (export subsidies and import tariffs) have had a significant joint impact on the income of pigmeat production in the EU through producer prices. The results suggest that the CMO instruments have raised producer prices above what they would otherwise have been in the absence of the use of the instruments in all three periods considered. The direct (positive) impact of export subsidies and import tariffs on producer pigmeat prices and production was 2.6% and 2.6% respectively in the 1990-92 period, 2.3% and 1.8% respectively in the 1995-97 period and 2.3% and 1.4% respectively in the 2000-02 period. As a result, income levels were found to be 6.9%, 6.0% and 5.9% higher in the three reference periods, which will have helped to maintain production and employment above what it would otherwise have been, particularly amongst the more marginal pig producers, in the absence of such instruments.

This would represent a significant economic cost of the income support through prices to consumers to the extent that in the absence of the use of the instruments the expected reduction in producer prices would be passed back to consumers. This assumes that a competitive supply chain exists and that there is perfect price transmission between producers and consumers.

2.5.2. Coherence with other relevant Community policies

Animal health and welfare

The exceptional support measures in particular have been found to contribute to the objective of reducing the risk of a disease not being reported and thus to improving animal health. It should, however, be noted that the existence of the measure may reduce stakeholder incentives to launch private risk management initiatives (e.g. via insurance) in this regard.

More generally, animal health and welfare have been particularly adversely affected by the concentration and intensification of production in a number of regions across Europe. The evidence collected in this evaluation suggests that the measures of the pigmeat CMO have not been the major drivers for this intensification and concentration since this has been part of a longer term trend driven *inter alia* by the interplay of a number of economic, geographical and historical factors. However, as a component of the wider agricultural policy environment, the CMO has created a favourable economic environment for the continued growth and development of the sector and can thus be said to have had an indirect adverse impact.

Trade

As has been shown by the historical data analysis over the period under review the operation of the CMO with respect to trade has been liberalised as a consequence of the URAA (via increased market access under TRQs, lower import tariffs and a reduction in the use of refunds). This is consistent with the aims of EU agricultural trade policy.

Environment

Adverse environmental impacts have particularly resulted from the intensification and concentration of production in particular regions. The evidence collected in this evaluation suggests that the measures of the pigmeat CMO have not been the major drivers for this intensification and concentration since this has been part of a longer term trend driven *inter alia* by the interplay of a number of economic, geographical and historical factors e.g. the availability of cheaper imported feedingstuffs. However, as a component of the wider EU agricultural policy environment, the CMO has created a favourable economic environment for the continued growth and development of the sector and can thus be said to have had an indirect adverse impact. The modelling results have indeed shown that the joint impact of the CMO instruments has been to raise production to a level that has been higher than would have been the case in the absence of their use. This result suggests that to the extent this was the case there has been a potential for adverse environmental impacts and therefore a potential lack of coherence with environmental policy objectives.

Regional cohesion

This evaluation has not found any evidence on the issue of whether the CMO contributes to the Community objective of achieving greater regional cohesion by reducing economic imbalances between the regions. A priori it can, however, be stated that CAP Pillar 1 market support policies which operate horizontally across all regions will tend not to be in harmony with Pillar 2 and other Structural Fund measures which may be seeking to focus support on particular regions. Thus in the case of pigmeat the bulk of support will tend to be directed towards regions with the highest concentration of production which will not necessarily coincide with those in greatest need of regional support measures.

2.5.3. Impacts of national measures on production

Regional and local planning provisions

No particular evidence was forthcoming from the stakeholder interviews or the case studies with respect to the impact of regional and local planning requirements on pigmeat production, but based on analogous Agra CEAS work on the laying hen sector, a comment can be made that due to the large number of likely objectors in more prosperous and increasingly urban oriented rural areas it appears to be becoming increasingly difficult to locate new/expanded production units in such regions. It was also noted in the case studies for a number of regions that there was increasing public concern with the adverse environmental impacts of emissions to air from intensive pig, poultry or laying hen units. This suggests that the need to comply with such rules may in some instances be leading to a relocation of production as the number of objections to any new unit/expansion of existing units may be high. In the long term this could result in a 'de-intensification' in areas which currently have high livestock densities, although as stated above no evidence was forthcoming to suggest that these additional costs have affected production.

National restrictions on production due to environmental measures

No specific evidence of the impact on pig production of national measures designed to safeguard the environment was found by either the case studies or stakeholder interviews, but as has been noted in the review of the data from the case studies in response to Evaluation Question 9, all regions with intensive production of livestock have introduced measures to limit the adverse impacts of such production on air, soil and water quality in particular.

Such measures have increased costs in some regions where manure cannot be disposed of profitably as fertiliser. In Denmark, a study carried out by the OECD (Table 1.55) found that the cost of manure management ranges between €2.11 and €2.77 per pig on smaller farms (with a breeding herd of 125 sows), €1.77 and €2.40 per pig on medium sized farms (with a breeding herd of 249 sows) and €2.53 and €3.39 per pig on larger farms (with a breeding herd of 499 sows). In France, the industry interviews found that where manure disposal costs are incurred, these differ considerably due to differences in production systems, location of the farm, size of farm, etc. Taking this caveat into account, the cost of manure spreading in France is estimated by the Institut Technique du Porc to amount to €2.4/m^3 (€0.021/kg carcass). Assuming that one pig produces 1 m^3 of manure over its lifetime, then this would equate to a cost of €2.4 per pig. In Spain, the results of the industry interviews suggested that the cost of manure management typically range from €2 to €4 per m^3. Assuming that one pig produces 1 m^3 of manure over its lifetime, then this would

equate to a cost of €2 to €4 per pig. Ultimately such increased costs will render production in the regions concerned less competitive than in those where such costs do not apply.

Measures for improving animal welfare standards

Pig welfare concerns are reflected in increasing legislative activity, at both national and EU level. Council Directive 2001/88/EC (amending Council Directive 91/630/EEC) lays down minimum standards for the protection of pigs, including an EU-wide ban on close confinement sow stalls, to be fully in place by 1 January 2013. Although the requirements of this Directive fall outside the evaluation period, the use of close confinement stall systems and the use of tethers for housing dry sows have been banned in the UK from 1 January 1999.

According to analysis undertaken by the UK's Department for the Environment, Food and Rural Affairs, the banning of close confinement sow stalls has had the following theoretical impact on the cost of pigmeat production in the UK. In such an analysis, there are three elements to take into consideration when calculating the cost to the UK pig producers of the stall and tether ban:

- differences in running costs between stall/tether production and loose housed systems;
- differences in building costs for switching to an alternative housing system;
- the early write off of capital investment in existing buildings (as a consequence of the stall and tether free system being implemented over a seven-year period rather than allowing producers the 15-year write off period).

Differences in running costs occur because technical factors differ according to housing systems. The technical factors include stocking density, quality and quantity of labour, food requirements and efficiency rates, mortality and production output. Running costs for loose-housed systems are higher than for confinement systems because of increased labour input, food requirements and straw provision. The increased running costs were calculated as £23.10 (€34.71) per sow per year and £1.05 (€1.58) per pig produced per year. According to Defra's calculations, if these increased costs could not be passed onto the market (i.e. £0.88 (€1.32) per weaner) there would be a reduction in pig producer gross margins of 7%. According to Defra calculations, the early capital write-off costs are estimated at £36.1 million (€54.2 million), which is a cost per sow per year of £3.01 (€4.52) (on a 15-year write-off period). The total cost to the farm level industry as a whole is estimated at

£22,891,400 (€34,394,021) per year, which is £26.11 (€39.23) per sow (£1.19 (€1.79) per weaner).

National restructuring measures

The evidence available from secondary literature suggests that national measures undertaken in the context of restructuring can have some impact on production but where such data is available the results of such schemes are not conclusive. Thus, for example, the Pig Industry Restructuring Scheme (PIRS) was launched by the UK government in response to a perceived crisis in the UK pig sector. One of the key objectives of PIRS was to reduce breeding capacity by 16% compared to June 1998. While this overall objective was achieved, the actual significance of the scheme in this regard could not be fully evaluated due to the confounding factor of the outbreak of Foot and Mouth Disease during the period of the scheme's operation and the fact that there appears to have been a significant amount of deadweight in that the participants in the scheme might well have already left or been intending to leave the sector[101]. In France, there have been two post-2002 schemes aimed at restructuring in the pig sector, but no data on these measures is as yet available.

Co-financed and national investment aid

The limited available evidence from secondary literature on national support via state aid comes from the UK's PIRS Ongoers scheme, which aimed to restore the industry's sustainability by providing the appropriate incentives, in terms of reduced interest rates for investing in the farm on the basis of a business plan approved by a bank. Approval of the plan indicated that:

1. the underlying investment would facilitate a change in the business structure so as to make it profitable given the current and future market environment and therefore would result in a reduction in production costs through improved breeding and feeding, and
2. an increase in revenue by enhancing the reception of market signals by the farm sector through meeting consumers' preferences for good quality meat and animal welfare in a cost-effective way and/or by adding value to pig meat products.

Participation in the PIRS Ongoers scheme required a 16% reduction in the sow places held (for units with more than ten employees) by June 1998, in order to reduce the

[101] Agra CEAS Consulting Ltd. and Imperial College London, 'Economic Evaluation of the Pig Industry Restructuring Scheme', Defra, London, February 2003.

capacity of the industry and bring it in line with market conditions. In principle, it was expected that PIRS Ongoers would result in:

- investment to facilitate cost reduction;
- an increase in the supply of value-added products targeted to meet consumer preferences; and
- a reduction in excess capacity within the industry.

In practice due to the requirement that only larger units needed to reduce capacity, it was found that this measure was not effective in meeting the aim of reducing excess capacity or indeed in lowering average costs[102].

2.5.4. Is the scope and coverage of the instruments adequate to achieve the objectives of the CMO and to what extent is the CMO adapted to current market developments?

The above analysis suggests that the instruments of the CMO have been successful in the sense of contributing to market stabilisation and contributing to the provision of a fair income for producers as well as ensuring that the risk of disease outbreaks not being reported is reduced. The analysis also indicates, however, that the instruments used to stabilise markets (export refunds, private storage and import tariffs) may not be the economically most efficient way of achieving the desired results in that there may be a high cost in terms of transfers from taxpayers and consumers to achieve the aim of stabilising and securing farm incomes. It can also be said that the CMO has been successfully adjusted to take into account the new trade realities arising from the URAA. At the same time the EU faces increased potential competition from third country exports while seeking to maintain higher welfare, health and environmental standards. The current scope and coverage of the CMO has helped the sector to meet the latter challenges and this could be considered to present a new rationale from the policy that differs from that of the original intervention logic. This potential benefit must, however, be weighed against the potential taxpayer and consumer cost of maintaining higher prices. .

It can be argued that the very success of the CMO in reducing market instability has resulted in only limited use being made of alternative privately based instruments.. Thus efforts to achieve a futures market for pigs in London, Amsterdam and Hanover have all found it difficult to attract the necessary participants and therefore achieve the liquidity required for their success. This position is likely to remain while producers can to some extent manage risk themselves via entry and exit from the market and while the risk of much of the short term downward volatility is removed via the CMO.

[102] ibid.

It is suggested there may be scope to review the advantages and disadvantages of such private sector instruments as a possible alternative means of managing market risk.

Similarly with respect to exceptional support it is clear that while the EU and Member States are prepared to intervene directly to cover the core cost risks associated with major disease outbreaks there will also be limited incentives for producers to take on such risk via insurance schemes or similar cost sharing measures.

2.5.5. Conclusions and recommendations

Price reporting system

The evaluation assessed the extent to which prices reported to the Commission, which form the EU reference price for pigmeat, *correspond* to the prices obtained by producers, the extent to which the reference price reflects market developments and the extent to which this information is comparable across Member States. In this context, the role of the carcass classification grid for pigs was also evaluated.

The industry interviews undertaken indicated that the prices reported to the Commission *correspond* to the prices obtained by producers, in terms of the extent to which the markets and quotation centres on which the reported prices are based can be considered *representative,* as well as *corresponding* closely to the prices obtained by producers in *absolute* terms. Accordingly, the interviews supported the view that there is *correspondence* in that there is generally a high degree of *concordance* between the reported price and the price obtained by producers.

While there are differences in the way in which Member States implement Regulation (EEC) 3220/84, it appears that the reported prices used to form the EU reference price generally reflect market developments and are also in this sense broadly comparable between Member States.

Therefore, the information gathered by the price reporting system under the CMO for pigmeat can generally be regarded as adequate for use by the Management Committee as a basis to assess general trends in the sector. It was, however, noted that:

- In light of the changing structure of the sector and the increasing use of contracts in the sector it is important to ensure that the market *representativeness* of the data collected is regularly reviewed and maintained by ensuring that the market sample on which the price reporting system is based is sufficiently high and that the different contracts under which pigs are sold are adequately covered.

- To possibly improve the timing of the application of market instruments such as export refunds/private storage some consideration might be given as to how it might be possible to establish an 'early warning' system for price developments.
- Greater comparability of the tests used to establish the carcass classification should be achieved by undertaking further work to harmonise the differing tools and formulae used for such tests in the Member States.
- Greater efforts need to be made to ensure comparability of price data between Member States by reducing the variability between Member States in terms of the definition of the carcass quality to which the reported prices refer.

Export refunds

The application of this instrument was considered to be meeting the objectives of the CMO in terms of ensuring greater market stability and contributing to the provision of a fair income to producers. The historical analysis of the use of this instrument indicates that the use of the export refund instrument has been changed to meet the new requirements of the URAA as well as changing circumstances induced by changes in other sectors notably the reduction in cereal prices within the EU. Thus the proportion of product exported with refund was generally much higher prior to the implementation of the URAA when on average 86% of all pigmeat exports received a refund compared to an average of 9.1% in the post URAA final year period between 2001 and 2003.

Whereas prior to the introduction of the URAA refunds were available more or less permanently across a large range of primary and processed pigmeat products, the export refund market management instrument has particularly post the URAA been used in a more focused fashion to countercyclically assist in re-balancing the EU pigmeat market at times of crisis. This was notably the case in the period 1998 and 1999 when the EU market was plunged into crisis as a result of the production response following the outbreak of classical swine fever in 1997 combined with the collapse of the Russian market and the economic crisis in S.E. Asia.

More generally, since the URAA the Commission has sought to optimise the use of refunds by targeting and maintaining these on those more highly processed products offering the highest value and thus maintaining stability for EU processors and more generally for the market as a whole. The new more focused application of refunds enabled the EU to remain well within the constraints imposed by the provisions of the URAA as well as meeting the objective of the CMO as set out in the intervention logic for this instrument which was to stabilise prices for producers.

However, the results of the modelling indicate that although export refunds have had an impact on the pigmeat sector in terms of increasing export volumes,

domestic supply and demand, prices and competitive position, these impacts are relatively small when looked at in aggregate.

The econometric modelling results suggested that the deadweight effect[103] associated with this measure was relatively high. In addition it was noted that while the instrument works towards the objectives of the CMO in terms of achieving market stabilisation this has probably hindered the development of private sector initiatives in this regard.

In this context it is noted that a move towards further liberalisation of the sector (i.e. a reduction in export refunds) would be in line with the expressed agricultural trade objectives of the EU[104] and would also allow greater scope for possibly more efficient[105] private sector risk management tools to be developed. Given that it has been beyond the scope of this evaluation to compare the possible costs and benefits of the usage of such instruments compared to those used under the CMO it is recommended that prior to such a move a full comparison be undertaken.

Import regime

The analysis of historical data suggests that the Community policy with respect to imports has succeeded in maintaining Community preference by largely ensuring that imports outside TRQs have not entered the EU market, although it is not clear to what extent this is due to the protection measures as opposed to SPS measures. As has been shown by the historical data analysis over the period under review the operation of the CMO with respect to trade has been liberalised as a consequence of the URAA via increased market access under TRQs, lower import tariffs and a reduction in the use of refunds). This is consistent with the aims of EU agricultural trade policy[106].

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[103] See Footnote 2 and Box A1 in Appendix 4.

[104] The agricultural trade objectives are set out in the Commission's negotiating mandate from the Council as set out in the Council Decision of June 2003 on the reform of the Common Agricultural Policy (CAP). In this it is noted that: 'The CAP reform is Europe's important contribution to the Doha Development Agenda (DDA) and constitutes the limits for the Commission's negotiation brief in the World Trade Organisation (WTO) Round.' In this context it is stressed that 'the margin of manoeuvre provided by this reform in the DDA can only be used on condition of equivalent agricultural concessions from our WTO partners.' Specifically on export support the Commission is guided by the Doha Ministerial Declaration which calls for 'reduction of , with a view to phasing out, all forms of export subsidies'. With respect to market access the Commission is guided by the Council's endorsement of the July 2004 Framework Agreement on the Doha Work Programme adopted on 1 August 2004 which calls for 'substantial new market access in agriculture'.

[105] *Prima facie* any such scheme would need to be *efficient* in the long-term if it is to attract investment by the private sector.

[106] The agricultural trade objectives are set out in the Council Decision of June 2003 on the reform of the CAP. Therein it is noted that: 'The CAP reform is Europe's important contribution to the Doha Development Agenda (DDA) and constitutes the limits for the Commission's negotiation brief in the WTO Round.' In this context it is stressed that 'the margin of manoeuvre provided by this reform in the DDA can only be used on condition of equivalent agricultural

At the same time, by maintaining incomes above the level which they would have been in the absence of the use of the instrument, the continued protection of the EU market provided by import tariffs has helped the Community meet the challenge of trying to cope with increasingly competitive third country exports while at the same time maintaining higher environmental, welfare and food safety standards. This benefit must be weighed against the consumer and taxpayer cost of maintaining higher incomes in the sector.

Private storage

The application of this measure was considered to meet the objectives of the measure as set out in the intervention logic in particular by operating countercyclically in conjunction with the export refund instrument. It was noted that there was the possibility that the efficiency and effectiveness of the application of the measure could be improved by introducing the intervention earlier but the evaluation tools have not been adequate to provide a conclusive answer to this question.

Exceptional measures

The historical analysis of this measure for the case of the classical swine fever outbreak in the Netherlands in 1997 indicates that those directly affected by the disease outbreak appear to have been fully compensated for their *direct* losses. However, these producers were not compensated for a range of other *indirect* losses nor were producers who were indirectly affected by the disease outbreak. In view of the fact that the scope of compensation is primarily an issue for animal health policy it is our view that this issue needs to be addressed in the context of the objectives for this policy.

Income level and development

The evidence suggests that the CMO measures have been effective in achieving their objective of contributing to the provision of a fair standard of living for farmers. In terms of the objective of stabilising markets, thereby stabilising incomes, it is generally the case that without intervention the cyclical income lows recorded in 1993, 1998 and 2002 would have been greater. However, the extent to which

concessions from our WTO partners.' Specifically on export support the Commission is guided by the Doha Ministerial Declaration which calls for 'reduction of, with a view to phasing out, all forms of export subsidies'. With respect to market access the Commission is guided by the Council's endorsement of the July 2004 Framework Agreement on the Doha Work Programme adopted on 1 August 2004, which calls for 'substantial new market access in agriculture'.

producers have directly (or indirectly) benefited from these measures varies significantly both within and between Member States.

The existence of public measures to stabilise the market can, however, be seen as potentially hindering the development of potentially more efficient private risk management tools such as futures markets and therefore consideration should be given to undertaking further research to establish the potential advantages and disadvantages of such tools.

Production costs

The primary component of pigmeat production costs is the feed. Over the evaluation period, the cost of feed has fallen, primarily due to the CAP reform induced reduction in cereal intervention prices, rather than the CMO for pigmeat itself. Nevertheless, the cost of pig feed as a proportion of total pigmeat production costs has decreased. Moreover, this decrease in the cost of pig feed as a result of the reduction in intervention prices has more than offset observed increases in the cost of feed as a result of developments in Community feed legislation.

Compared to the positive impact of the CAP reform induced reduction in cereal intervention prices on the cost of pig feed, the individual impact of changes in policies on manure disposal and emission reduction, animal welfare and animal health, although resulting in costs[107] to farmers, have *in general* been relatively small. That said, evidence from the case studies would suggest that the impact of these policies on costs differed *considerably* both between and within Member States.

As has been noted above it is not the function of the CMO to address the issue of production costs which are incurred as a result of other regulatory action but clearly the income benefits derived from the CMO instruments have helped the sector to absorb these costs.

Rural development and the environment

Analysis has shown that the current patterns of **regional distribution**[108] and **concentration**[109] **of production** have primarily been the result of geographical and historical factors, such as proximity to centres of feed production, maritime ports and main market outlets. The sector has also undergone significant structural change in the **number and size of holdings** over the period covered by this evaluation, resulting

[107] While this Evaluation Question only concerns an analysis of the impact of different measures of the CMO as well as other policies related to them on production costs, it should be noted that such measures *may* accrue additional production benefits to producers as well as society as a whole.

[108] The number of pig farms by specific geographic region.

[109] The spatial distribution of pig farms within a specific geographic region.

in a decrease in pig farm numbers, an increase in the number of pigs per holding and also an increase in the number of pigs per hectare, largely driven by the existence of and drive to achieve scale-economies. Such scale-economies have also been a driving factor in the increased **specialisation** of holdings and **vertical integration** (**relationships with the upstream and downstream industries**).

The CMO, particularly through the primary border protection measures (import tariffs and export refunds), has provided a measure of protection for the EU market and consequently contributed to creating advantageous market conditions and have provided an incentive, albeit small[110], to increase pigmeat production. Thus any impact of the CMO on the **regional distribution** and **concentration of production**, and the evolution of the **number and size of holdings** is likely to have been small (due to the estimated impact on production) and indirect, since the impact of the CMO on production is small and observed trends were found to have been occurring since before the introduction of the CMO and little evidence was found to strongly link the continuation of these trends directly to the CMO itself.

Any impact of the CMO impact on the specialisation of holdings, the sector's **relationships with the upstream and downstream industries** and the **economic importance** of the sector in terms of value added and employment generated is also likely to have been small (due to the estimated impact on production) and indirect, inasmuch as vertical integration and the expansion of production to take advantage of scale-economies are influenced by market trends and competitiveness and thus influenced by the advantageous conditions created by the CMO.

Consequently, while the expansion of intensive pig production systems have had a significant negative impact on the **quality of water, air land and landscape** over the evaluation period, any impact of the CMO is also likely to have been small (due to the estimated impact on production) and largely indirect.

[110] The direct impact of the CMO on both price and production were small, resulting in prices that were around 2.4% higher and production that was around 1.9% higher as a result of the CMO measures according to the CAPSIM simulation.

3. Poultrymeat CMO evaluation

3.1. Introduction

3.1.1. CMO objectives

The overarching objectives for the CMO for poultrymeat reflect those in Article 39 of the Treaty of Rome, namely:

1) to increase agricultural productivity;
2) to ensure a fair standard of living for farmers;
3) to stabilise markets;
4) to assure availability of supplies; and,
5) to ensure reasonable prices for consumers.

Figure 3.1 summarises the intervention logic of the CMO. As shown in this diagram, the various measures under the CMO for poultrymeat (namely import tariffs, export refunds and marketing standards) aim to meet objectives 1, 2 and 3.

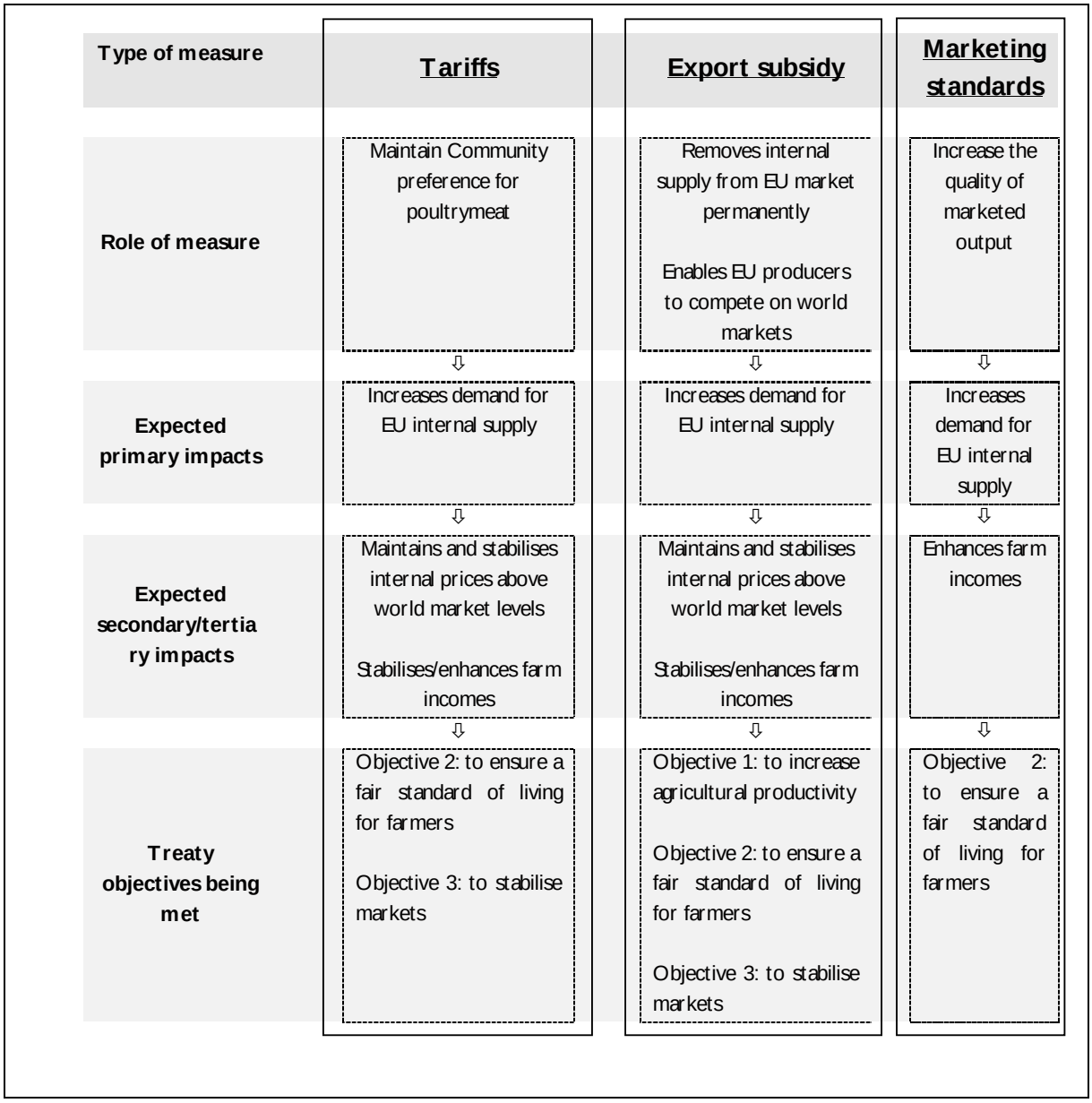

Figure 3.1: Intervention logic: Poultrymeat CMO

3.1.2. Operation of the CMO instruments

The CMOs for poultry do not include any market support measures (thus no guaranteed prices or direct aid), only protection at borders with normal Community preference for many cuts and lower tariff lines and duties under the agreement reached during the GATT Uruguay Round. Minimum access quotas have been instituted, for which customs duties are limited to a percentage of the basic tariff. Moreover, a special safeguard clause (WTO) for fresh and frozen poultrymeat (CN 1602, 0207 and 0210) provides for additional duty to protect against import prices

falling below the trigger price fixed in the GATT URAA. This safeguard clause has been permanently invoked, subject to a monthly review. Poultry exports receive export support which is limited in terms of volume and value receiving support in line with the Uruguay Round WTO Agreement on Agriculture.

The regime for poultrymeat (EC Reg. 2777/75) covers:

- live poultry, fowls, duck, geese, turkeys and guinea fowl;
- dead poultry of the aforementioned stock and edible offals thereof, fresh, chilled or frozen;
- poultry liver, fresh, chilled, frozen, salted or in brine;
- poultry fat, fresh, chilled, frozen, salted, in brine, dried or smoked;
- poultry fat, rendered or solvent extracted; and,
- other prepared or preserved poultrymeat or poultry offal.

The common agreements for eggs and poultrymeat were introduced in July 1967 via EC Regulations 122/67 and 132/67 and later replaced by the introduction of 2771/75 and 2777/75 in November 1975[111].

The EU has never operated a domestic support 'regime' for poultrymeat producers. It has relied in the past on tariffs to help stabilise the EU market and keep market prices in proportion to prices for cereals, and other costs, thus allowing EU producers to achieve sustainable profit margins. However, following the World Trade Organisation (WTO) Uruguay Round agreement, some tariffs (but not CN 0207) have been reduced. As a result, market prices within the Union directly reflect the supply/demand position for these products.

EU protection remains high for fresh poultrymeat products, but is low for processed products. An increasing proportion of the EU poultry sector is thus operating in a global market. This is challenging for the EU poultrymeat sector not least because it is being required to meet stringent health, environmental and welfare standards (and costs) not necessarily faced by their overseas competitors. At the same time access for EU poultrymeat to third country markets is not always open, e.g. where Special Safeguard Clauses have been invoked for SPS reasons.

The CMO is expected to be important in supporting the development of the sector, particularly in Brittany, which relies strongly on refunds for making its frozen chickens competitive with Brazilian poultrymeat on Middle Eastern markets[112].

[111] Links to the individual pieces of legislation incorporated into the poultrymeat and egg regimes can be found at http://europa.eu.int/scadplus/leg/en/lvb/l11057.htm and http://europa.eu.int/scadplus/leg/en/lvb/l11056.htm, respectively.

3.1.3. Disbursements

EU budgetary expenditure to the poultry sector in the form of export refunds has declined over the period of the evaluation from 239 million Euro to 94 million Euro (see Figure 3.2).

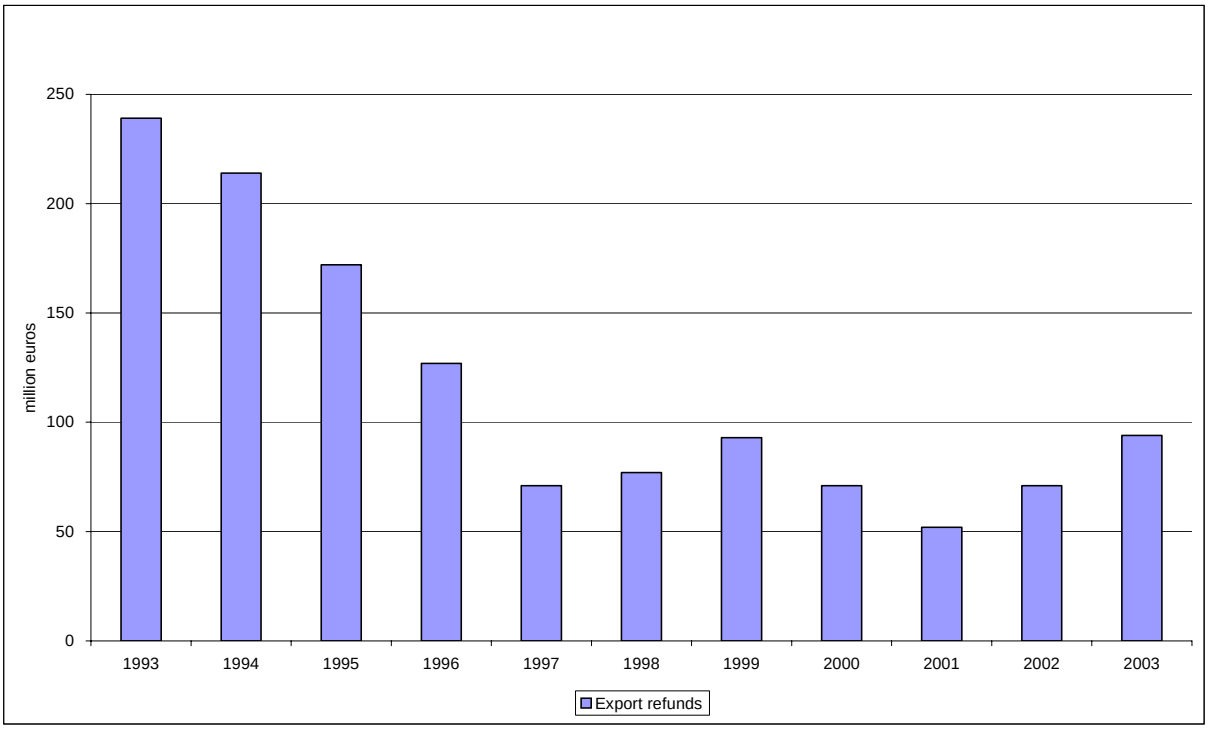

Figure 3.2: Poultrymeat CMO disbursements in EU 1993-2003 (million Euro)

Source; DG AGRICULTURE

As illustrated in Figure 3.3, the bulk of the disbursements are paid out to the French poultry sector (mostly to Brittany in the form of export refunds for frozen whole chickens (CN 0207 12)).

[112] Interview with Rainer Nagel, European Commission, 10.02.05.

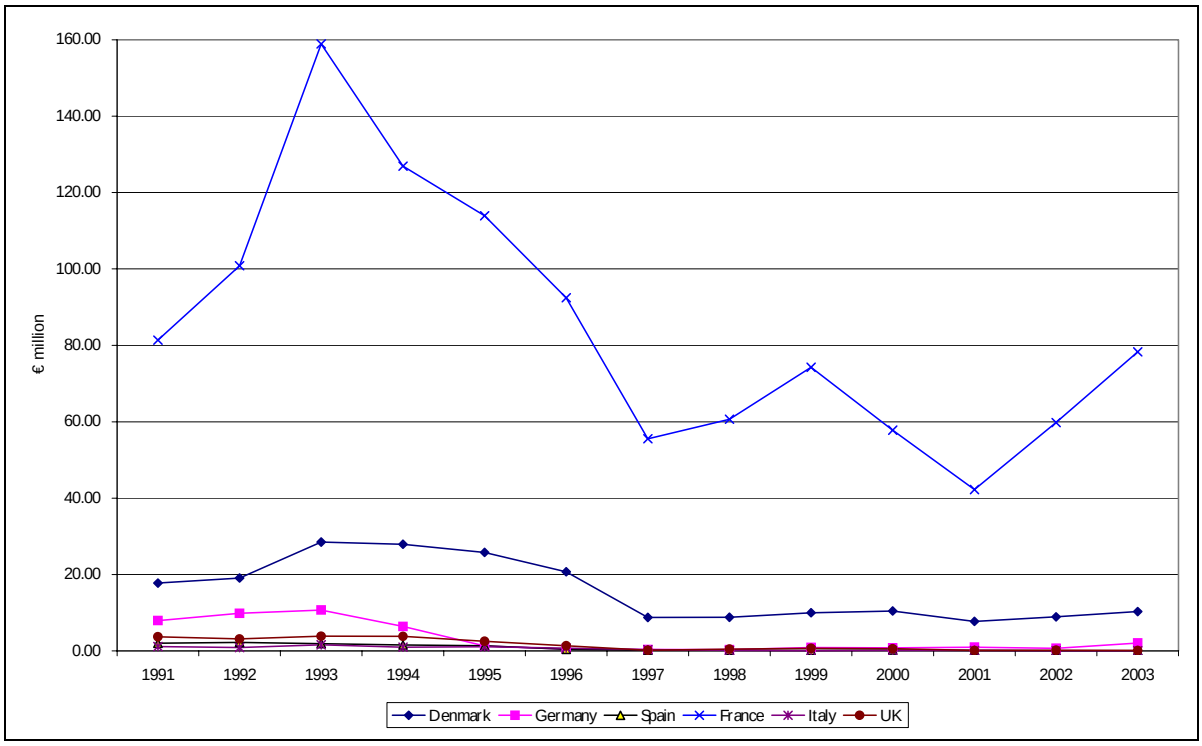

Figure 3.3: Poultrymeat CMO disbursements in case study countries 1993-2003 (€ million)

Source: DG AGRICULTURE

3.2. Theme 1: Market equilibrium and price stability

3.2.1. Question 1: Price reporting system

This evaluation question concerns the extent to which prices reported to the Commission, which form the EU reference price for poultrymeat, *correspond* to the prices obtained by slaughterhouses, the extent to which the reference price reflects market developments and the extent to which this information is comparable across Member States. For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.1.

3.2.1.1. Limitations of the techniques used for the analysis

This question has primarily been addressed through the interviews carried out with stakeholders in the sector. Clearly the validity of the results depends on the reliability of the estimates and views obtained from such stakeholders and therefore to ensure that these are as consistent as possible a range of stakeholders has been consulted in each Member State. It should also be noted that while the results obtained may hold for the period covered the picture may change quite rapidly as, for example, the number of markets covered by the price reporting system may be reduced or the structure and behaviour of the sector changes.

3.2.1.2. Analysis of results

Do the prices reported correspond to the prices obtained by slaughterhouses?

The EU reference price for poultrymeat is the average selling price in slaughter plants or the wholesale price calculated for whole 'class A' chickens in each Member State, used by the Management Committee to assist with market management (see Box 3.1). A national average reference price recorded at representative markets is calculated for each Member State. A weighted average of the national reference prices is calculated to give the EU reference price (see Table 3.1). The weighting coefficients are determined by the relative size of the poultry sector in each Member State on the basis of the census in the previous December. These coefficients are reviewed each year.

Box 3.1: Price reporting System and relationship to marketing standards

Commission Regulation (EC) No 546/2003[1] - Article 1 (1b) No later than 12.00 each Thursday, each Member State shall electronically notify the Commission of the selling price in slaughter plants or the wholesale prices recorded on the representative markets for whole class A chickens known as '65 % chickens', or for another whole chicken presentation if it is more representative.

Requirements for class A and B chickens – Council Regulation 1906/90 and Commission Regulation 1538/91

Producers of fresh, frozen and quick-frozen poultry cuts and carcasses can choose to class their products as either 'A' or 'B', according to conformation and appearance.

The minimum criteria is that the carcass or cut should be:-

- intact, taking into account the presentation;
- clean, free from any visible foreign matter, dirt or blood;
- free of any foreign smell;
- free of visible bloodstains unless small and unobtrusive;
- free of protruding broken bones;
- free of severe contusions;
- there should be no traces of prior freezing in fresh poultry.

Additional Class 'A' requirements

In addition to the above conditions, in order to be graded as 'A', poultry carcasses, and cuts, should also satisfy the following conditions:

They should be of good conformation. The flesh should be plump; the breast well developed, broad, long and fleshy, and the legs should be fleshy. On chickens, young ducks or ducklings and turkeys there should be a thin regular layer of fat on the breast, back and thighs. On cocks, hens, ducks and young geese a thicker layer of fat is permissible. On geese a moderate to thick fat layer should be present all over the carcass.

A few small feathers, stubs (quill ends) and hairs (filo-plumes) may be present on the breast, legs, rump, foot joints and wing tips. In the case of boiling fowl, ducks, turkeys and geese, a few may also be present on other parts.

Some damage, contusion and discoloration is permitted provided that it is small and unobtrusive, and not present on the breast or legs. The wing tip may be missing. A slight redness is permissible in wing tips and follicles.

Note[1]: Implementing Council Regulation 1906/90 and Commission Regulation 1538/91.

Source: Commission Regulation (EC) No 546/2003 and Scottish Executive, 2005

Table 3.1: Reference price for poultrymeat (in € per 100 Kg

Yr/Mn	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1990	133.88	136.80	136.99	142.92	147.23	157.20	157.18	143.77	130.35	122.67	118.84	117.72	137.13
1991	119.27	130.70	132.22	131.78	140.05	143.16	137.16	137.29	144.24	140.08	145.12	148.45	94.29
1992	152.87	157.14	154.93	152.89	154.99	156.80	150.44	140.22	133.24	123.21	122.51	109.03	85.80
1993	109.60	108.48	108.08	104.02	108.26	109.12	108.26	102.16	99.59	93.74	99.91	103.12	84.72
1994	98.17	98.48	99.58	100.90	112.16	113.33	108.27	108.99	111.85	107.46	106.16	105.16	75.13
1995	108.67	136.02	136.62	130.18	131.57	136.60	141.87	148.70	150.77	146.44	146.63	147.28	81.36
1996	143.89	148.35	150.41	155.05	166.21	178.49	183.85	183.02	180.20	163.62	146.84	147.88	102.60
1997	143.57	145.90	153.62	174.04	201.56	177.75	168.48	173.55	174.83	161.71	154.25	138.87	94.08
1998	134.61	141.61	137.80	132.67	126.11	126.90	122.93	116.23	108.09	98.02	88.79	99.42	83.17
1999	93.57	97.52	102.73	100.84	105.58	123.68	126.18	126.25	125.45	116.71	112.82	108.48	76.77
2000	112.81	121.67	130.72	134.99	142.89	148.96	151.75	148.76	145.62	147.17	153.77	158.23	98.35
2001	156.05	171.26	194.40	185.72	182.68	175.75	167.32	169.38	161.42	151.63	143.15	140.07	94.11
2002	135.06	135.70	146.16	138.80	136.22	139.15	141.98	136.16	135.78	129.23	127.14	124.77	95.46
2003	124.54	128.26	126.19	124.29	122.65	125.99	133.09	134.86	141.53	128.13	123.40	114.12	127.25

Source: DG Agriculture

To establish the extent to which the price reported to the Commission *corresponds* to the price obtained by slaughterhouses, it is necessary to initially consider the extent to which the reported price can be considered *representative* of that obtained by slaughterhouses within the industry as a whole. The representativeness of the reported price will therefore depend on the number of markets or slaughterhouses from which pricing information is collected and the number or proportion on national throughput or market share of each market/ slaughterhouse.

Article 1 (1(b)) of Regulation (EC) No 546/2003 on the CMO for poultrymeat states that each week, Member States must report the selling price in slaughter plants or the wholesale prices recorded on the representative markets for whole 'class A' chickens (known as 65% chickens), or for another whole chicken presentation that is more representative. Article 1 (2) states that the prices must be average weekly prices for the previous week, excluding VAT, and expressed in national currency per 100kg.

In some Member States, the reported prices are obtained from *quotation centres* based on the prices paid by public and private slaughterhouses. Some Member States use a *single quotation centre* in this respect (namely in Belgium, Denmark, Germany, Finland, UK), while others use *multiple quotation centres* (namely in Spain and Portugal). In other Member States, the reported prices are obtained directly from the most important *markets/slaughterhouses* for poultrymeat (namely in France, Ireland, Italy, Netherlands, Austria, Sweden) (see Table 3.2).

The extent to which these markets and quotation centres can be considered *representative* varies substantially between Member States. Based on those Member States where information is available (Table 3.2), the proportion throughput/market share in the *representative* markets ranges from 25% to 30% in France to 80% Belgium.

Table 3.2: Representative markets for poultrymeat in the Community

	Market	Quotation centre	Representativeness (Proportion of national throughput/ market share)
Belgium		ALT department – Administratie Land- & Tuinbouw	Around 80%
Denmark		The Poultry Council	
Germany		Zentralverband der Deutschen Geflügelwirtschaft e.V	Around 80%
Greece			
Spain		Ebro and Bellpuig	More than 50%
France	Rungis		Between 25% and 30%
Ireland	Cartons		Cartons: 28%
Italy	Milan		
Luxembourg[1]	N/a	N/a	N/a
Netherlands	Kuhne-Heits, Smink, GPS and de Vries		
Austria	5 slaughterhouses, of which the largest is GGÖ		GGÖ: more than 50%
Portugal		Regional Directorates for Agriculture (DRAs) located in Beira Litoral (sub-divided in Centro Norte and Centro Litoral) and Ribatejo e Oeste	
Finland		TIKE	
Sweden	From slaughterhouses		
UK		NFU	

Note [1] It is reported that no prices are reported by Luxembourg to the Commission, due to small size of the sector.

Source: Agra CEAS from industry interviews.

A priori, it would be expected that in those *representative* markets that account for a significant share of total national throughput, the reported price is likely to *correspond* to the price obtained by slaughterhouses within the industry as a whole. The findings of our industry interviews and available quantitative data support this. Specifically, the prices reported to the Commission tend to correspond to the prices obtained by slaughterhouses where there is a concentration of markets/integrators

or slaughterers and where the prices used by these markets are used to form the price reported to the Commission. For example, stakeholders reported that:

- Belgium – Around 97% of all poultrymeat producers in Belgium operate under a contract with an integrator, and that approximately 80% of all contracts are based on the Deinze market price that is communicated to the Commission. This is considered to be *representative* of the market and to *correspond* to the prices received by slaughterhouses. Moreover, prior to 2000 and the introduction of a second price series (the ABC market price), the Deinze price was even more representative because all contracts were based on it.

- Denmark – There are two remaining slaughterhouses in Denmark and it is the weighted average of prices in these two slaughterhouses that is reported to the Commission. Interviews with sector representatives state that this market is *representative* and that the prices collected *correspond* to the prices obtained by slaughterhouses.

- Germany – the Umbrella Organisation of the German Poultry Industry (Zentralverband der Deutschen Geflügelwirtschaft e.V.) collects prices from the slaughterhouses. According to ZMP (the state service responsible for monitoring agricultural, forestry and food markets), the market is *representative*, as it takes into account approximately 80% of German chicken production and therefore the prices reported *correspond* to the prices received by slaughterhouses.

Although the *representative* markets in other Member States account for a lower share of national throughput, this does not mean that the reported price is less likely to *correspond* to the price obtained by producers within the industry as a whole. The findings of the industry interviews indicate that the sample of transactions used by most other Member States to calculate the price reported to the Commission is still fairly *representative* of the price obtained by slaughterhouses. The only exception reported was the Netherlands, where 90% of broilers sold are sold as chicken parts. Therefore the market for whole birds is not considered representative and thus the price of whole birds would not correspond to the price that slaughterhouses receive.

There were a number of reasons presented during the industry interviews to justify why the price reported to the Commission was considered *representative*, even though the *representative* markets do not necessarily account for a particularly high share of the national throughput. For example, in a number of Member States, the sample size on which the reported price is based is effectively larger than the share of the national throughput accounted for by the *representative* markets. Interviews with the industry revealed that a number of slaughterhouses determine the producer

price for poultrymeat based on the prices paid by *representative* markets. For example, stakeholders reported that:

- Spain – prices for poultrymeat are collected at two quotation centres, Ebro and Bellpuig. The producers and slaughterhouses represented by the present in the Ebro and Bellpuig price fixing boards account for more than 50% of the industry's sales, however these prices are used as a reference by the entire Spanish industry. Therefore, the markets reported on can be considered *representative* and the prices reported therefore *correspond* to those actually received.

Although the findings of the industry interviews generally suggested that the prices reported to the Commission are *representative*, this does not necessarily imply that the reported prices *correspond* exactly to the prices obtained in terms of the *absolute price level*. Nevertheless, evidence suggests that any difference in the absolute price level is minimal. For example, regular monitoring and analysis carried out by Boerenbond (the Flemish Farmers Union) has found that the difference between the Belgian producer price and the price reported to the Commission consistently averages €0.05/kg liveweight less than the reported price.

In summary, the industry interviews suggest that the prices reported to the Commission *correspond* to the prices obtained by slaughterhouses (in terms of the extent to which the markets and quotation centres on which the reported prices are based can be considered *representative*). In addition, the prices reported to the Commission *correspond* to the prices obtained by slaughterhouses in *absolute* terms. Accordingly, the interviews supported the view that there is *correspondence* in that there is generally a high degree of *concordance* between the reported price and the price obtained by slaughterhouses. This suggests that the reported price used to form the EU reference price generally reflects market developments and is therefore adequate for use by the Management Committee as a basis to assess general trends in the sector.

Is the information comparable between member States?

Looking at the extent to which the reported price is comparable between Member States, it was noted that this information is comparable only as far as Member States respect the corresponding EU Regulation. Stakeholders in a number of Member States reported that the EU reference prices were useful for comparisons between Member States, notably for Ireland, Luxembourg and in particular Belgium. However, the opposite view is held by stakeholder representatives in Italy. For example:

- Belgium – the Deinze market price reported to the Commission is set by taking into account poultrymeat prices in neighbouring countries (the Netherlands, Luxembourg, Germany and France) as well as considering the Belgian market situation.

- Italy – it is felt that poultry prices are not comparable across Member States, due to:
  - Poultry prices in Italy are higher because of higher production costs, mainly due to longer rearing/fattening times, as a result of the consumer preference for larger size chickens;
  - The level of concentration in the retail industry has some influence on prices and small food retailers, butchers, etc., are more important than in countries such as the UK and the Netherlands;
  - The size and geographic characteristics of Italy together with the concentration of the poultry sector in the North make the costs of transport higher than they are in smaller countries such as Belgium and the Netherlands. This also means that transportation costs create a price difference for the same type of product between the North and the South of Italy.

3.2.1.3. Synthesis of results and conclusion

Box 3.2: Main conclusions on price reporting system

Do the prices reported correspond to the prices obtained by slaughterhouses?

In summary, the **industry interviews and historical data analysis** suggest that the prices reported to the Commission *correspond* to the prices obtained by slaughterhouses (in terms of the extent to which the markets and quotation centres on which the reported prices are based can be considered *representative*). In addition, the prices reported to the Commission *correspond* to the prices obtained by slaughterhouses in *absolute* terms. Accordingly, the interviews supported the view that there is *correspondence* in that there is generally a high degree of *concordance* between the reported price and the price obtained by slaughterhouses. This suggests that the reported price used to form the EU reference price generally reflects market developments and is therefore adequate for use by the Management Committee as a basis to assess general trends in the sector.

Is the information comparable between Member States?

In terms of the comparability of prices between Member States stakeholders in a number of Member States took the view that the prices were useful for comparison with neighbouring markets suggesting comparability across borders. On the other hand, it was noted in Italy that due to the structure of retailing as well as the differing nature of production prices reported would not be directly comparable with those in other Member States. This leads to the conclusion that the prices reported are not fully comparable across all Member States.

In spite of this caveat, the information gathered by the price reporting system under the CMO for poultrymeat can generally be regarded as adequate for use by the Management Committee as a basis to assess general trends in the sector.

3.2.2. Question 2: Export refunds

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.2.

3.2.2.1. Description and analysis of the historic functioning of the instrument

Description of the export refund instrument

As poultrymeat is a cereal based product the level of refunds has always been fixed primarily in relation to the differences in production costs between EU and third country producers largely as these are reflected in differing feed cereal prices. In addition, the relative value of the Euro vis-à-vis the US $ is taken into account, as well as prices in competing markets. These factors are reviewed regularly by the Commission Services to elaborate a proposal for consideration by the Management Committee in order to ensure that refunded exports of poultrymeat remain competitive on the international market.

Analysis of export data

As is shown in Figure 3.4 over the period 1993-2003 exports of poultrymeat overall have risen from 556,000 tonnes to 802,000 tonnes but within this total it is important to note that the share of cuts and preparations has risen continuously while that of carcasses (whole birds) has fallen. The bulk of the non-European exports are directed to the Middle East and North Africa. EU exports of poultrymeat to third countries amounted to around 1.3 million tonnes in 2002, or 14% of total EU-15 production[113]. In value terms, exports of frozen whole birds that attract export refunds (notably from France and Denmark) are particularly significant. In volume terms, the most significant volumes exported are the low value 'dark meat' products (i.e. legs, thighs, mechanically separated meat, etc.) which are not generally demanded by EU consumers and which are not generally refunded. EU domestic demand is more focused on convenience products mainly fresh meat and in particular the high value cuts (e.g. breast meat) and further processed products.

[113] External trade data provided by DG Agriculture, EU-15 production from ZMP and Eurostat.

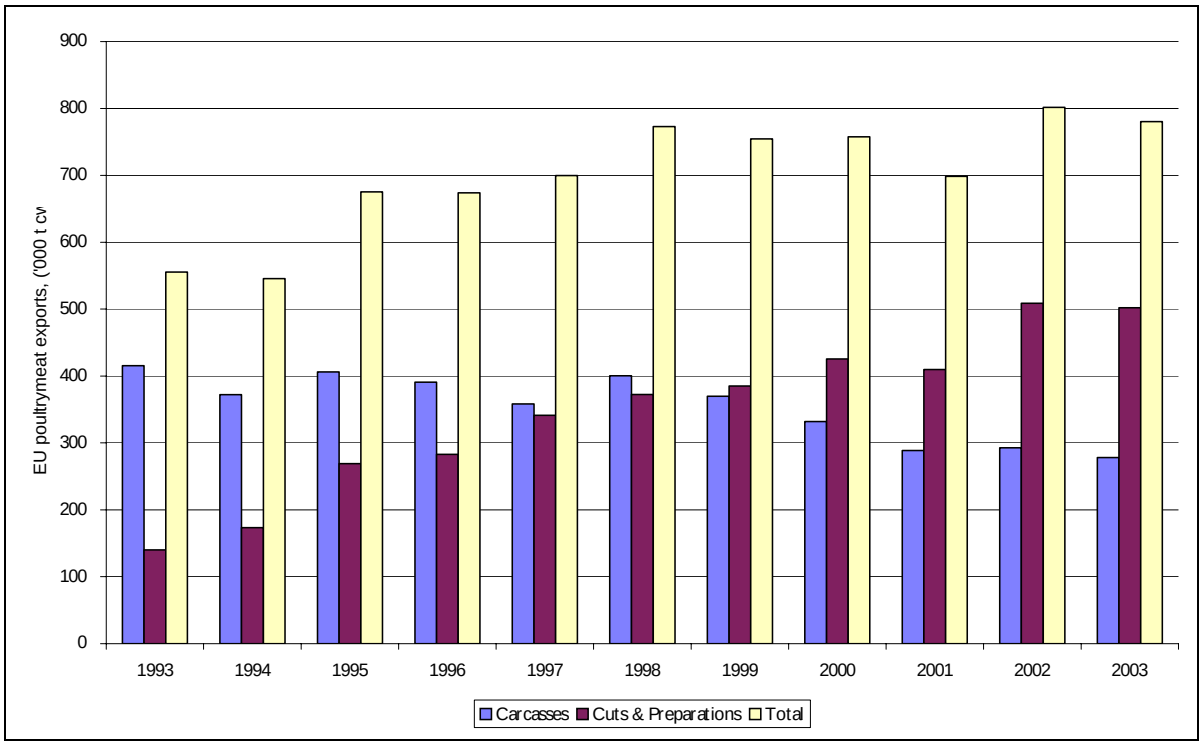

Figure 3.4: EU poultrymeat exports, 1993-2003

Source: DG Agriculture and COMEXT

Turkey exports over the period (Figure 3.5) have virtually trebled reaching 261,000 tonnes in 2002. These exports consist primarily of cuts and preparations.

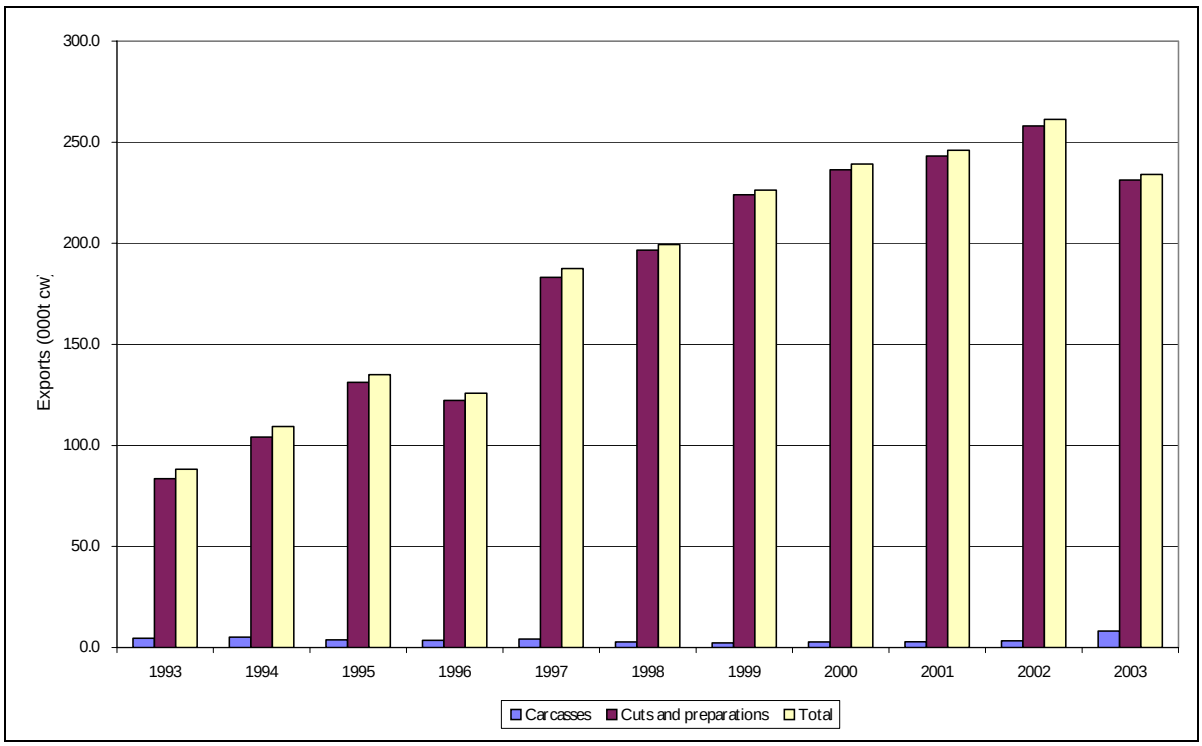

Figure 3.5: EU turkey exports, 1993-2003

Source: DG Agriculture

Figure 3.6 summarises the net poultry meat trade position for EU Member States in 2003. Germany and the UK are the key net importers of poultrymeat in the EU15 with France, the Netherlands, and Belgium/Luxembourg being the main net exporters.

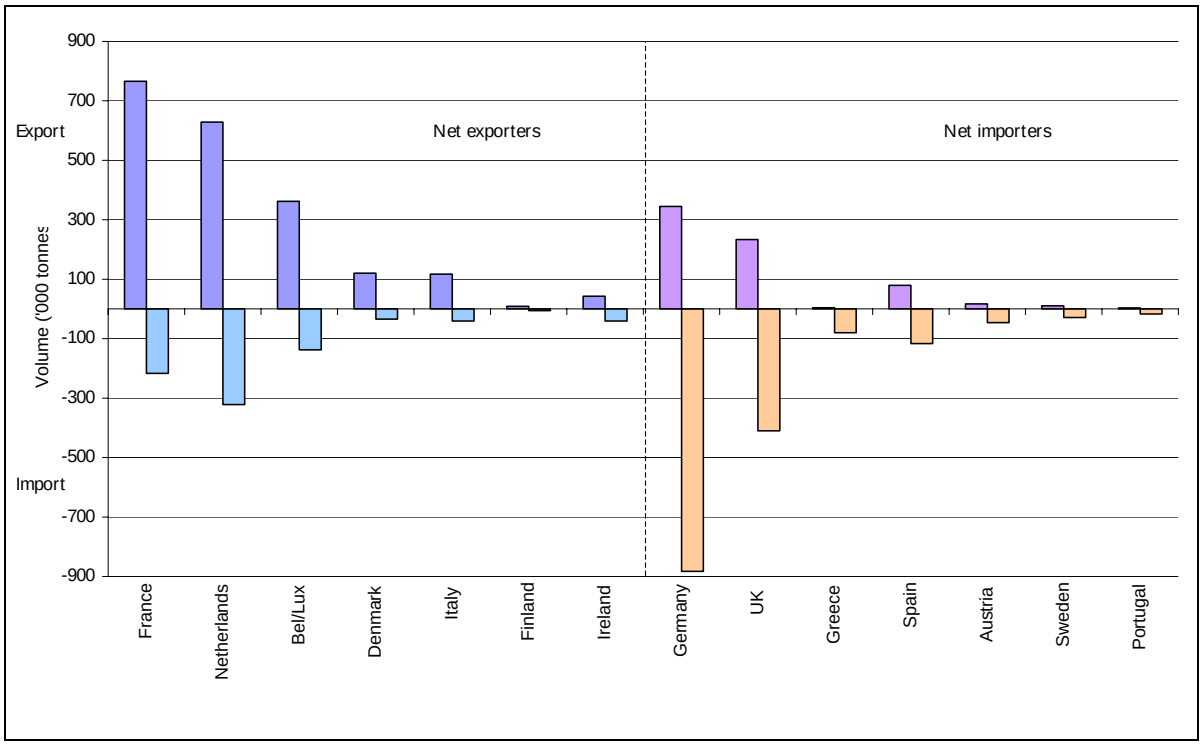

Figure 3.6: EU15 poultrymeat import/export summary 2003

Source: DG Agriculture; ZMP.

Analysis of export refunds 1990-1995

Table 3.3 shows the volume of poultrymeat exported with and without refunds and Table 3.4 presents export refunds for the poultrymeat sector for the period 1991/92 to 2003/04. As is shown in these tables expenditure on export refunds and the proportion of exports receiving a refund have generally declined sharply over the period and more particularly since 1 July 1995 when the URAA started to be implemented. As is shown in Table 3.3 below the share of total exports shipped with refund has fallen from 89% in 1993 to 44% in 1996 the first year following URAA implementation. This is a consequence of the fact that prior to the URAA the use of the export refund instrument was not internationally constrained and was it was therefore used freely to support the sector and build markets notably during the 1980s when a specific market for relatively small frozen whole birds for shipment to the Middle East, primarily from Brittany, was developed.

Table 3.3: Volume of EU poultrymeat exports with and without refund, 1988-2002 ('000 tonnes, carcass weight)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Export with refund	373	417	393	448	491	632	648	560	399	394	385	355	279	238	265
Export without refund	44	48	51	49	51	53	67	328	499	625	726	775	894	884	1,019
Total export	417	465	445	497	542	685	715	888	898	1,019	1,111	1,130	1,172	1,122	1,284

Note: includes chicks
Source: DG Agriculture

Analysis of export refunds 1995-2003

Under the URAA, the EU committed to cut the volume of poultrymeat exports benefiting from export refunds by 21%. Based on average annual exports between 1986 and 1990[114] of 362,000 tonnes, subsidised exports had to be cut by 76,000 tonnes to 286,000 tonnes by July 2001. The expenditure on export refunds had to be reduced by 36% or €51.0 mio over the six-year period, from €141.7 mio to €90.7 mio. The effect of these URAA requirements on the use of the refunds is clearly shown in Table 3.4 below which indicates that the overall expenditure under this instrument has fallen from a peak of some €250 million in 1993 to an average of some €69 million in the 2001-2003 period.

Looking at the historical analysis of trade and export refund data over the period as a whole it is clear that, perhaps surprisingly given that one of the purposes of the refund is to boost competitiveness on world markets, there has been an inverse relationship between the usage of the export refund instrument and the total volume of poultrymeat exported. Thus in the 1992-1994 period an annual average total of 647,000 tonnes of poultrymeat (in carcass weight equivalent) was exported. During this period the proportion of total poultrymeat exported with refund came to 91% (or an annual average of 590,000 tonnes). By contrast in the period 2000-2002 a substantially higher volume of poultrymeat (an annual average of 1.19 million tonnes) was exported but the proportion obtaining a refund had fallen to 30%[115]. This strongly indicates that in general the competitiveness of the sector in third country

[114] The base period for computing export refunds is 1986-1990. This differs from the 1986-88 base period used for several other provisions of the URAA, and perhaps reflects the desire of the negotiating parties to establish a higher base since export refunds were increasing during this period. On top of this, a "front loading" accord was negotiated which allowed them to use the 1991-92 period as the starting point for reductions, if higher, although the end-point remained that based on the 1986-90 base period level. This front loading provision proved to be particularly useful in the case of certain agricultural products, including some meats.

[115] This differs slightly from data presented with the CAPSIM model, due to the use of different data sources (see Appendix 4 section A4.2.1).

markets has been maintained and improved without the use of refunds, although exports of frozen birds are still dependent on the refund.

Table 3.4: Export refunds for the poultrymeat sector, 1991/92 – 2003/04[1] (€ million)

Marketing Year	EU-12								EU-15																	
	91/92		92/93		93/94		94/95		95/96		96/97		97/98		98/99		99/00		00/01		01/02		02/03		03/04	
	Mio €	Budget	Mio €	Budget	Mio €	Budget	Mio €	Budget	Mio €	Budget	Mio €	Budget	Mio €	Budget	Mio €	Budget	Mio €	Budget	Mio €	Budget	Mio €	Budget	Mio €	Budget	Mio €	Budget
Total refunds on poultrymeat	133.5		160.4		250.2		213.5		174		196.1		77.8		84.6		75.5		56.7		62		89.6		88.0	
Non differentiated data	133.5	1991	160.4	1992	250.2	1993	1.6	1994	0.2	1995																
Poultry chicks							3.4		3.2		2.7		1.1		1		0.9		0.7		0.6		0.3		0.5	
							3.4	1994	3.1	1995	1.8	1996	0.1	1997	0.1	1998	0.1	1999	0.1	2000	0	2001	0	2002	0.5	2003
									0.1	1997	0.8	1997	0.9	1998	0.7	1999	0.7	2000	0.5	2001	0.5	2002	0.3	2003		
											0.1	1998	0.1	1999	0.2	2000	0.1	2001	0.1	2002	0.1	2003				
Other poultry							208.5		170.6		193.4		76.7		83.6		74.6		56		61.4		89.3		87.5	
							208.5	1994	168.7	1995	125.2	1996	0.9	1997	0.5	1998	9.9	1999	8.2	2000	1.8	2001	15.3	2002	87.5	2003
									1.9	1997	66.9	1997	74.2	1998	80.5	1999	61.1	2000	46	2001	53.4	2002	74	2003		
											1.3	1998	1.6	1999	2.6	2000	3.6	2001	1.8	2002	6.2	2003				

Source: DG Agriculture.

More specifically, the extent to which the URAA requirements have acted as a constraint is made evident in Table 3.5. This shows that the volume limit appears to have acted as a ceiling on exports while the expenditure limit has not been constraining as such. As was indicated by the market management unit within DG Agriculture, the URAA induced a shift to a more 'prudent' market management policy which enabled the EU to remain within the URAA ceilings. In this context it should also be noted that the reductions in expenditure have also been enabled by the CAP cereals reform induced reductions in feed grain prices as well as a changing market environment both of which have reduced the need for refunds.

EU exports of poultrymeat with refund since the URAA have mainly consisted of frozen whole birds (included in the 'other poultry' category above), which are sold primarily to the Middle East. The EU main competitor is Brazil. Prior to the URAA support had also been given to cuts and mechanically recovered meat which are now exported without refunds. As has been indicated by the market unit within DG Agriculture, the main aim of the (standing) refund is to support the frozen whole bird sector in particular and to maintain its competitiveness in the international market. The major beneficiary of the support is the poultrymeat industry in Brittany, which specialises in the production of frozen whole chickens for export to the Middle East. In line with this focus the largest proportion of export refunds are used by one Member State, namely in relation to France, whose share of total export refunds in the poultrymeat sector has risen from 64.6% in 1991 to 84.0% in 2002[116].

Table 3.5: Volume and value of poultrymeat exports with refunds in relation to WTO URAA ceilings for marketing years 1995/96 to 2000/01

	01/07/ 1995	01/07/ 1996	01/07/ 1997	01/07/ 1998	01/07/ 1999[2]	01/07/ 2000
WTO ceiling for exports with refunds (tonnes)[1]	434,500	404,700	375,100	345,400	315,600	286,000
Actual exports with refunds (tonnes)[1]	418,100	401,400	393,700	343,400	318,000	260,600
% Utilisation of WTO ceiling	96.2%	99.2%	105.0%	99.4%	100.8%	91.1%
WTO expenditure ceiling for exports with refunds (Mio ECU)	136,300	127,200	118,000	108,900	99,800	90,700
Expenditure on refunds (Mio ECU)	115,900	73,000	76,100	89,700	75,100	56,800
% Utilisation of WTO ceiling	85.0%	57.4%	64.5%	82.4%	75.3%	62.6%

Notes: [1] In carcass equivalents. [2] Unused export refunds in previous years: 3,100 t.
Source: EU notifications to WTO.

[116] CMO budget expenditure data from DG Agriculture.

The key result from this historical analysis of the use of the refund instrument is that the usage of the instrument has changed significantly over the evaluation period. This change appears to have been partially driven by the URAA constraint with respect to volumes of product exported with refund from 1 July 1995. In order to comply with this volume constraint after this point refunds were primarily aimed at maintaining the competitiveness of exports of frozen whole birds from France. It was noted that this policy was necessary due to the fact that this product had little alternative outlet on the EU domestic market, which from the 1980s onwards increasingly demanded more fresh, chilled and pre-cut/processed poultrymeat products. More generally it should be noted that, at a time of buoyant world demand for poultrymeat, one consequence of the limitation on the use of the refund instrument is that, as is shown in Table 3.3 above, the proportion of exports receiving a refund has fallen considerably from over 90% in 1992 to some 21% in 2002.

3.2.2.2. Modelling results

The question of the impact of export refunds is further addressed using the CAPSIM econometric model. The operation of this model is discussed in detail in Appendix 3 and full details of the modelling results can be found in Appendix 4 section A4.2.

Assumptions and limitations of the model for an analysis of export refunds

The general limits of the model are determined by its specification i.e. by what it sets out to address from the start. First the CAPSIM model is specified at the level of individual EU Member States. It is a 'partial equilibrium' model, meaning that it does not cover the whole economy but focuses on agriculture. Within agriculture it distinguishes between beef, veal, pigmeat, sheep meat, poultrymeat, eggs, butter, cheese, skimmed milk powder, and other milk products to mention the most important outputs from the animal sector. However, CAPSIM does not differentiate between the different cuts, qualities and preparation forms real market participants are dealing with. In this context it should be noted that the modelling reviews the impact on the aggregate poultrymeat sector and therefore cannot be used to draw any inferences for particular market segments. Clearly the assessment of the counterfactual i.e. the removal of refunds would have a strong adverse effect on the market segment frozen whole birds which they are primarily targeted at although the effect may be marginal in terms of the overall poultrymeat market in the EU.

Furthermore it is a 'comparative static' model which implies that the model seeks to indicate average and medium outcomes rather than picking up yearly particularities resulting from short run fluctuations on the adjustment path to a new equilibrium. CAPSIM does not therefore model production cycles. For this reason all simulations conducted for this evaluation are carried out not for single years but for three year averages. Finally it is a *'deterministic'* model, which means it ignores random factors

and removes certain issues such as the merits of market or income stabilisation policies from the array of questions which can be addressed. The above model characteristics are clearly simplifications of reality which are nonetheless typical for applied modelling. Finally it should be noted that the model results rest on the parameters of the model which in themselves cannot be determined with certainty. Given these general limitations it is clear that these, and indeed all, modelling results have to be supplemented with expert judgement to answer evaluation questions.

The impacts of export refunds have been investigated in counterfactual simulations for three time periods (three-year averages 1990/92, 1995/97, 2000/02) by considering the impact of removing export refunds. The main assumptions and limitations beyond those deriving from the general characteristics of the modelling tool mentioned above relate to the parameters driving export demand for subsidised and unsubsidised exports. These have been specified based on the literature, but the final choice also reflects plausibility assessments.

It is not possible to present concisely the key basic data in the simulation model (production and trade quantities, prices, tariffs, export subsidies) on which the simulations are based. This is because equilibrium models determine the endogenous variables (production and trade quantities, market prices, border prices) as solution values of a set of equations (behavioural functions, market balances and other constraints) which depend in turn on certain exogenous variables (macroeconomic variables, tariffs and other policy instruments). A change in an exogenous variable, say a tariff cut, will disturb the equilibrium such that a new solution of the set of equations results. Because the tariff inclusive border price would be below initial EU market prices, for example, the price linkage would be disturbed which triggers an increase in imports leading to an increase in border prices according to the Rest of the World import supply function. Whereas in reality these adjustment would occur in a sequence of disequilibria, the partial equilibrium model determines the required changes of endogenous variables in one step which gives the new simulation result for the tariff cut.

Synthesis of CAPSIM modelling results

Table 3.6: Impact of export refund removal on the poultrymeat sector

	Unit	1990-92			1995-97			2000-02		
		Base	Simulation	Change	Base	Simulation	Change	Base	Simulation	Change
Export volume	000 tonnes	643	421	-35%	921	801	-13%	1336	1261	-6%
Price	€/tonne	€ 1,360	€ 1,331	-2.10%	€ 1,245	€ 1,229	-1.30%	€ 1,235	€ 1,228	-0.60%
Supply	000 tonnes	7,048	6,896	-2.2%	8,392	8,308	-1.0%	9,234	9,198	-0.4%
Demand	000 tonnes	6,725	6,743	0.3%	7,722	7,733	0.1%	8,687	8,687	0.1%
World Trade	%	22.7%	13.0%		18.8%	16.3%		13.7%	12.9%	
Self-sufficiency	%	104.8%	102.3%		108.7%	107.4%		106.3%	105.8%	
EEA net contribution	€ million	7,553	7,198	-4.7%	7,854	7,645	-2.7%	8,595	8,494	-1.2%
EEA net contribution ***- 15% cereal price cut***	€ million	7,553	7,664	1.50%	7,854	7,924	0.9%	8,595	8,677	1.0%
Welfare		**Total difference**			**Total difference**			**Total difference**		
Income (GVAB)	€ million	-267.2			-178.2			-88.4		
EAGGF expenditure	€ million	158.5			85.5			70.8		
Consumer welfare	€ million	248.6			160.7			82.0		

Source: CAPSIM

3.2.2.3. Interview results

Assumptions and limitations of the interviews

Interviews were conducted with industry stakeholders and experts in each Member State. The interviews were semi-structured, involving a series of open-ended questions based on the topic areas. The open-ended nature of the questions defined the topic under investigation but provided opportunities for both interviewer and interviewee to discuss some topics in more detail. Because of the personal nature of interviewing, the scope for introducing error and bias is quite large and can affect all the subsequent stages of the interviewing process, such as recording and interpreting the answers.

The most significant limiting factor of the interviews as a tool for evaluating the CMO was found to be a significant lack of knowledge and understanding of the role and activities of the CMO including among public sector staff with responsibility for the sector. This was often interpreted by the respondents as indicating a lack relevance to the Member States concerned, but also resulted in a failure to provide relevant national data relating to the sector and the evaluation questions.

What impacts do export refunds have on export volumes?

In all three periods, the model results show a decrease in the total volume of exports as a result of removing export refunds, but also an increase in the volume of unsubsidised exports. The logic of this result is considered by sector experts to be largely derived from the fact that a significant volume of EU exports to third countries are primarily driven by the need to dispose of unwanted cuts, for which demand is very low on the EU internal market. Interviews with poultry sector representatives confirm that after exports of these products continued in the absence of refunds, and would continue to do so provided that the export price (less transport costs) was greater than the costs of disposal.

This having been said, export refunds are considered by stakeholders to have been a key driver in the establishment of a market for the export of whole birds to the Middle East (notably from France and Denmark). Export refunds are seen by the sector as vital to maintain exports of these products, as it is thought unlikely that EU output could compete with low-cost production from Brazil and Thailand without these. However it is also perceived that this market is in a sense 'artificial', existing only as a result of the availability of export refunds, and that production would not take place in the absence of the subsidy.

What impacts do export refunds have on Community price levels?

No consensus of opinion among stakeholders on the impact of export refunds on domestic price levels could be reached. On the one hand, it was doubted whether export refunds would have sustained artificially high prices, as the large volume of imports from third countries would have exerted downward pressure on prices. On the other hand, it is felt that export refunds have played a role in preventing producer prices from falling too low.

What impacts do export refunds have on supply and demand volumes on the internal market?

The impact of export refunds on domestic demand is not considered to have been significant. Export refunds were far more important prior to implementation of the URAA agreement (from July 1995). Since then, export refunds are not considered to have not had a particularly significant impact on domestic supply, with the exception of frozen whole bird production for export from France.

Interviews with the poultrymeat sector suggest that there is little relationship between export refunds and EU demand for poultrymeat. This is because as has already been indicated above there is little substitution between the products demanded by EU consumers and the products (mainly frozen whole birds) exported to third countries. Thus while overall demand volumes for poultrymeat in the EU have increased due to consumer preferences for white meat and declining demand for red meat as was noted earlier demand has moved to chicken cuts and more convenient fresh and chilled or further processed products. Thus, to summarise, those interviewed concur with the modelling results in pointing out that in terms of domestic demand and supply in almost all Member States other than France other factors are far more important than export refunds in terms of impact on aggregate demand and supply.

What impacts do export refunds have on the competitive position of Community poultrymeat production on the internal market and in third countries?

Interviews with the poultry sector suggest that the removal of export refunds may lead to some increased availability of poultrymeat on the EU market resulting in a potential decrease in price. However, for the most part those interviewed were aware of the fact that refunds are specifically targeted on a particular segment of the market (namely frozen whole chickens) and the removal of these refunds would therefore be primarily felt in the production regions producing such birds, notably Brittany. Therefore it is not generally felt that there would be much of a displacement effect on the internal market as a result of removing export refunds, although it was noted that the degree to which this might occur will depend on the

degree of integration, competitiveness, proximity and ease of transport between Member States. As far as the EU competitive position in third country markets is concerned interviewees in France noted that the refunds were vital for the maintenance of the EU position in the Middle Eastern markets but in other Member States it was noted that exports were now taking place without the use of refunds in any case.

Other important factors affecting the relative competitiveness of exports are production costs, including feed, energy, labour and regulatory cost. One of the original functions of export refunds under the CMO for poultry was to counter the effects of the high EU price for cereals used in feed. Reforms to the EU cereal regime have resulted in lower grains costs over the evaluation period. However, cereals are only one component of poultry feed and grain substitutes are widely used. The poultry sector's view is that labour and energy costs in particular have increased over the period, while producer prices have declined, the combined effects of which have more than offset any reduction in cereal costs over the period.

Furthermore, export refunds are now viewed as necessary to compensate for the costs associated with the increasing regulatory burden faced by EU producers and costs thereby incurred as a result of the higher environmental, sanitary and welfare standards in the EU compared to many third country competitors. In this context, the poultry sector representatives noted that the full implementation of the EU food hygiene regulations from January 2006 and the IPPC measures from January 2007 would be likely to add to the cost of this regulatory burden.

While refunds are considered to remain critical to the whole bird exports from Brittany, for most countries the level and product specific focus of export refunds means that these are no longer a determining factor in the decision to export.

Currency exchange rates are also a significant factor in the competitive position of EU non-refunded exports on third country markets, especially in periods when a strong Euro results in larger differences in EU and world market prices. Of particular importance to poultrymeat exports is the value of the Brazilian Real, which EU poultry sector representatives feel has at times been maintained at an artificially low level in relation to the Euro and the US Dollar in order to facilitate Brazilian exports onto world markets.

3.2.2.4. Synthesis of results from the tools used and conclusions

Impact of export refunds on export volumes. If impacts can be identified, are they significant, in particular in relation to other determining external factors?

The historical analysis indicates that export refund management policy underwent a significant change following the implementation of the URAA in that the volume ceiling under this agreement meant that refund policy became more 'prudent' and was therefore re-directed away from cuts and other poultry products to focus almost exclusively on maintaining the established market for frozen whole birds mainly source from France. The URAA constraints combined with buoyant world demand for poultrymeat meant that the share of aggregate exports receiving a refund declined sharply over the period under review. Further historical analysis of trade and export refund data over the period as a whole makes it clear that, perhaps surprisingly given that one of the purposes of the refund is to boost competitiveness on world markets, there has been an inverse relationship between the usage of the export refund instrument and the total volume of poultrymeat exported. Thus in the 1992-1994 period an annual average total of 647,000 tonnes of poultrymeat (in carcass weight equivalent) was exported. During this period the proportion of total poultrymeat exported with refund came to 91% (or an annual average of 590,000 tonnes). By contrast in the period 2000-2002 a substantially higher volume of poultrymeat (an annual average of 1.19 million tonnes) was exported but the proportion obtaining a refund had fallen to 30%. This strongly indicates that in general the competitiveness of the sector in third country markets has been maintained and improved without the use of refunds, although as was noted in the **stakeholder interviews** exports of frozen birds are still dependent on the refund. This is as would be expected a priori since as has also been pointed out by stakeholders and is evident from the detailed **analysis of the trade data** by product a significant volume of exports has been driven by the need to dispose of unwanted cuts (e.g. low value 'dark meat ' products and mechanically recovered meat) for which demand within the EU is more limited.

This result is amplified by the **modelling analysis** that reviewed the counterfactual in the sense of what would have occurred in the absence of the measure. As would be expected a priori, the use of the refund instrument has clearly lifted aggregate exports to levels, which would not have prevailed in the absence of the instrument. In the three periods under review this effect amounted to an increase in exports of respectively 53%, 15% and 6% in 1990-92, 1995-97 and 2000-02 (see Table 3.6 and corresponding paragraph in Appendix 4 section A4.2.1). It should, however, be noted that, as the results from the historical data analysis and stakeholder interviews cited above suggest, in each period there was a significant deadweight effect[117] (60%, 77% and 76% respectively) suggesting that a significant volume of exports would effectively have been likely to have occurred in the absence of the support.

[117] See Footnote 2 and Box A1 in Appendix 4.

In conclusion the impact of export refunds on aggregate poultrymeat export volumes is considered to have been significant in the pre-URAA period but this is no the case except for the specific sub-sector targeted by the refunds. The main driver for the bulk of exports appears to be the need for producers to segment the market according to demand and therefore export those products for which demand in the EU is limited.

Impact of export refunds on supply and demand volumes on the internal market and price. If impacts can be identified, are they significant, in particular in relation to other determining external factors?

The **historical data analysis** and **stakeholder interviews** indicate that the use of the refund instrument was more significant prior to the implementation of the URAA. Stakeholder interviews also indicate that with the exception of frozen bird production for exports from France, which clearly affects production and demand for this sub-sector in aggregate export refunds have a limited impact on EU demand and supply. In this context stakeholders also noted that other factors such as the rise in poultrymeat demand resulting from an increased consumer preference for white meat as well as a general shift to chicken cuts and more convenient fresh and chilled and further processed products were far more significant than the export refund instrument.

The **modelling analysis** confirms these results through the modelling of the counterfactual (i.e. the removal of the export refund instrument). This shows that for the aggregate of the poultrymeat sector export refunds have a small, but positive, impact on domestic production (supply) of 2.2%, 1.0% and 0.4% respectively, but virtually no impact on domestic demand and result in a slight increase in the domestic market price (of 2.1% 1.3% and 0.6% respectively) (see Table 3.6 and corresponding paragraph in Appendix 4 section A4.2.1). This clearly indicates that export refunds were not a significant driver of the overall market development in the sector in the period under review although of course they were highly significant for the frozen bird export sector in France in particular.

In conclusion the impact of export refunds on aggregate supply and demand volumes on the internal market and price is not considered to be significant with other market factors such as consumer demand trends playing a far greater role.

Impact of export refunds on the competitive position of Community poultrymeat production on the internal market and in third countries. If impacts can be identified, are they significant, in particular in relation to other determining external factors?

While **stakeholder interviews** and the **historical data analysis** indicate that refunds remain critical to the frozen bird exports from Brittany, as is indicated above for most countries and poultrymeat products the level and product specific focus of export refunds since URAA implementation means that these are no longer a determining factor in the decision to export. More generally the results of modelling the counterfactual indicate relatively small increases in EU self sufficiency (2.5% in 1990-1992, 1.3% in 1992-1994 and 0.5% in 2000-2002) in each of the periods covered (see Table 3.6 and corresponding paragraph in Appendix 4 section A4.2.1).

Stakeholders noted that other key factors affecting competitiveness were the impacts of changing feed, energy, labour and environmental compliance costs. While it was acknowledged that feed costs had to an extent fallen as a result of the reduced cereals prices following the CAP reforms in this sector, other costs such as those for labour, energy and regulatory compliance had been rising thus more than offsetting the decline in feed costs. Similarly it was noted that a key factor affecting non-refunded exports were currency exchange rates and in particular the relation of the Euro to the Brazilian Real. Finally stakeholders noted that the competitive position in each particular EU market was also dependent on the degree of integration and market proximity of the poultrymeat sector.

In aggregate terms the modelling of the counterfactual i.e. the removal of refunds confirms the above analysis. The **modelling results** indicate that, as would be expected a priori, refunds the use of the refund instrument strengthens the competitive position of EU poultrymeat on the world market in that it increased the EU share of world exports from an estimated 13.0% in the absence of refunds to 22.7% in the 1990-92 period, but by far lesser amounts post URAA implementation (from 16.3% to 18.8% in 1995-97 and from 12.9% to 13.7% in 2000-02) (see Table 3.6 and corresponding paragraph in Appendix 4 section A4.2.1).

In conclusion while export refunds remain significant for the sub-sector which has since 1995 been the major focus of the refunds, i.e. frozen chicken mainly from France, in aggregate the impact on competitiveness on the internal market and in third countries has been low and other factors in particular relating to costs are considered to be more significant.

If impacts are significant, what is their dimension and are they achieved at a reasonable budgetary cost?

The **modelling results** indicate that the refunds increased the contribution of the poultrymeat sector to the Economic Accounts for Agriculture by an estimated €355 million in the 1990-92 period, €208.8 million in the 1995-97 period and €100.2 million in

the 2000-02 period (see Table 3.6 and corresponding paragraph in Appendix 4 section A4.2.1). In this context it should be noted that a simulation reducing cereal support prices by 15% in each of the three periods revealed results of a similar order of magnitude thus indicating that such a reduction could have at least an equally significant impact as the refunds themselves. This therefore confirms the initial hypothesis that given the budgetary weight and product specific focus of the intervention post URAA in terms of aggregate sector output the other policy and the other market factors cited above (notably the cut in intervention prices for cereals which actually occurred) will have had a greater impact on the poultrymeat market.

The overall effect on producer welfare[118] was estimated by means of the CAPSIM modelling of the counterfactual which indicates that in aggregate the measure added some €267 million to producer welfare in the 1990-1992 period with aggregate EAGGF budgetary expenditure incurred of €159 million. This in turn generated consumer and downstream sector welfare costs (in terms of higher prices) of some €249 million. While clearly the modelling assumptions underlying these estimates may be open to discussion this suggests that in this period the net welfare benefit (to producers) of some €19 million has been generated at a relatively high budgetary cost (see Table 3.6 and corresponding paragraph in Appendix 4 section A4.2.1). A similar relationship holds for the later periods modelled although the orders of magnitude are considerably lower due to the lower welfare and budgetary impacts for the measure in these periods. While it should be noted that a change in the assumptions could relatively easily lead to different absolute outcomes this conclusion must be seen as robust in terms of the relative values generated particularly since factors such as environmental and administrative costs, which could be expected to further reduce the overall welfare benefits, have been excluded from the calculation.

In conclusion export refunds are considered to have generated relatively small overall economic benefit to producers at a relatively high budgetary cost.

[118] as measured by gross value added at basic prices

Box 3.3: Key conclusions on export refunds

As has been shown by the historical data analysis and stakeholder interviews since the URAA implementation started in 1995 export refunds in the poultrymeat sector have largely been focused on a specific sub-sector, namely frozen chicken exports, mainly from Brittany. This means that export refunds are no longer significant for the sector as a whole and indeed the historical analysis indicates that exports have risen substantially while the use of the refunds has fallen.

This suggests, and stakeholders have confirmed, that the use of this instrument now has a marginal impact on the aggregate competitive position and income of EU producers as well as the price and demand and supply on the EU market. Other market factors, notably feed costs but also energy and labour costs as well as the costs of compliance with regulatory requirements, are seen by stakeholders as being of equal if not greater significance. The stakeholder interviews also confirm that the instrument has not been used countercyclically to stabilise the market although it should be noted that in any case production in this sector is in any case less cyclical than in the other two sectors evaluated here. The modelling analysis indicates that the net welfare benefit that has arisen as a result of the use of this instrument has been achieved at a relatively high budgetary cost and that while the targeting of the measure has been improved post URAA, there is still a significant deadweight effect[119].

This leaves open the question of whether the budgetary expenditure incurred can be considered 'reasonable'. The evaluators take the view that they cannot make a final judgement on this issue as it involves issues of equity between different segments of the population. This having been said the evaluation results have highlighted the direction and likely extent of transfers being made and thus the nature of the choice involved.

[119] See Footnote 2 and Box A1 in Appendix 4.

3.2.3. Question 3: Import tariffs

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.2.

3.2.3.1. Description and analysis of the historic functioning of the instrument

Illustrated description of the import tariff instrument

For poultrymeat, the main current instrument of import protection is the fixed rate import tariff. The aim of this instrument is to protect the EU market from lower price imports. The import duty is therefore intended to help cover the gap between the lower world market price and the EU price for imported products.

Traders must be in possession of a valid import license before imports can be effected. Under most circumstances, the import license is a formality. However, where traders wish to take advantage of the reduced tariffs that apply to shipments within the import tariff rate quotas (TRQs) in place for certain products, they must be in possession of a TRQ import license. The method by which this import license is issued is very important. It might be issued i) on a first-come, first-served basis; ii) to traders who have imported in the past; iii) be made freely available to all who wish to request an import license, but with all applications scaled back the match the quantities available. Traders must lodge a surety when taking out an import license, which will be released when the import is effected. Failure to use the license will result in forfeiture of the surety.

Definition of import levies 1992-1995

Prior to the URAA the EU operated a system of variable levies fixed quarterly and as poultrymeat is a cereal based product the levy was based on the difference in feed grain costs between the EU and its major competitors on the world market and a factor relating to processing costs as well as the exchange rate between the Euro (ECU) and the US $.

Analysis of import tariffs 1995-2003

As part of the Uruguay Round Agreement on Agriculture, the EU variable import levies on most agricultural products had to be converted into fixed import tariffs ("tariffication"). These tariffs were subject to reduction commitments over the implementation period. For poultrymeat, the tariffs had to be cut by 36% between July 1995 and July 2001. The tariffs on fresh "83% chicken" had to be reduced from

€410/tonne to €262/tonne and for boneless chicken cuts (fresh, chilled or frozen) from €1,600/tonne to €1,024/tonne (see Table 3.7).

Table 3.7: EU URAA commitments on import tariffs for poultrymeat

Tariff item number	Description of products	Base rate of duty	Bound rate of duty	Special Safeguard (SSG)
0207	Meat and edible offal, of the poultry of heading no 0105, fresh, chilled or frozen:			
020710	-Poultry not cut in pieces, fresh or chilled:			
	--Fowls of the species Gallus domesticus:			
02071011	---Plucked and gutted, with heads and feet, known as '83% chickens'	€410/tonne	€262/tonne	SSG
02071015	---Plucked and drawn, without heads and feet but with necks, hearts, livers and gizzards, known as '70% chicken'	€467/tonne	€299/tonne	SSG
02071019	---Plucked and drawn, without heads and feet and without necks, hearts, livers and gizzards, known as '65% chicken', or otherwise presented	€508/tonne	€325/tonne	SSG
	-Poultry not cut in pieces, frozen:			
020721	--Fowls of the species Gallus domesticus:			
02072110	---Plucked and drawn, without heads and feet but with necks, hearts, livers and gizzards, known as '70% chicken'	€467/tonne	€299/tonne	SSG
02072190	---Plucked and drawn, without heads and feet and without necks, hearts, livers and gizzards, known as '65% chicken', or otherwise presented	€508/tonne	€325/tonne	SSG
	-Poultry cuts and offal (including livers), fresh or chilled:			
020739	--Other:			
	---Of fowls of the species Gallus domesticus:			
	----Cuts:			
02073911	-----Boneless	€1,600/tonne	€1,024/tonne	SSG
	-----With bone in:			
02073913	------Halves or quarters	€559/tonne	€358/tonne	SSG
02073915	------Whole wings, with or without tips	€421/tonne	€269/tonne	SSG
02073917	------Backs, necks, backs with necks attached, rumps and wing tips	€292/tonne	€187/tonne	SSG
02073921	------Breasts and cuts thereof	€940/tonne	€602/tonne	SSG
02073923	------Legs and cuts thereof	€724/tonne	€463/tonne	SSG
02073925	------Other	€1,575/tonne	€1,008/tonne	SSG
	-Poultry cuts and offal other than livers, frozen			
020741	--Of fowls of the species Gallus domesticus:			
	---Cuts:			
02074110	----Boneless	€1,600/tonne	€1,024/tonne	SSG
	----With bone in:			
02074111	-----Halves or quarters	€559/tonne	€358/tonne	SSG
02074121	-----Whole wings, with or without tips	€421/tonne	€269/tonne	SSG
02074131	-----Backs, necks, backs with necks attached, rumps and wing tips	€292/tonne	€187/tonne	SSG
02074141	-----Breasts and cuts thereof	€940/tonne	€602/tonne	SSG
02074151	-----Legs and cuts thereof	€724/tonne	€463/tonne	SSG
02074171	-----Other	€1,575/tonne	€1,008/tonne	SSG
02109020 /0210 9939	Other meat, salted in brine, dried or smoked	24% ad valorem	15.4% ad valorem	
16023211	Uncooked poultry of heading 0105, other than turkey	€1355/tonne	€867/tonne	SSG

16023219	Turkey	10.9% ad valorem		

Source: European Communities Schedules for the Uruguay Round of Multilateral Trade Negotiations, GATT, 1994

As part of the URAA, minimum access quotas were established for the import of poultrymeat into the EU:

- Fresh, chilled or frozen chicken carcasses: 0 tonnes in 1995 rising to 6,000 tonnes by July 2001, at various tariffs (depending on the tariff item number);
- Fresh, chilled or frozen chicken cuts: 0 tonnes in 1995 rising to 4,000 tonnes by July 2001, at various tariffs (depending on the tariff item number);
- Certain categories of poultry cuts of fowls of the species Gallus domesticus: 15,500 tonnes from 1995 onwards, at a zero tariff;
- Fresh, chilled or frozen turkey meat: 0 tonnes in 1995 rising to 1,000 tonnes by July 2001, at various tariffs (depending on the tariff item number);
- Certain categories of poultry cuts of turkeys: 2,500 tonnes from 1995 onwards, at a zero tariff.

Analysis of import flows

In the period from 1993 to 2002 imports of poultrymeat rose sharply from 83,000 tonnes to 387,000 tonnes in 2002. As is evident from Figure 3.7, this increase is largely due to the fact that there was a very substantial increase in imports, mainly from Thailand and Brazil, of frozen, boneless chicken cuts with a salt content of between 1.2% and 3% under the CN heading (0210 9939) at 15.4% ad valorem, i.e. one-third or less of the tariff which would have applied under the general poultrymeat import heading (€102.4/100kg net) during this period.

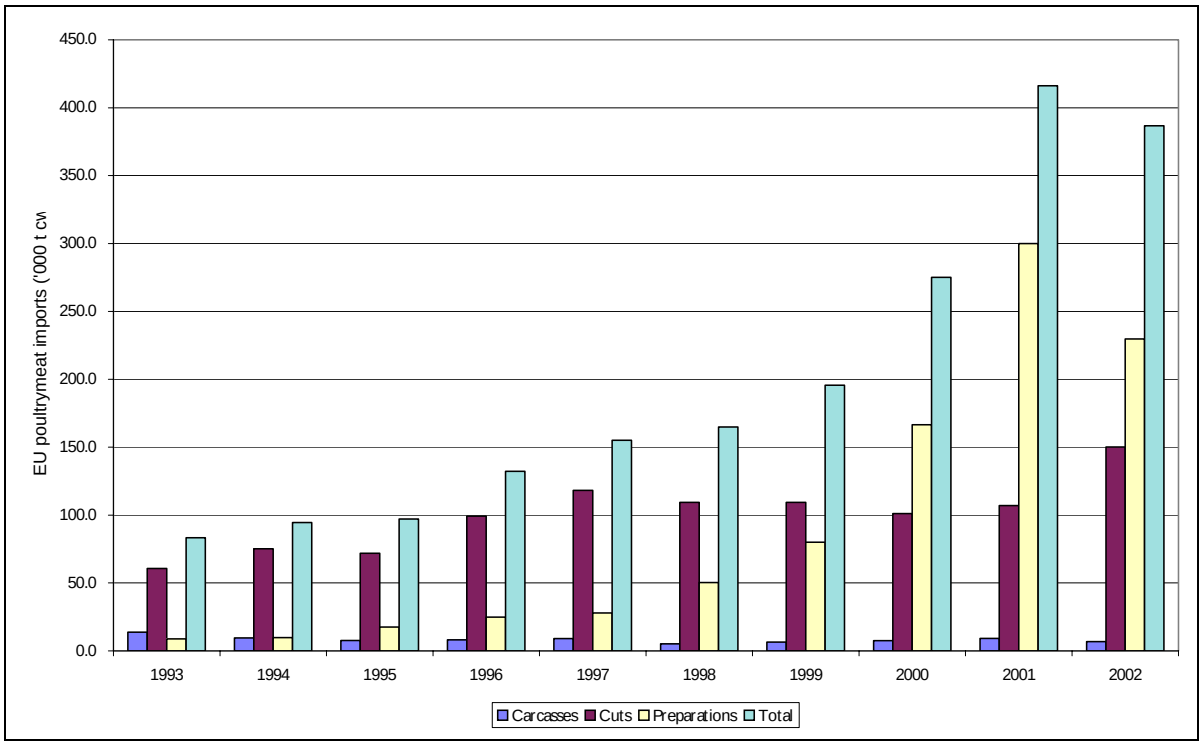

Figure 3.7: EU poultrymeat imports, 1993-2002

Source: DG Agriculture

Over the same period imports of turkey meat as well as cuts and preparations have risen from 25,000 tonnes to 88,000 tonnes. (Figure 3.8).

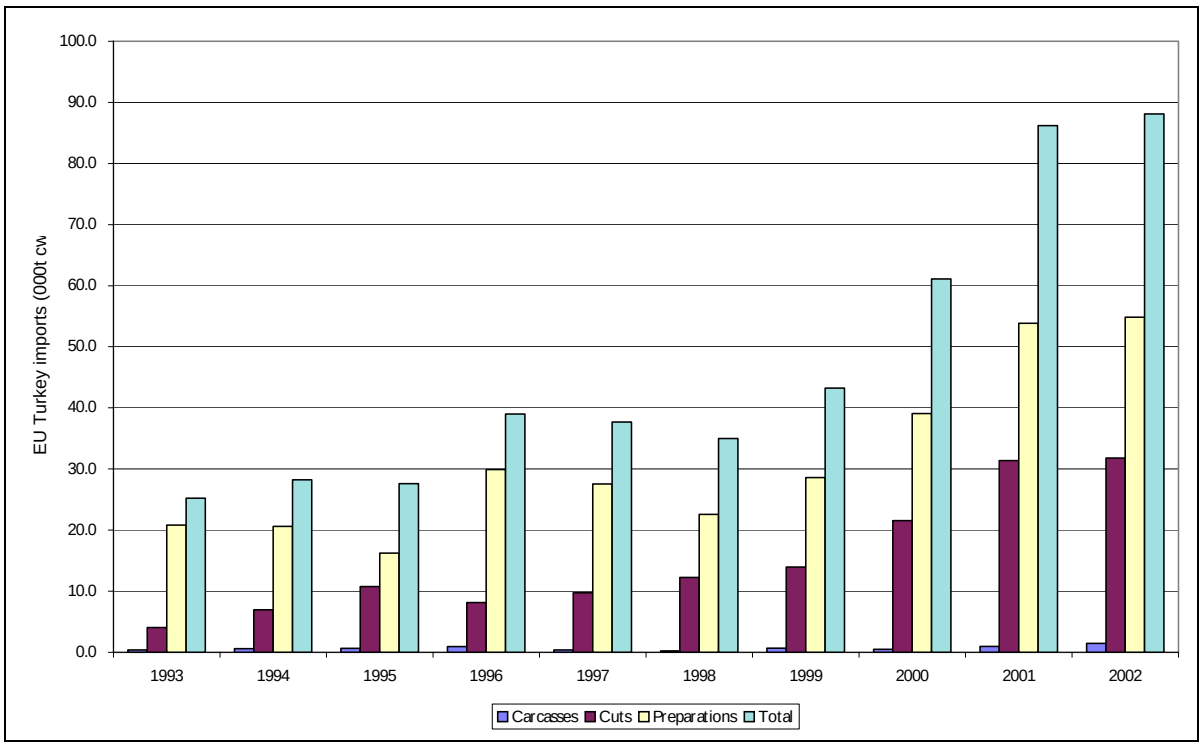

Figure 3.8: EU turkey imports, 1990-2002

Source: DG Agriculture

The analysis of trade data shows that following the introduction of the URAA, but particularly in the period 1997-2002, there has been a very substantial increase in EU imports of poultrymeat and poultrymeat products. In part, this has been due to the aforementioned issue in relation to the level of tariff attracted by products in the CN categories 1602 and 0210 which effectively created a breach in the protection afforded to most types of poultrymeat and poultrymeat product. It should, however, be noted that imports of carcasses and cuts have risen well in excess of the volumes entering under the preferential TRQs suggesting that a proportion of product is entering having paid the full rate of duty. Given the tariff levels prevailing this suggests that the competitiveness of third country producers will be very high.

3.2.3.2. Modelling results

This evaluation question was primarily addressed using the CAPSIM econometric model. The operation of this model is discussed in detail in Appendix 3 and full details of the modelling results can be found in Appendix 4 section A4.2.2.

Assumptions and limitations of the model for the analysis of import tariffs

The impact analysis on import tariffs has been based on a counterfactual simulation with CAPSIM of an abolition of import tariffs during the time periods 1990/92, 1995/97,

and 2000/02. It should be noted that the results obtained here are in particular sensitive to the detailed specification of the import regime of the EU and the import supply function from the Rest of the World.

Because CAPSIM only considers 'poultrymeat' in aggregate a first key parameter regarding the import regime is the average tariff assumed. This is not available in relevant statistical databases such as TARIC but would have to be calculated based on many single CN codes with an appropriate weighting. Because this calculation would require very substantial resources and any weighting scheme would in any case be subject to question[120] we characterise the developments of tariff protection with the tariff on a lead product comparable to the EU 'reference prices', namely frozen 70% chicken[121] (CN codes 02072110 or 02071210).

In Appendix 3 we explain our preference for this indicator of tariff protection compared to a 'price gap approach' in more detail. In this context it is recognised that the choice of a single lead product may be inappropriate if it is not representative of the unknown average tariff. A preferable approach would be to work on a more disaggregated level, ideally the level of the tariff code (CN8), which would capture, for example, the observed surge in imports of certain chicken preparations in the 1990s.

Another relevant issue for tariff protection are the existing tariff preferences. Again the ideal approach for modelling would be as detailed as possible since this would capture the various preferences granted to different regions, in different years and for different cuts and processing forms of poultrymeat. The regional heterogeneity makes it almost impossible to compile a disaggregated database of these tariff preferences and to aggregate them in a defensible manner. For the quantitative analysis we therefore had to simplify and for modelling purposes we have relied on the WTO notifications by the EU as reproduced in Table 3.8 below. It should be noted that the CAPSIM database relies on, but is not identical to Eurostat data. Eurostat definitions appear to be broader than DG Agriculture market balance data, but the differences in data sources are less pronounced than for pigmeat. In view of this weakness, the TRQs have been incorporated according to their share of preferential imports in total imports according to DG Agriculture data.

[120] Simple import weights are often criticised because they would imply a zero weight for prohibitive tariffs.

[121] Our choice of 70% chicken in favour of the 65% chicken intended for the reference prices was motivated by availability of time series on import levies prior to 1995 in ZMP publications. The price difference between 65% and 70% chickens is sufficiently stable over time such that it is reasonable to characterise the tariff development over time with the ratio of tariffs (or levies) on 70% chicken to reference prices of 65% chicken.

Table 3.8: Import data used by CAPSIM (tonnes)

	1995/96	1996/97	1995/97	2000/01	2001/02	2000/02
Total imports (CAPSIM data)[1]			250,446			789,080
Total Imports (DG Agriculture)			257,054			568,722
Tariff free imports (oilseeds panel)			18,000			18,000
WTO notified TRQ for reduced tariffs	0	2,536	1,268	11,900	11,900	11,900
WTO notified in quota imports	0	2,226	1,113	3,914	3,150	3,532

Note [1]: Based on data for total pigmeat imports - Eurostat market balance data (as downloadable from Eurostat website)
Source: CAPSIM

For the quantitative analysis we assumed that preferential imports would not benefit at all from hypothetical tariff abolition on the part of the EU such that therefore they can be separated from the price responsive part of imports for the purposes of the analysis.

Price responsiveness of non-preferential imports was estimated using a Rest of the World import supply elasticity. Because our lead product tariffs (see above) appeared to be rather low when compared to the pig sector we have used a relatively high value for the aggregate import supply elasticity (6.0) to reflect the proven capability of foreign competitors to meet EU sanitary regulations on poultrymeat. In addition, other model parameters such as the Rest of the World export demand elasticity and supply and demand elasticities in EU Member States also have a bearing on the simulations results related to tariff protection.

It is clear that the simulation results below all rest on the above assumptions regarding data issues, specification choices and parameter selection. Due to these limitations our simulations provide sound indicators with which to address the evaluation questions, but they have to be judged in the context of the descriptive analysis and expert opinions.

Synthesis of CAPSIM modelling results

Table 3.9: Impact of export refund and import tariff removal on the poultrymeat sector

	Unit	1990-92			1995-97			2000-02		
		Base	Simulation	Change	Base	Simulation	Change	Base	Simulation	Change
Import volume	000 tonnes	320	1124	251%	250	1071	328%	789	1,637	107%
Net trade volume	000 tonnes	322	-607	-289%	670	-97	-114%	547	-159	-129%
Price	€/tonne	€ 1,360	€ 1,202	-11.6%	€ 1,245	€ 1,114	-10.5%	€ 1,235	€ 1,107	-10.4%
Supply	000 tonnes	7,048	6,217	-11.8%	8,392	7,718	-8.0%	9,234	8,624	-6.6%
Demand	000 tonnes	6,725	6,824	1.5%	7,722	7,815	1.2%	8,687	8,783	1.1%
Export share	%	22.7%	14.0%		18.8%	18.9%		13.7%	13.8%	
Import share	%	5.5%	46.4%		3.6%	21.1%		5.8%	16.1%	
Net trade share	%	17.2%	-32.4%		15.1%	-2.2%		7.9%	-2.3%	
Self-sufficiency	%	104.8%	91.1%		108.7%	98.8%		106.3%	98.2%	
EEA net contribution	€ million	7,553	5,708	-24.4%	7,854	6,254	-20.4%	8,595	6,952	-19.1%
Border price/export	€/tonne	1,078	1,202	11.5%	1,146	1,114	-2.7%	1,181	1,107	-6.3%
Border price/import	€/tonne	975	1,202	23.3%	866	1,114	28.7%	977	1,107	13.3%
Welfare		**Total difference**			**Total difference**			**Total difference**		
Income (GVAB)	€ million	-1,412.9			-1,388.9			-1,475.1		
EAGGF expenditure	€ million	53.0			40.5			43.1		
Tariffs	€ million	-67.0			-33.3			-64.8		
Consumer welfare	€ million	1,368.9			1,291.3			1,407.6		

Source: CAPSIM

3.2.3.3. Interview results

Assumptions and limitations of the interviews

Interviews were conducted with industry stakeholders and experts in each Member State. The interviews were semi-structured, involving a series of open-ended questions based on the topic areas. The open-ended nature of the questions defined the topic under investigation but provided opportunities for both interviewer and interviewee to discuss some topics in more detail. Because of the personal nature of interviewing, the scope for introducing error and bias is quite large and can affect all the subsequent stages of the interviewing process, such as recording and interpreting the answers.

The most significant limiting factor of the interviews as a tool for evaluating the CMO was found to be a certain lack of knowledge and understanding of the role and activities of the CMO. This was often interpreted by the respondents as indicating a lack relevance to the Member States concerned, but also resulted in a failure to provide relevant national data relating to the sector and the evaluation questions.

What impacts do import duties and the volumes of tariff rate quotas have on import volumes?

Stakeholder views were unanimous in stating that import tariffs have a vital role in restricting the volume of imports into the EU from third countries. However, the extent of protection offered, i.e. what level of third country imports would take place in the absence of this measure is generally less clear. There are already large volumes of poultrymeat being imported into the EU with full import duty paid, mainly in the form of frozen or cooked products for the processed food and catering sectors. This is reported to have resulted in a differentiation of production, with domestic output focusing on the supply of fresh, high value meat cuts (e.g. breast meat). In the absence of import tariffs, the sector feels that the EU market would rapidly be influenced by imported products, with EU producers increasingly restricted to supplying niche markets.

What impacts do import duties and the volumes of tariff rate quotas have on Community price levels?

Stakeholder interviews confirm the view that import tariffs serve to support EU internal price levels, which is considered to be necessary given the relatively high production costs in the EU compared to some third countries. However it is also argued that the

sector is already very liberalised and so this impact is no longer considered to be as prevalent as in the past.

What impacts do import duties and the volumes of tariff rate quotas have on supply and demand volumes on the internal market?

Stakeholder views are that import duties in the period prior to 1995 contributed to the development of poultry production throughout Europe, even in the less competitive regions and net importer countries, and enabling producers to capitalise on the rising EU and world-wide consumer demand for poultrymeat. As a consequence, import tariffs are likely to have resulted in a situation of increased domestic supply compared to what would otherwise have occurred. If import tariffs were to be abolished, stakeholders strongly believe that some EU production would be rendered uncompetitive and that this would result in a decrease in supply.

Again, industry experts point to an aspect that is often neglected in formal modelling, noting that this expected decrease in demand is largely due to the fact that demand for poultrymeat in the EU is primarily for fresh, high value cuts, the demand for which is met by the internal market rather than by imports from third countries; and also because the price differentials between EU and third country production are considered to be sufficiently large that imports of poultrymeat for the processed food and catering trade occur with full import duty paid.

What impacts do import duties and the volumes of tariff rate quotas have on competitive position of Community pigmeat production?

Stakeholder interviews suggest that the removal of import tariffs could lead to increased imports of poultrymeat for the processed food sector, with up to 30% or 40% of internal production of these products potentially substituted by imports. However, in the EU, as well as in the rest of the world, processed and cooked poultrymeat is gaining an increasing share of total poultrymeat consumption, which may lead to new market outlets for EU production.

Stakeholders consider import tariffs to have strengthened the competitive position of EU poultrymeat on the world market through their impact on relative prices.

3.2.3.4. Synthesis of results from the tools used and conclusions

In summary, based on the results of the historical data analysis, the modelling of the counterfactual via the CAPSIM model and stakeholder interviews the key results for the effects of import protection on the poultrymeat sector in relation to the EQs are as follows:

What impacts do import duties and the volumes of tariff rate quotas have on import volumes?

The **historical data analysis** indicates that imports of poultrymeat and poultrymeat products have risen substantially over the evaluation period. In the period post URAA this result has in large part arisen not as a result of TRQs but rather due to the fact that in the period to late 2002 high volumes of imports under tariff headings 0210 and 1602 have occurred. It is also evident, however, that third country imports have been able to enter paying the full tariff rate indicating that as envisaged under the URAA the level of protection has decreased and for this reason, *inter alia*, the competitiveness of third country production has increased. This analysis was confirmed by the **stakeholder interviews** where it was noted that there are already large volumes of poultrymeat being imported into the EU with full import duty paid, mainly in the form of frozen or cooked products for the processed food and catering sectors.

The **modelling** of the counterfactual (i.e. removal of export refunds and import tariffs) with the CAPSIM model has indicated that, as would be expected a priori, the import protection provided first by variable levies and subsequently by fixed tariffs is estimated to have led to substantially lower volumes of total annual imports than would otherwise have taken place. The presence of import tariffs resulted in an annual average reduction in the volume of imports in the three periods of 72% in 1990-92; 77% in 1995-97; and 52% in 2000-02. Expressed in another manner the tariffs are estimated to have reduced imports by over 1.5 million tonnes in the 1990-92 period and by over 1.0 million tonnes in the subsequent two periods (1995-97 and 2000-02) (see Table 3.9 and corresponding paragraph in Appendix 4 section A4.2.2). **Stakeholders** were unanimous in stating that import tariffs have a vital role in restricting the volume of imports into the EU from third countries although as would be expected the scale of this impact was not adequately quantified. They also noted that in the absence of import protection much EU production would be uncompetitive resulting in the sector increasingly being restricted to supplying niche markets.

In conclusion import tariffs are considered to have had a substantial impact in terms of limiting import volumes over the evaluation period.

What impacts do import duties and the volumes of tariff rate quotas have on Community price levels?

The **stakeholder interviews** indicated that the sector considered import protection to have a significant impact on price in the Community suggesting that if they were removed prices would tend to fall. This view is confirmed by the results of **modelling**

the counterfactual which indicate that in all three periods reviewed, as would be expected a priori, the price is estimated to be higher as a result of import tariffs (by respectively 13.1%, 11.8% and 11.5%), as the volume of third country imports is restricted by this measure (see Table 3.9 and corresponding paragraph in Appendix 4 section A4.2.2). Stakeholders agreed that these price impacts were now of lower significance than in the past.

What impacts do import duties and the volumes of tariff rate quotas have on supply and demand volumes on the internal market?

The **modelling results** indicate that in all three periods, as would be expected a priori, the impact of import tariffs (and export refunds) has been to significantly increase domestic production (supply) over what would have occurred in their absence (by 13.3%, 8.7% and 7.0% respectively). Due to relatively low demand elasticties these instruments are estimated to have only a relatively minor impact on domestic demand (their removal would only increase demand by 1.0%-1.5%) (see Table 3.9 and corresponding paragraph in Appendix 4 section A4.2.2).

What impacts do import duties and the volumes of tariff rate quotas have on the competitive position of Community poultrymeat production?

The **stakeholder interviews** indicate that in the 1980s and early 1990s prior to the 1995 implementation of the URAA import tariffs played an important role in facilitating the development of poultry production throughout the EU and enabling producers to capitalise on growing EU and world demand for the products of this sector. Post URAA implementation, the **historical data analysis** indicates that due lower rates of tariff protection as well as a lack of clarity in the customs nomenclature and the increasing competitiveness of third country exporters, imports have risen substantially (particularly for the processing and catering sectors) from 83,000 tonnes in 1993 to 387,000 tonnes in 2002 although it should be noted that volumes fell sharply to 129,000 tonnes in 2003 once additional clarification of the tariff was provided.

The **modelling results** confirm that in all three periods, as would be expected a priori, import tariffs (and export refunds) strengthen the competitive position of the EU on the internal market by 13.7% in the 1990-1992 period, 9.9% in the 1995-1997 period and 8.1% in the 2000-2002 period (see Table 3.9 and corresponding paragraph in Appendix 4 section A4.2.2). This is mainly due to the stimulating effect that export refunds and import tariffs combined have been shown to have on domestic production and the decreasing significance of the measures over the period.

If impacts can be identified, are they significant, in particular in relation to other determining external factors?

The **stakeholder interviews** indicate that great significance is attached to the role of import tariffs in terms of maintaining internal prices and production above what they would be in the absence of this instrument although it was noted that the significance of this impact has fallen over time. The **modelling results** confirm that in all three periods import tariffs (and export refunds) substantially increase the contribution of the poultrymeat sector to the Economic Accounts for Agriculture (by €1.8bn, €1.6bn and €1.64bn respectively) (see Table 3.9 and corresponding paragraph in Appendix 4 section A4.2.2). This suggests that this instrument has contributed substantially to the CMO objective of contributing to the achievement of a fair income for producers.

The **modelling results** also indicate that income in the poultrymeat sector is more strongly influenced by import protection than by export support via refunds. Import protection also appears to be more significant than the indirect effects (via feed costs) of moderate changes in administrative cereal prices. Thus the impact of import tariffs appears to be more significant than other determining factors.

If impacts are significant, what is their dimension? Could any efficiency losses be determined?

The impact of the import tariffs in aggregate has been assessed through the **modelling** of the impact of the removal of export refunds and import tariffs on producer gross value added at basic prices, EU expenditure on export refunds, revenues from variable levies and duties and the impact on consumer welfare via price. Taken together these estimates produce aggregate measures of the distribution of impact and allow a commentary on efficiency. Looking at these results indicates that in the first 1990-1992 period overall producer gains come to €1.41 billion. To this must be added estimated revenue of some €67 million from import levies. These two elements are, however, offset by EAGGF expenditure of €53 million and consumer welfare losses (through higher prices) of some €1.37 billion (see Table 3.9 and corresponding paragraph in Appendix 4 section A4.2.2).

Thus the net result suggests that the expenditure incurred to achieve a relatively significant amount of producer income was relatively low and the cost of the transfers made from taxpayers and consumers was lower than the gains to producers suggesting that liberalisation would not increase efficiency. This overall picture is repeated for the simulation for the 1995-1997 and 2000-2002 periods. This apparently counter-intuitive result may partly be explained by the fact that if other sectors are unreformed as is assumed for the counterfactual there will be increases in

expenditure in other sectors e.g. from higher cereal sector expenditure which offset the effect of the budgetary savings. In addition as with all such estimates it must always be borne in mind that the absolute estimates must be treated with caution since they reflect a broad range of statistical inputs and assumptions notably with regard to the relatively high import supply elasticity for the rest of the world which has been postulated on the basis of expert judgement here.

Box 3.4: Key conclusions on import tariffs

The results of the stakeholder interviews indicate that the import tariffs had a significant impact on the development of the sector in the 1980s and early 1990s. The historical data analysis indicates that following the start of the URAA implementation in 1995 and as a consequence of lower levels of protection, a lack of clarity in the interpretation of particular tariff lines and increased third country competitiveness, imports have risen substantially particularly for the processing and catering sectors. Nevertheless the modelling results confirm the view of stakeholders that import tariffs continue to make a significant contribution to the CMO objective of contributing to a fair income for producers.

3.2.4. Question 6: Overall market impacts

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.5.

Can a joint impact of the different CMO measures on market equilibrium and on price development be identified? If this is the case, what is the interaction between the individual measures and their relative importance?

3.2.4.1. Introduction to the question and tools used

The answers to Evaluation Question 2-3 have systematically addressed the impact of the CMO instruments for the poultrymeat market over the period covered by means of an analysis of historical data, by reviewing the impact of the counterfactual i.e. the removal of the instruments in three separate time periods via the CAPSIM model and via stakeholder interviews. Question 6 builds on and extends this analysis to review the issue of whether a joint impact of the different CMO measures can be identified and if, so how the measures interact and what is the significance of these impacts.

For modelling purposes in this context it needs to be reiterated that the two key measures applicable namely import tariffs and export refunds are wholly complementary and it would not be meaningful to separate out their impacts. Thus it would not be meaningful to consider a full removal of import tariffs without at the same time removing export refunds since in reality allowing in a free flow of imports could then simply generate displacement of EU production which would then receive a refund.

Can a joint impact of the different CMO measures on market equilibrium and on price development be identified? If this is the case, what is the interaction between the individual measures and their relative importance?

The modelling results indicate that in all three periods, as would be expected a priori, the impact of import tariffs (and export refunds) has been to increase domestic production (supply) over what would have occurred in their absence. These estimated supply and demand impacts are calculated simultaneously with the price impacts and from the evidence on these it is clear that the role of import protection is clearly stronger than the role of export refunds alone. Thus removing export refunds and import tariffs would lower prices by significantly more (-11.6%, -10.5% and –10.4% in the 1990-92, 1995-97 and 2000-02 periods respectively) than the effect of the removal of refunds alone of -2.1%, -1.3%, -0.6% (see Table 3.6 and Table 3.9). This

confirms that not only for pigmeat but also for poultrymeat tariff protection is and has been more important in terms of supporting domestic market prices and hence supply than are export refunds. The impacts of both instruments on domestic demand are considered to be more marginal largely because the demand response (elasticity) used in the modelling[122] is relatively low and thus limited demand increases would be expected in the event of lower prices.

3.2.4.2. Impacts of the market instruments

To what extent are production cycles counterbalanced by the CMO measures?

To address this question an analysis of historical data on EU poultrymeat production, the evolution of market prices and the use of the export refund instrument in terms of annual expenditure is presented in Figure 3.9 below. This shows that in contrast to the results obtained for the other sectors forming part of this evaluation, there is only a weak inverse relationship between export refunds and price (correlation coefficient – 0.28) indicating that the use of refunds in the poultrymeat sector has not been countercyclical in the sense of the intervention taking place to counteract the price effects of market imbalances. It should be noted that in contrast to the pigmeat and egg production, poultrymeat production is less cyclical (see Figure 3.9).

This is confirmed by interviews within DG Agriculture and with stakeholders who have highlighted that at least since the implementation of the URAA the export refund instrument has been used almost exclusively to maintain the export market position for frozen whole birds.

It must therefore be concluded that the CMO measures do not counteract the (comparatively small, relative to the pig and egg production cycles) swings of the production cycles in the poultrymeat sector.

[122] Estimate based on a literature review and expert judgement

Figure 3.9: Export refund expenditure, EU poultrymeat production and EU reference price, 1991-2002

Source: ZMP, Eurostat, DG Agriculture.

Long term impacts of all market support instruments on production and identification of feedback loops

The modelling results indicate that that in all three periods, as would be expected a priori, the impact of import tariffs (and export refunds) has been to significantly increase aggregate domestic production (supply) over what would have occurred in their absence (by 13.3%, 8.7% and 7.0% respectively) (see Table 3.9 and corresponding paragraph in Appendix 4 section A4.2.2). This suggests that there was at least the potential for feedback loops (i.e. the use of the instrument in itself generates further support requirements) to occur but given that the refund instrument is not used countercyclically this cannot be said to apply in aggregate terms at least after 1995 when the use of this instrument was curtailed.

This having been said, the historical analysis and the stakeholder interviews indicate that the use of the refund instrument has been particularly targeted on a specific product segment, namely frozen whole birds and that indeed the use of this instrument was considered by stakeholders to have been instrumental in helping to establish the export market position for this product in the 1980s. Given that there is considered to be limited scope for this product to be disposed of on the internal

market the conclusion that there is a significant feedback loop in this particular market segment is inescapable. In this regard while it is clear that the export refund instrument is the key market driver it should be noted that import tariffs also provide an important element of protection for this market segment.

In conclusion while the use of the CMO instruments does not significantly increase the aggregate volume of poultrymeat production requiring support it can be argued that significant feedback loops are evident in the sub-sector on which export refund support is focused. In other words, it seems highly likely that the support provided for this sub-sector in the 1980s helped to generate the supply to serve an export market which would now no longer be available were it not for the maintenance of support.

Importance of the impacts of the CMO instruments amongst other determining factors on supply and demand

Interviews with the poultrymeat sector suggest that there is little relationship between products exported with export refunds and EU demand for poultrymeat. This is because there is little substitution between the products demanded by EU consumers and the products (mainly frozen whole birds) exported with refund to third countries.

On the internal market overall demand volumes for poultrymeat in the EU have increased due to consumer preferences for white meat and declining demand for red meat. Product specific demand patterns have shifted towards chicken cuts and more convenient fresh and chilled or further processed products and these factors are considered by stakeholders to be more important as drivers of domestic demand.

To further analyse the significance of the joint impact of the CMO instruments on supply via the modelling analysis a simulation of the impact of a 15% cut in cereals support prices in each of the three periods modelled was undertaken. This simulation highlighted that changing feed costs influences supply as much as the CMO instruments themselves (see Table 3.9 and Appendix 4 section A4.2.2). This is also confirmed by the results from the analysis of production costs under EQ8, which indicate that that the poultry sector is influenced by other important factors such as the costs of energy and labour, regulatory compliance costs, etc., which may influence supply in the sector at least as much as the CMO does.

In conclusion the analysis undertaken indicates that both demand and supply in the sector are more strongly influenced by factors such as the evolution of consumer

demand patterns and preferences and production costs rather than the CMO instruments themselves.

3.3. Theme 2: Producer income

3.3.1. Question 7: Income level and development

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.2.1.

Do the measures of the CMOs have a significant joint impact on the level and development of producers' incomes? If impacts can be identified, can they be specified (impacts through the volume of production, prices, and/or costs) and quantified?

As discussed in Section 3.1.1, two of the overarching objectives of the CMO for poultrymeat (relevant to this evaluation question) are *to stabilise markets*, thereby stabilising incomes, and *to ensure a fair standard of living for farmers*. It can therefore be hypothesised that (to the extent that support is forthcoming given that the CMO for poultrymeat is a relatively lightly supported sector), any intervention over the evaluation period will have had a positive effect on the level and development of producers' incomes.

This evaluation question was answered based on an analysis of Farm Accountancy Data Network (FADN) data[123] (much of which was based on a specific study carried out by DG Agriculture (Appendix 6)) and other secondary data. The findings of this quantitative analysis were supplemented by interviews with industry stakeholders in the EU poultrymeat sector to provide contextual information as to any link between changes in income levels and the role of the poultrymeat CMO.

Table 2.18 shows the FADN sample sizes used for analysing income level and development over the evaluation period based on different categories of poultrymeat producers. The key indicator used to measure income, and assess the effect of the CMO, is Farm Net Value Added (FNVA) per Annual Work Unit (AWU)[124]. The FNVA represents the payment for factors of production (work, land and capital),

[123] When using FADN data, the following caveats must be noted:

- FADN is designed to monitor only the professional farms. The smallest holdings are excluded from the sample. This is done using a threshold of minimum economic size for inclusion in the sample. This varies from Member State to Member State.
- FADN information is principally based on the financial accounts of the holding. This has some implications about the availability of certain information, especially on the input side. (e.g.: while FADN registers the total labour cost, it can not split up this cost according to the speculation).
- FADN data monitor the situation of the agricultural holdings in the EU. This means that data from Austria, Sweden and Finland are only included since 1995. Furthermore, 1995 marks the inclusion of data from the new German Bundesländer in FADN.

[124] Where FNVA per AWU = ((output + subsidies)-(intermediate consumption + taxes))/annual work units

whether they are external or family factors. The AWU measures the total labour input of holding expressed in annual work units (equal to full-time person equivalents).

For practical reasons, the smallest holdings (unless otherwise stated) have been excluded from the sample of the analysis presented in (Appendix 6). As such, the analysis presented is based on the largest 20% of all poultry holdings in the EU (in terms of LU of poultry), which represents 96% of total production (LU). In addition, all financial analysis has been done in real terms with 1995 as the reference year; deflators have been applied at Member State level and aggregated to EU-15 level. In order to compare the different types of livestock farms, all numbers of animals have been calculated to livestock units using the appropriate conversion rate (broilers = 0.007 LU and other poultry = 0.03 LU).

Table 3.10: Poultry sector sample size

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Specialist broilers[1]	47	51	65	58	66	84	97	109	114	139	143	127	146	240	355
Other/ mixed poultry farms[2]	2,226	2,204	2,057	1,924	1,929	1,717	2,801	2,713	2,767	2,649	2,639	2,555	2,451	2,432	2,396

[1] Specialist broilers: at least 2/3 of the total SGM is linked to broilers and other poultry (turkeys, ducks…).
[2] Specifically for this study, a further category of other or mixed poultry farms has been created. This was done given the fact that the specialist poultry farms only cover about 50% of the total production. To obtain this other or mixed poultry farm category, all farms in the FADN database larger than 16 ESU were ranked according to their number of livestock. All farms belonging to the group that has the 20% most poultry and that does not belong to one of the specialist types was grouped in this classification.
Source: FADN

3.3.1.1. Analysis of FADN data

Size of the holding or enterprise in livestock units

Over the evaluation period, the EU poultry sector has been characterised by an increase in output and an increase in the scale of the average poultry producer. Between 1989 and 2003, the total number of livestock units increased by 78.9% from 5.7 million to 10.2 million. According to the analysis of the FADN data presented in (Appendix 6), most of this increased production has taken place on larger farms (>16 ESU). In 1989, small farms accounted for 10.2% of the total livestock units compared to 2.5 % in 2003[125].

[125] Hereafter, all analysis unless otherwise stated is limited to the farms that are larger than 16 ESU.

Figure 3.10 illustrates the evolution in the average size of all poultry flocks, expressed in livestock units, in the EU-15 between 1989 and 2003. The scale of poultry production has increased by a similar rate to that of the level of output, with the average size of poultry flocks having increased by 72.4% over the period from 58 LU to 100 LU. However, much of this increase occurred in the latter half of the evaluation period.

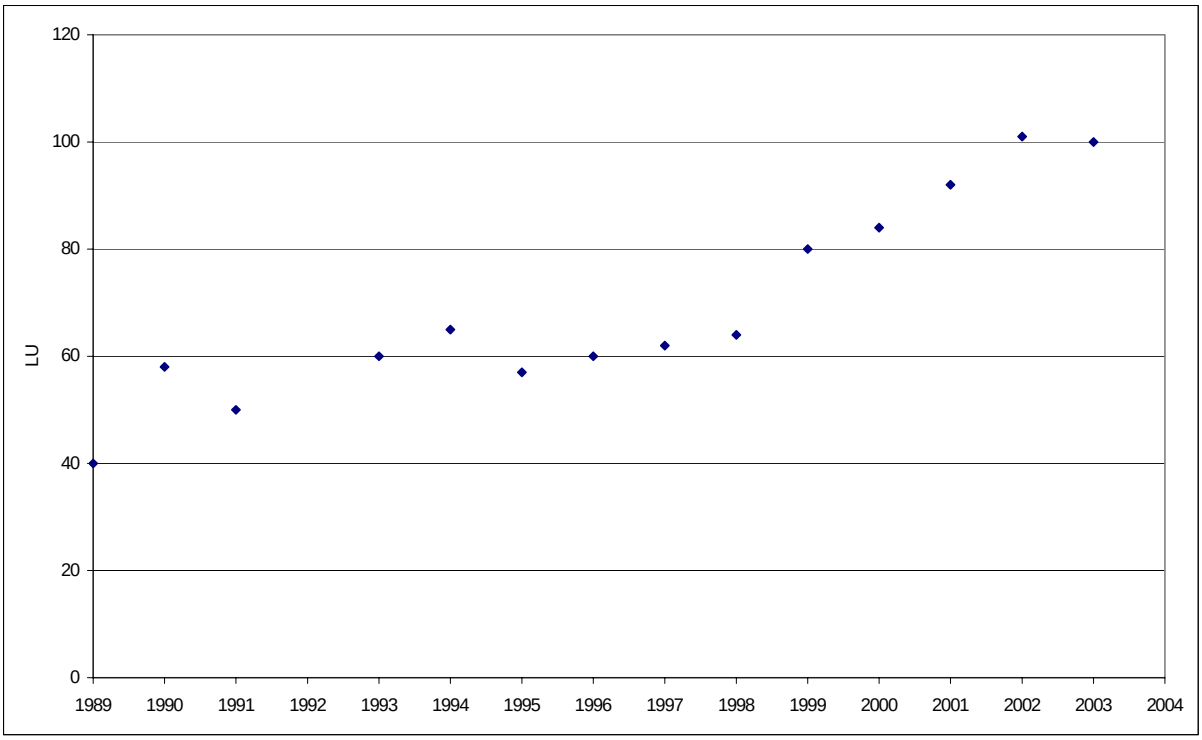

Figure 3.10: Evolution of the level and scale of all poultry flocks in the EU-15 (LU)

Source: FADN – processing DG AGRICULTURE G3

The main factor for this increase in the scale of production over the evaluation period has been the pursuit of economies of scale. Table 3.11 clearly indicates the relationship between income level (expressed in FNVA/AWU) and the size of poultry flocks for meat production (expressed in LU), with income levels increasing as the scale of production increases from a FNVA/AWU of €13,127 for flocks with <50 LU to a FNVA/AWU of €52,594 for flocks with 1,000 <5,000 LU.

Table 3.11: Income by size of poultry flock (expressed in LU) for the accounting year 2003

Number of LU poultry	Poultrymeat	Other Poultry
<50	14,586	13,127
50 < 100	25,244	18,800
100 < 150	27,655	25,543
150 < 250	33,775	27,850
250 < 500	39,356	32,502
500 < 750	44,487	31,714
750 < 1000	51,890	52,163
1000 < 5000	52,594	48,632

Source: FADN – processing DG AGRICULTURE G3

Figure 3.11 shows the evolution in income levels between 1989 and 2003 on all poultry flocks in real terms. In line with increases in production and associated economies of scale over the period, average annual income has increased slightly. Between 1989 and 1996, average annual FNVA per AWU for all poultry holdings was €19,694 compared to €22,500 between 1997 and 2003.

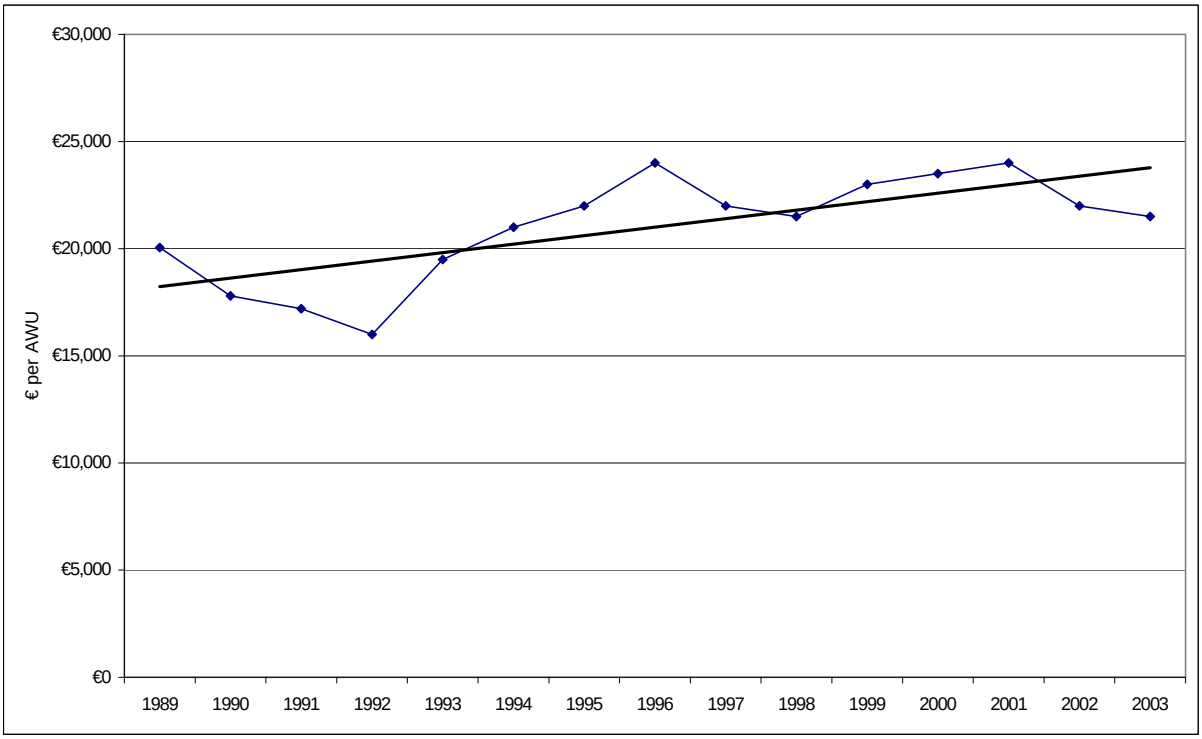

Figure 3.11: Evolution of the average income of poultry producers (in real terms)

Source: FADN – processing DG AGRICULTURE G3

Looking specifically at the evolution in FNVA per AWU for poultrymeat producers, Figure 3.12 also shows an increasing trend in income over the period. Consistent with

the findings presented in Table 3.11, higher levels of income for poultrymeat producers are generally associated with larger sized enterprises. However, Figure 3.12 suggests that the growth in income over the period has been greater, but more volatile, for larger sized poultrymeat holdings (≥ 100 ESU). Moreover, these larger sized poultrymeat enterprises have experienced a slight downward trend in income between 1998 and 2002.

According to interviews carried out in the sector, the fall in incomes experienced by all poultrymeat producers between 2001 and 2002 was due to a number of factors which appear to have simultaneously raised costs (such as the ban on the use of Meat and Bone Meal (MBM) and certain antibiotics) as well as increased imports of lower priced frozen, boneless chicken cuts with a salt content of between 1.2% and 3%, mainly from Brazil and Thailand, which have tended to exert downward pressure on prices[126].

Figure 3.12: Comparison of average FNVA per AWU for specialist poultrymeat producers between farm enterprise size categories (real terms)

Source: FADN.

[126] In some Member States, the UK for example, the increase in this type of import was seen within the context of an expanding market which requires some importation of certain cuts to meet rising demand driven by an increase in the proportion of meals taken out of the home and increasing consumption of ready meals, both of which tend not to use fresh product.

Table 3.12 shows the level of and development in incomes by Member State over the evaluation period, illustrating the extent to which incomes vary between Member States. Average annual incomes have generally been higher in Belgium (€44,178) and the Netherlands (€37,691) over the period and lower in Portugal (€6,813) and Greece (€7,847).

In addition, the data shows that there has been significant variation in income levels within Member States between years. France and Portugal have shown the lowest annual variation in income levels between years. In contrast, the Netherlands has shown the highest variation in income levels between years.

Table 3.12 Average FNVA per AWU for Member States in real terms

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Av. 89-02
BEL	42,175	44,852	57,387	27,938	31,195	45,554	41,206	56,105	38,862	44,382	33,836	60,895	62,446	31,665	44,178
DAN	31,070	27,063	20,157	19,983	24,760	33,830	30,442	42,979	45,896	27,981	32,960	41,083	37,001	32,848	32,004
DEU	16,182	14,034	12,221	12,423	19,046	15,048	57,817	36,824	49,605	48,553	50,688	21,376	22,711	20,902	28,388
ELL	11,336	5,628	7,361	5,245	4,015	4,611	5,626	5,992	5,190	3,772	4,612	7,056	21,084	18,331	7,847
ESP	11,320	11,151	13,708	27,435	9,829	9,836	16,284	18,220	21,974	26,372	12,424	24,260	18,943	16,341	17,007
FRA	19,693	16,984	17,478	19,260	22,221	21,468	24,158	24,332	24,564	18,044	18,337	18,809	23,980	18,403	20,552
IRE	8,830	9,405	15,429	13,012	14,066	14,678	12,622	12,617	19,504	5,837	20,195	9,298	9,084	3,928	12,036
ITA	18,838	20,936	20,681	19,172	14,785	23,934	15,074	14,599	17,146	26,222	19,594	21,517	16,369	24,922	19,556
LUX								29,715	34,403	26,962	23,375	27,546	19,933	25,946	26,840
NED	45,958	70,819	47,092	35,684	41,625	39,930	43,136	51,216	37,251	10,999	18,057	38,045	32,660	15,196	37,691
OST							18,138	24,088	21,087	15,578	19,482	21,684	18,317	9,054	18,429
POR	11,420	5,499	5,480	8,045	3,198	4,781	4,879	6,814	5,564	12,176	5,621	5,070	8,921	7,916	6,813
SUO							25,821	17,961	18,872	20,834	22,670	29,191	31,739	26,354	24,180
SVE							34,529	1,092	11,699	8,699	5,744	24,116	35,752	24,725	18,295
UK	20,252	20,364	20,983	20,589	22,421	21,445	27,896	39,169	33,791	31,607	41,757	56,268	47,830	39,737	31,722
Av. EU-15	**21,552**	**22,431**	**21,634**	**18,981**	**18,833**	**21,374**	**25,545**	**25,448**	**25,694**	**21,868**	**21,957**	**27,081**	**27,118**	**21,085**	**22,900**

Note: The income data is for the whole of poultrymeat sector including small holders and non-specialised farmers.
Source: FADN

Production systems

Table 3.13 shows the evolution in the proportion of total EU poultry production of specialist and non-specialist farm in terms of number of LU. Based on the years for which data is presented, the proportion of specialist broiler producers has remained relatively constant over the period at around a third. In contrast, there has been an

increase in the proportion of non-specialist other poultry holdings, accounting for almost a half of all poultry holdings by 2003.

Table 3.13: Evolution of the production share of the different types of farm (% of LU)

	1989	1995	2003
Specialist broiler	35.6	33.1	34.9
Specialist laying hens	20.2	19.5	15.7
Other	44.2	47.4	49.4

Source: FADN – processing DG AGRICULTURE G3

Figure 3.13 shows the importance of total specialised poultry production, by Member State. While around half of all EU-15 poultry production takes place on specialised holdings, this varies significantly by Member State. In most Mediterranean countries, almost all poultry production takes place on specialised farms. In contrast, production in the Nordic countries generally takes place on mixed farms[127].

For broiler production, the main specialist poultrymeat holdings are located in France, Spain, Italy and the UK.

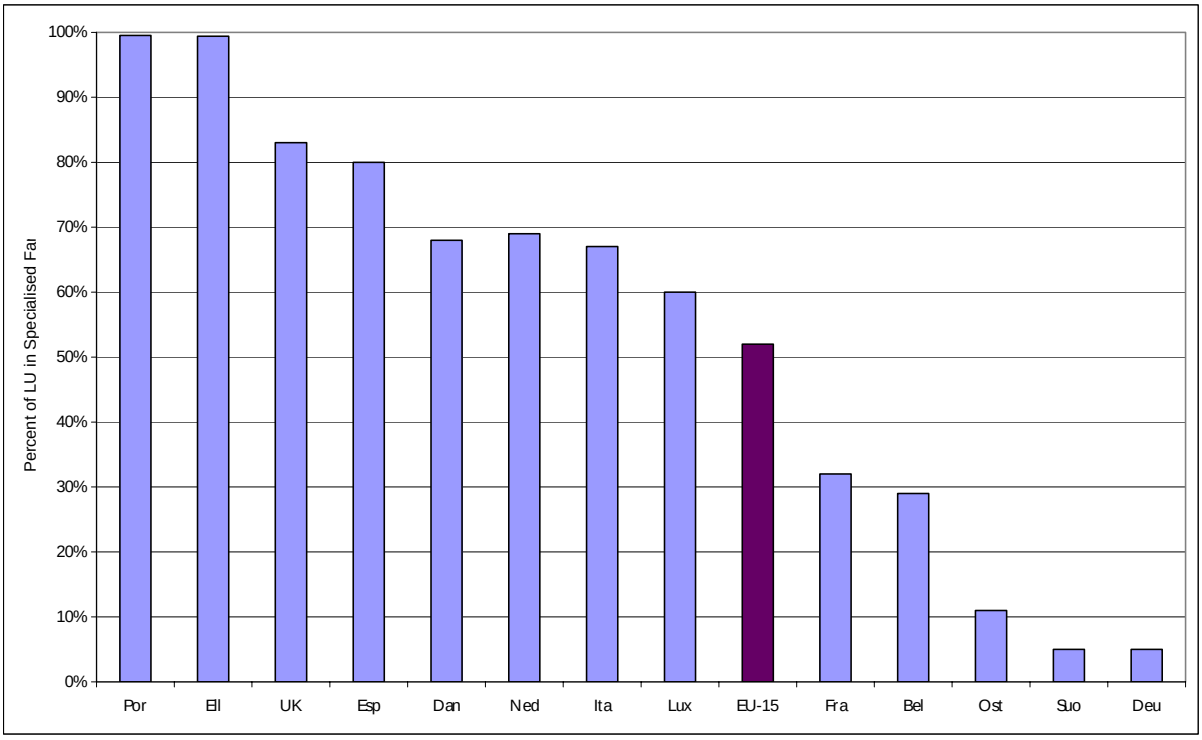

Figure 3.13: Importance of specialised production systems by Member State, 2003

Source: FADN – processing DG AGRICULTURE G3

[127] In Sweden, for example, there are no specialised farms found in the FADN database.

Figure 3.14 and Table 3.14 examines the relationship between income level and degree of specialisation. Average annual income between 1989 and 2003 has been marginally higher (2.7%) on specialist poultrymeat systems at €31,400 compared to €30,567 on non-specialist other poultry holdings. However, average incomes for specialist poultrymeat systems have been more volatile over the period. On (non-specialised) other poultry production systems, income fluctuated by 21% above and 21% below the average for the period compared to 53% above and 46% below the average for specialised poultrymeat production systems.

Figure 3.14: Evolution of the income for the different types of poultry producers (excluding specialist layers)

Source: FADN – processing DG AGRICULTURE G3

Table 3.14 Average, minimum and maximum FNVA per AWU, by production system (1989-2003)

	Average	Minimum		Maximum	
	€	€	% deviation from average	€	% deviation from average
Poultrymeat	31,400	17,000	-46%	48,000	53%
Other Poultry	30,567	24,000	-21%	37,000	21%
All Poultry	31,000	24,500	-21%	38,000	23%

Source: FADN

The most important determinants of the level of income over the evaluation period are the value of total output and the value of immediate consumption. Figure 3.15 provides more detail on the determinants of income for poultrymeat production, by assessing how the value of costs and the value of output have developed by level of specialisation over the evaluation period (see Appendix 6). Regardless of the level of specialisation, the level of output and inputs vary considerably between years.

However, there has been a marked difference in the evolution in the value of costs and value of output between 1989 and 2003. For specialist broiler production, the difference between the value of costs and value of output has generally increased over the period, with the exception of 1999. In contrast, for non-specialist other poultry farms the value of output has decreased while the value of costs has increased since 1999[128].

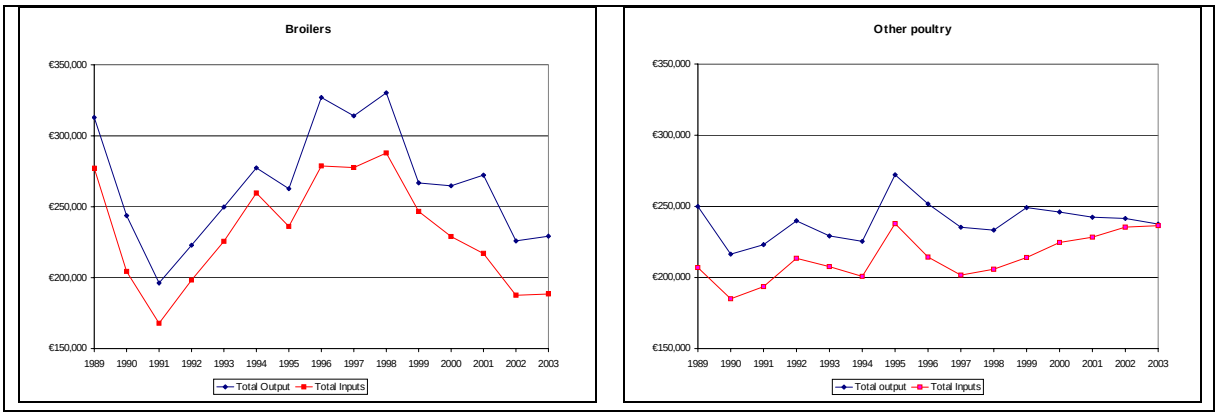

Figure 3.15: Evolution of the value of output and inputs (in real terms) on broiler and other poultry farms, 1989-2003

Source: FADN – processing DG AGRICULTURE G3

Although incomes are generally higher on specialist broiler holdings, the importance of subsidies as a proportion of total income is relatively low compared to mixed poultry holdings. In 2003, specialist broiler producers received an average €5,111 in subsidies compared to non-specialist mixed producers who received an average €19,264. However, it should be noted that this analysis does not include payments made to poultry producers for flocks destroyed by animal disease or the measures to control disease outbreaks.

Form of vertical integration

[128] Although it is not known whether this trend arises from poultry production per se or because of factors on other enterprises on the holding.

The level of vertical integration in poultrymeat production has increased over the period. According to analysis undertaken by FADN (Appendix 6), more than 11% of all poultry farms (29% of the total number of animals) in 2003 were producing on contracts compared with less than 3% of farms (12% animals) in 1989. Looking specifically at specialist poultry production, the importance of contract farming is much higher than for non-specialist production; for specialist broiler producers, 35% of all holdings produce birds on contract.

Table 3.15 examines the relationship between income level and production on contracts. For both specialist poultrymeat and non-specialist poultry production, producers on contracts tend to receive higher incomes. In 2003, average income for specialist broiler producers producing under contract was 64.2% higher than those producers not using contracts. This compares to a 14.7% difference for non-specialist poultry producers.

Table 3.15: FNVA/AWU in € (1995 terms) according to type of farm and contracting, 2003

	Broilers	Mixed poultry
No contract	29,282	26,548
Contract	48,077	30,459

Source: FADN – processing DG AGRICULTURE G3

Region

For certain regions in the EU, poultry production accounts for an important share of agricultural activities. Analysis of the FADN data for granivores at NUTS2 level (Appendix 6) shows important concentration of production in Belgium (in the provinces of Limburg and Antwerpen and the West of Flanders), the Netherlands (in the provinces of Noord-Brabant and Limburg), Spain (in Cataluña) and Germany (in certain areas of Nordrein-Westphalen (Münster)). In these areas, granivores make up at least 66% of the total livestock units and there are at least 2LU of poultry per ha of UAA.

According to the FADN analysis presented in Appendix 6, these regions account for around 20% of total EU poultry production. The analysis shows that all poultry holdings in these regions tend to operate on a larger scale. In 2003 total poultry holdings in these regions were on average almost three times larger (236 LU) than all poultry holdings outside these regions (82 LU).

Furthermore, average income from poultry production in these regions was higher; in 2003 average incomes were €28,978 compared to €21,442 for holdings outside these

regions. However, FADN analysis (Appendix 6) suggests that incomes of specialist poultry holdings within these concentrated poultry regions were on average 39.3% lower (€22,794) than incomes of specialised poultry holdings outside these regions (€37,579).

As would be expected *a priori* given that these regions tend to have the largest and highest income units, income levels in most of these regions are above the EU average over the period. The only real exception is Cataluña in 1989 to 1990 and 1999 to 2000. In particular, the highly developed (technically and large scale) sectors of Denmark and the Netherlands consistently perform well above the EU average (except in the case of the Netherlands in 1998 which was particularly affected by the outbreak of classical swine fever in that year).

Figure 3.16 shows how incomes have over the evaluation period for the specific case study regions where there is a high concentration of broiler production. For the majority of case study regions, income levels are generally above the EU average given the relatively high proportion of larger sized producers in these regions. There are some exceptions, notably in Cataluña where income has been below the EU average for most of the evaluation period, although income levels in Cataluña have improved marginally since 2000. The Italian regions of Lombardia and Veneto also show periods of below average income and in Brittany incomes have fallen to below, or close to, the EU average since 1998.

Although *a priori* it might be expected that incomes in the case study regions would evolve more or less in parallel with the EU average, there are notable exceptions for the Italian regions under review, as well as Niedersachsen where there is a far more pronounced variation. This would suggest that the regions are supplying specific markets that are insulated to some extent from developments in the EU market *per se*.

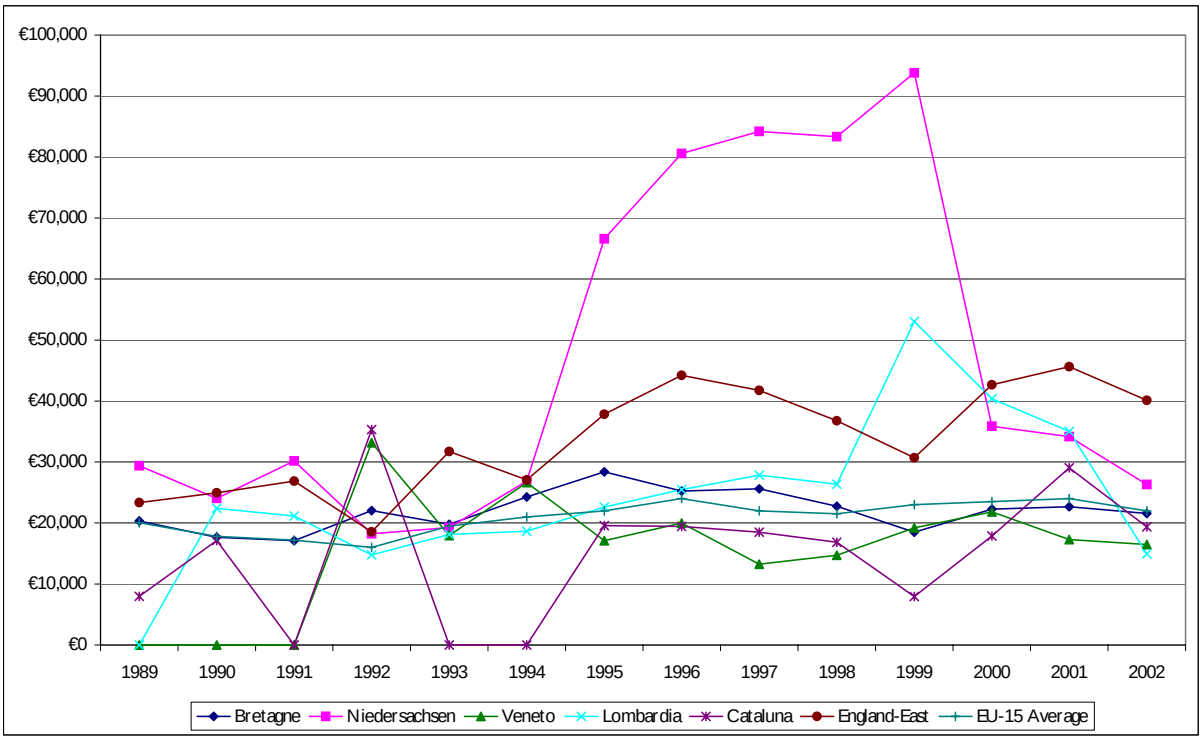

Figure 3.16: Comparison of average FNVA per AWU between case study regions (real terms)

Source: FADN.

Comparison of the poultry sector with other sectors

Figure 3.17 illustrates the evolution of average incomes in the poultry sector between 1989 and 2003 compared to total agricultural income. The analysis demonstrates that for every year in the period under examination, average income for all poultry producers has been lower than the average income for the agricultural sector as a whole. However, according to the FADN analysis presented in Appendix 6, the largest 20% of poultry holdings perform considerably better than the total agricultural sector.

Figure 3.17 also shows that during the evaluation period, incomes in the poultry sector have increased by a greater rate than those in the agricultural sector as a whole.

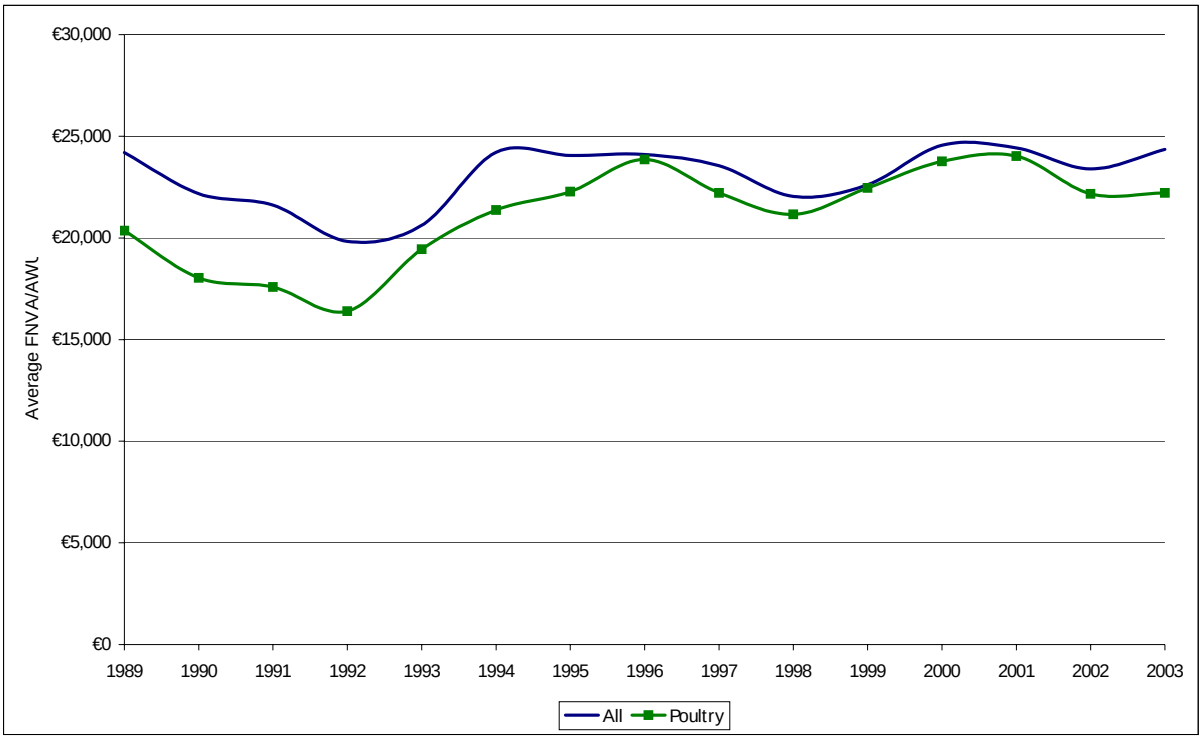

Figure 3.17: Evolution of the average incomes of pig, poultry producers and all sectors

Source: FADN – processing DG AGRICULTURE G3

3.3.1.2. Synthesis of results from the tools used and conclusion

Although it is difficult to quantify the joint impact of the CMO on income, the analysis of the FADN results has provided a number of General conclusions on the level of and development in poultrymeat producers' income over the evaluation, which in conjunction with the findings of the other Evaluation Questions and the stakeholder interviews can be used to form a judgement in relation to the following specific evaluation questions:

Box 3.5: General conclusions on the level and development in poultrymeat producers' income over the evaluation period

- **In terms of the poultrymeat sector as a whole,** incomes are generally marginally lower in the poultrymeat sector than for the agricultural sector as a whole, although poultrymeat incomes have increased at a greater rate over the period. There has been a general increase in poultrymeat producers' incomes over the period, although much of this increase has been due to an increase in the scale of production from the associated economies of scale.

- **In terms of size**, income levels are higher and more volatile on larger holdings than on smaller holdings.

- **In terms of degree of specialisation**, incomes are marginally higher, but more volatile, on specialist poultrymeat holdings compared to non-specialist holdings. The difference between the value of income and costs has increased over the period for specialist poultrymeat producers. In contrast, for non-specialist producers the difference between the value of income and costs has decreased over the period. Subsidies form a greater share of income for non-specialist producers compared to specialist poultrymeat producers. Income levels for all poultrymeat producers in concentrated poultry producing regions in the EU tend to be higher than in less dense regions. However, this is not the case for specialist poultrymeat producers; specialist poultrymeat producers in concentrated poultry producing regions in the EU tend to have lower incomes than those in less dense regions.

- **In terms of vertical integration**, integration in the sector has increased, particularly on larger farms, with poultry producers supplying poultrymeat on contract having higher incomes.

- **In terms of geography**, there is substantial income variation between countries as well as substantial annual variation within countries.

Do the measures for the CMO for poultrymeat have a significant joint impact on the level and development of producers' income? If impacts can be identified, can they be specified (impacts through the volume of production, prices and/or costs) and quantified?

- **Impact of the CMO on the level of producer's income.** Analysis of the FADN data found that, in general, average income levels (in terms of FNVA/AWU) are marginally lower in the poultrymeat sector than for the agricultural sector as a whole. Despite this, the modelling results in answer to Evaluation Questions 2 and 3 has quantified the extent to which the CMO measures (export subsidies and import tariffs) have had a significant joint impact on the profitability of poultrymeat production in the EU. The results found that export subsidies and import tariffs have generally maintained internal producer poultrymeat prices and production at higher levels than would otherwise have been the case. The modelling results found that the direct (positive) impact of export subsidies and import tariffs on producer poultrymeat prices and production was 11.8% and 11.6% respectively in the 1990-92 period, 8.0% and 10.5% respectively in the 1995-97 period and 6.6% and 10.4% respectively in the 2000-02 period. As a result, income levels were found to be 24.4%, 20.4% and 19.1% higher in the three reference periods.

- **Impact of the CMO on the development of producer's income.** Although the FADN analysis found that average incomes in the poultrymeat sector were marginally lower over the period compared to the overall agricultural sector, poultry incomes have increased at a greater rate over evaluation period. By the end of the period, poultrymeat incomes were more or less in line with average incomes in the agricultural sector.

  The FADN analysis illustrated that much of this development in income over the period was due to an increase in the scale of production from associated economies of scale, rather than the CMO measures *per se*. Moreover, as discussed above, the impact of the contribution of the CMO measures on income in the sector fell slightly from 24.4% in 1990-92 to 19.1% in 2000-02.

  Although the FADN analysis found that incomes in the poultry sector in general were less volatile than in the agricultural sector as a whole, there has been some volatility in the development of poultrymeat producers' income over the period. Thus, without intervention the cyclical income lows recorded in 1994 and 1999 would likely have been greater.

However, the extent to which producers have directly (or indirectly) benefited from the CMO measures varies significantly both within and between Member States. As the FADN analysis demonstrated, the level and development in poultrymeat producers' income over the evaluation period varied according to, for example, farm size, degree of specialisation, level of vertical integration and geography.

The evidence of the significance of the CMO is reinforced by the interviews with stakeholders, particularly in France, which has been the major beneficiary of the CMO expenditure in the form of export refunds absorbing almost 90% of expenditure in the 2000-2002 period, as well as in Denmark, which has been the second largest recipient of support over this period.

However, while the production sector in these two countries do not see the CMO measures as the driving force for income development, the view is taken that, at least until the mid-1990s, exports refunds and import tariffs have had some favourable impact.

- **In terms of export refunds,** export refunds enabled producers to open up the poultrymeat market in the Middle East by compensating for higher EU production costs. More recently such support is also reported to have helped in the Russian market. Similarly, the view of French producers is that from the late 1990s onwards at least part of the fall in income seen amongst French broiler producers is due to pressure on prices from the imports of frozen, boneless chicken cuts with a salt content of between 1.2% and 3% from Brazil and Thailand.

  Looking more specifically at the **impact by species**, the income impact of the refunds is seen as being primarily focused on the broiler production sector as the turkey sector is not a significant recipient of refunds[129]. Looking at the **impact by production system** within the broiler sector the refunds are seen as only benefiting conventional barn producers as there is virtually no demand, and no differentiation in refunds, for higher cost birds produced in free range, organic or other types of production system.

  No differentiation in terms of benefit can be made by form of **vertical integration**, but it is evident that to the extent the benefit of the refund is transferred to producers, the bulk of the income benefit of the refunds would go to the producers in the Brittany region in France which accounts for the bulk of exported output.

  Moving beyond the Member States in which producers are indirect beneficiaries of the CMO in the form of export refunds, it is generally the sector's view that they benefit indirectly from the export refunds in that these remove supplies from the EU domestic market which might otherwise compete with domestic production in their countries. An industry organisation in one of these Member States dissented from this view stating that there is no EU market for the whole birds exported with

[129] No refunds are applied for meat from turkeys. Refunds are applied for day old turkey chicks.

refund and that these birds are only produced because export refunds are available.

- **In terms of import tariffs**, it is uniformly recognised that the import protection provided maintains prices and production and therefore income significantly above what they would be in the absence of import tariffs. This therefore corroborates the quantification of this impact cited above.

  No particular **impact by species** or **production system** of the tariff protection was noted although the general view of producers who expressed a view was that the market segment most vulnerable to imports was that part of the market that supplied meat to processors. This was attributed to the fact that consumers were deemed to be less concerned by the origin of products in processed form than when they purchased fresh meat. Additionally, fresh meat supply chains are relatively short and third country imports of such meat would present a logistical challenge as well as having implications for shelf life.

  This having been said, the production sector in all Member States took the view that the prime drivers for income evolution in the sector were factors not directly linked to the CMO, notably demand conditions (including levels of retailer concentration) as well as export marketing strategies and branding. In Finland it was noted that direct payments were of particular importance and in Sweden, the high importance of the protection provided by salmonella-free status was also noted.

Box 3.6: Main conclusions on the level and development of income

In conclusion, the evidence presented in this chapter, in association with the findings of Evaluation Questions 2 to 3, would suggest that the measures of the CMO for poultrymeat have had a joint impact on the level and development of producers' incomes over the evaluation period:

- **In terms of the joint impact on the level of income**, the FADN analysis has illustrated that, in general, the level of average income for poultrymeat producers (in terms of FNVA/AWU) has been marginally lower over the evaluation period than for the agricultural sector as a whole. Both export refunds and import tariffs were found to have jointly maintained producer prices and production (hence income) at significantly higher levels than would otherwise have been the case. *Thus, the joint impact of the CMO measures on the level of income has been significant*. Consequently, the measures have, to a certain extent, fulfilled the objective of the CMO to *contribute to a fair standard of living* for producers.

- **In terms of the joint impact on the development of income**, the FADN analysis found that although there has been a general increase in poultrymeat producers' incomes over the period, much of this increased level of income was due to an increase in the scale of production. Evidence presented in Evaluation Question 9 suggests that the CMO measures have only had a minor and indirect impact on the evolution of the number and size of holdings. Thus, much of the development in

incomes over the period, in this respect, has been due to other factors. Moreover, the contribution of export refunds and import tariffs in maintaining income at higher levels than would otherwise be the case has fallen slightly over the evaluation period.

That said, the CMO measures have had a joint impact on the cyclical development of income over the period. While the FADN analysis illustrated the extent of the cyclical income lows recorded in 1994 and 1999, it is generally considered that without intervention the cyclical income lows over the evaluation period would likely have been greater. *Thus, the joint impact of the CMO measures on the development of income has been fairly significant during cyclical lows*. Moreover, the buffering of the extent of the cyclical lows has gone some way to fulfilling the objective of the CMO to *stabilise markets* and help *to contribute to a fair standard of living* for producers.

3.3.2. Question 8: Analysis of production costs

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.2.2.

The impacts of the different CMO instruments and of other related policies

As discussed in Section 3.1.1, one of the overarching objectives of the CMO for poultrymeat (relevant to this evaluation question) is *to ensure a fair standard of living for farmers*. It can therefore be hypothesised that given that the CMO for poultrymeat is a relatively lightly supported sector, the impact of other related policies will have had a greater effect on the level of production costs over the evaluation period, and hence the level and development of producers' incomes.

This evaluation question was answered based on an analysis of Farm Accountancy Data Network (FADN) data[130] (much of which was based on a specific study carried out by DG Agriculture (Appendix 6)) and other secondary data. The findings of this quantitative analysis were supplemented by interviews with industry stakeholders in the EU poultrymeat sector to provide contextual information as to any link between changes in income levels and the role of the poultrymeat CMO.

3.3.2.1. General analysis of production costs

Figure 3.18 compares the average cost structure of poultrymeat producers in the EU between 1989 and 2003. This comparison shows that the structure of production costs has changed over the evaluation period with the importance of specific costs[131] decreasing, at the expense of external factors[132] and overheads[133].

Analysis of the of the 2003 FADN data (Appendix 6) shows that the cost structure of total poultry production in the EU varies significantly according to the size of the farm. For example, on the holdings with less then 50 LU of poultry, specific costs accounted for only 38% of the expenses, while on those in the size category 1000 <5000 LU accounted for 68%. In contrast, depreciation accounts for 21% in the smallest size class compared to only 7% in the largest size class. However, there virtually no little difference in the level of expenditure for external factors by size of the farm.

[130] As discussed in the introduction to Question 7 (Section 3.3.1)
[131] Specific costs include costs such as feed (both farm-grown and purchased) and other livestock specific costs.
[132] External factors include costs such as wages paid, rent paid and interest paid.
[133] Overheads include costs such as electricity and water.

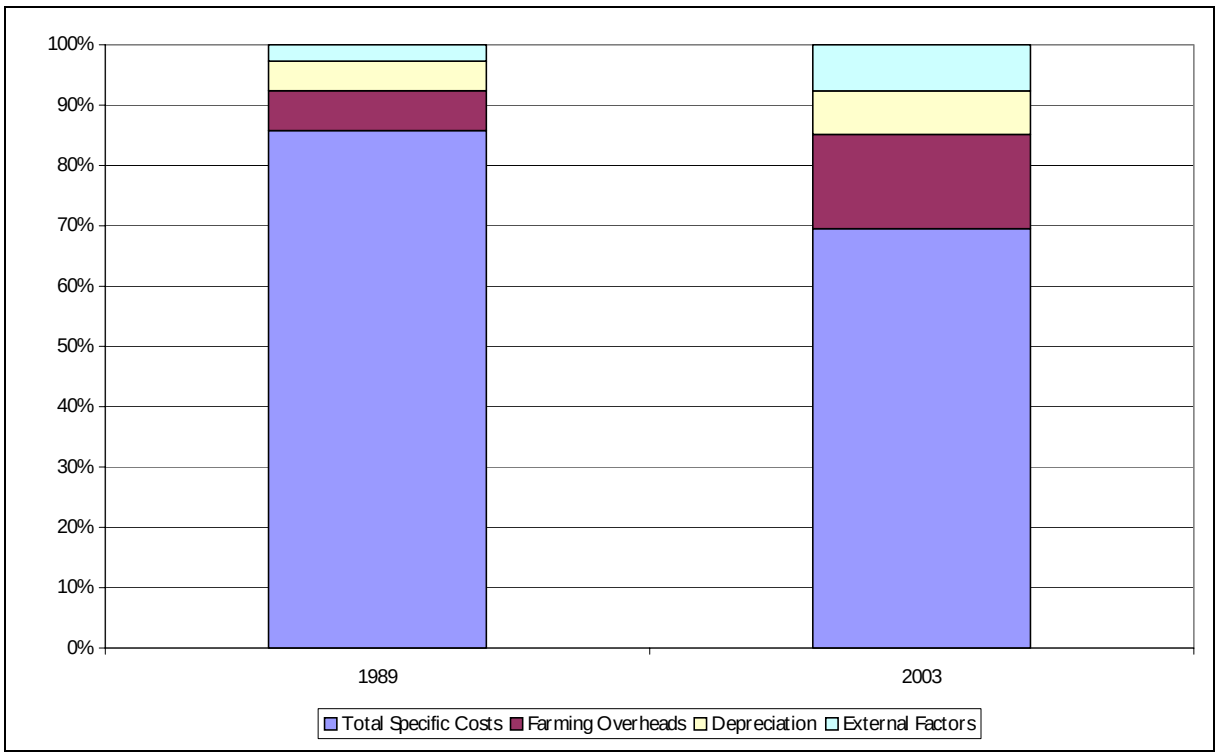

Figure 3.18: Average cost structure for poultrymeat producers, 1989-2003

Source: FADN – processing DG AGRICULTURE G3

3.3.2.2. Analysis of feed costs

Influence of arable sector price levels

« Secondary data analysis »

The EU arable sector has important linkages with other agricultural sectors, particularly the livestock sector. According to the industry interviews, cereals form a significant ingredient of livestock feed rations in the EU livestock sector, accounting for around 60% of the overall feed ration. This is particularly so in the EU poultrymeat sector, where animal feed forms the main cost in the production of poultrymeat.

As shown in Figure 3.19, expenditure on livestock feed varies between Member States. For those Member States where data is available, the UK has the highest level of expenditure on feed (accounting for 85.1% of total production costs (i.e. variable costs)) because of the relatively high price of animal feed in the UK. This compares to Germany which has the lowest expenditure on feed, which accounts for 79.8% of total production costs; in Germany the animal feed market is relatively price sensitive and as such feed costs are relatively low.

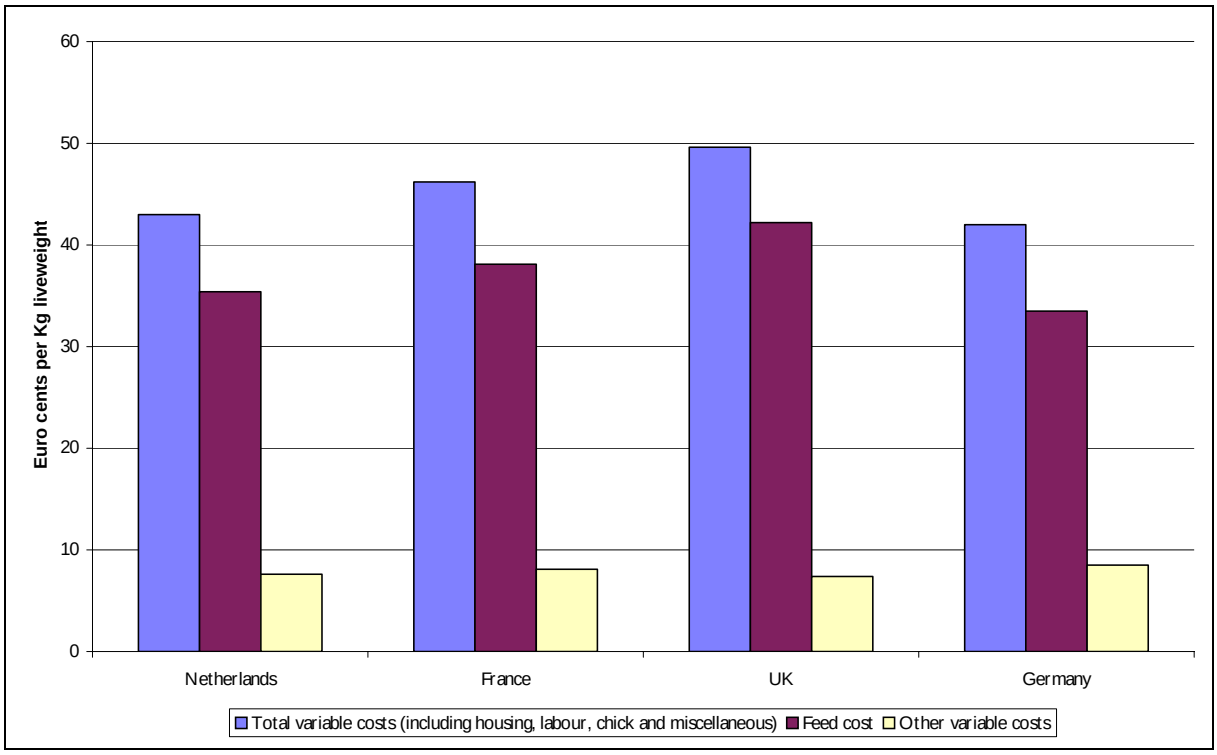

Figure 3.19: Poultry (meat) variable costs, 2000

Source: Agricultural Economics Research Institute (LEI), Netherlands

The absolute level of, and developments in, EU cereal prices therefore have important implications for the cost competitiveness of the EU poultrymeat sector. Consequently, any change in the CMO for cereals that affect cereal prices would *a priori* be expected to have a considerable impact on the cost competitiveness of poultrymeat production.

During the period under examination in this evaluation, there have been two major reforms to the CMO for cereals; the MacSharry 1992 reform and the Agenda 2000 reform. These reforms have progressively reduced the EU intervention price for cereals (with these price reductions being compensated for by direct payments to farmers based on the area under production). As a result of the MacSharry 1992 reform, the intervention price for common wheat was reduced by 34.8% over a three-year period, after which time it remained unchanged (apart from a 7.5% increase as a result of revisions to the agro-monetary rules[134]) until the Agenda 2000 reforms which led to a further 15% reduction in cereal prices over a two year period (Figure 3.20).

[134] In 1995 changes were introduced in the agro-monetary rules and the intervention price was set at 119.19 ECU per tonne, an amount deemed to be equivalent to the proposed 100 ECU per tonne target price under the old rules.

As shown in Figure 3.20, these reforms have had a direct impact on the EU market price for cereals. Between 1992 and 2001, the intervention price was cut by 30.6%. As a result, EU cereal market prices fell by similar amounts, with the price for wheat, barley, maize and oats falling by 32.3%, 29.7%, 28.3% and 26.7%, respectively.

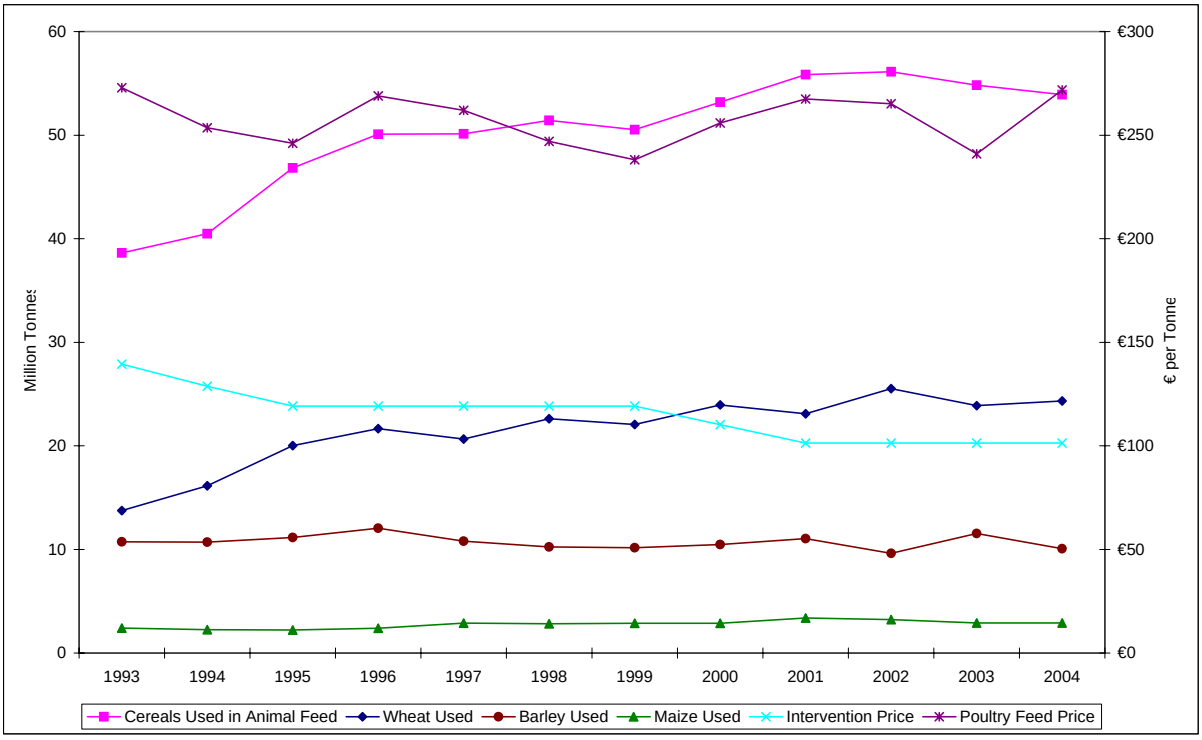

Figure 3.20: Intervention and market price developments for cereals, 1992 to 2004

Source: Toepfer

These reforms were necessary as the system of price support for cereals was placing an unsustainable financial burden on the EU budget as the system of price support had encouraged excess production and discouraged domestic usage. As a result, particularly of the low duty access for oilseeds granted by the EU during the 1962 Dillon Round of the GATT, imported cereal substitutes had also gained an increasing share of the market for use in the production of livestock feeds, at the expense of domestic cereal production.

However, this trend was reversed following the aforementioned cereal intervention price cuts and subsequent fall in EU cereal market prices, as the cost competitiveness of EU cereal production improved. As shown in Figure 3.21, there is a clear inverse relationship between the EU intervention price and the volume of EU cereal production used in the production of livestock feed in the EU. Between 1992 and 2001, the volume of EU cereal production used in the production of livestock

feed in the EU increased by an average 548,989 tonnes for every €1 per tonne reduction in the intervention price.

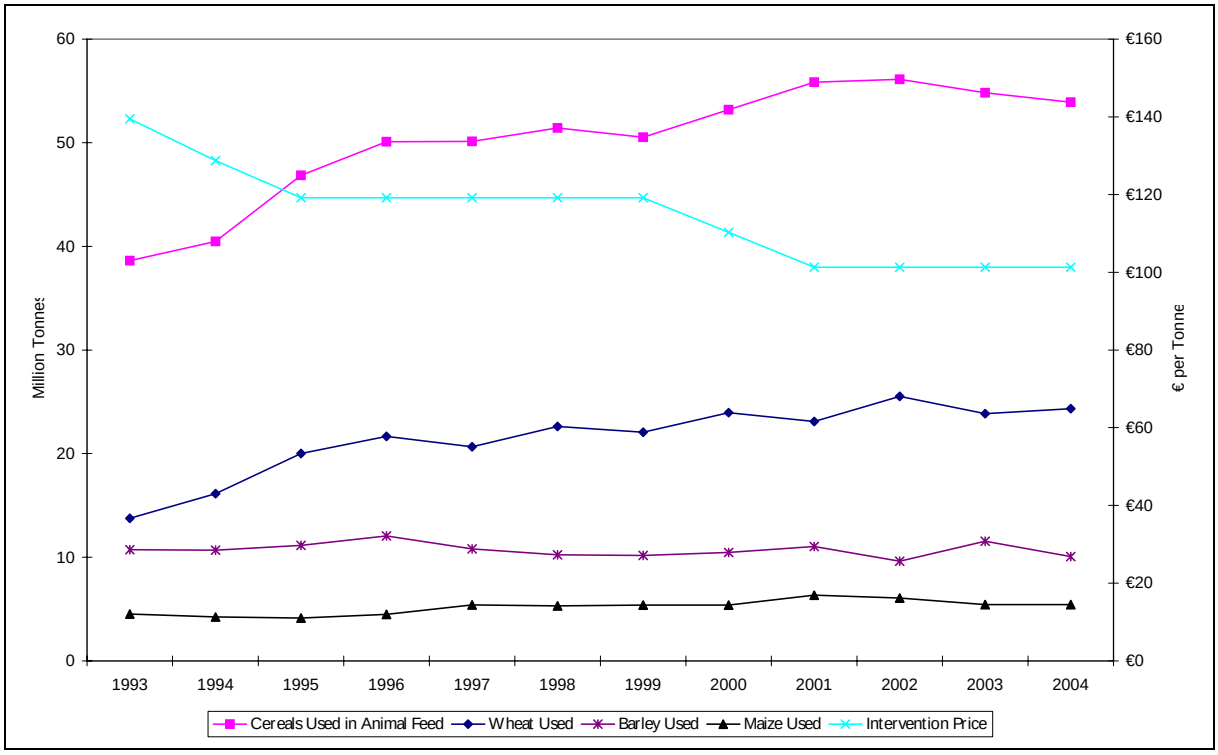

Figure 3.21: EU intervention price and cereals used in animal feed, 1993-2004

Source: European Commission, FEFAC and Toepfer

Figure 3.20 shows the evolution in the price of poultry feed in the EU over the evaluation period. As might be expected *a priori*, given the reductions in intervention price and cereal market prices, the price of poultry feed fell over the period 1993 to 2003 by 11.7%. However, the extent to which the price of poultry feed (including feed for poultry meat production) has fallen over the period has been considerably less than the reduction in intervention price (27.3%) and cereal market prices (21.6% to 37.2%) over the same period.

There are a number of possible contributory factors that could explain this trend. Firstly, there are other ingredients used in the production of livestock feed rations, such as soya. Soya is an important source of protein used in the production of livestock feed rations. As shown in Figure 3.20, the market price for imported soya has not fallen in line with the intervention price and EU cereal market prices over the period. Although the intervention price and cereals market prices fell by between 26.7% and 32.3% between 1992 and 2001, according to Toepfer data the price for imported soya actually increased by 11.3%. Secondly, changes to the Community's feed has resulted in additional costs being transferred to producers through feed

prices, particularly at the end of the evaluation period following the introduction of the ban on meat and bonemeal. Thirdly, the increase in fuel costs over the period is likely to have been passed on to producers in terms of a higher feed price.

« FADN analysis »

As noted above, the most important determinant of the costs for the poultry production remains the feed cost. Figure 3.22 provides an evolutionary account of the impact of the aforementioned reduction in feed price on the cost structure of poultrymeat production. In 1989 feed costs accounted for 82% of specific costs, compared to 66% in 2003. This share is lower for non-specialist poultry farms given that costs for the other animals are also included.

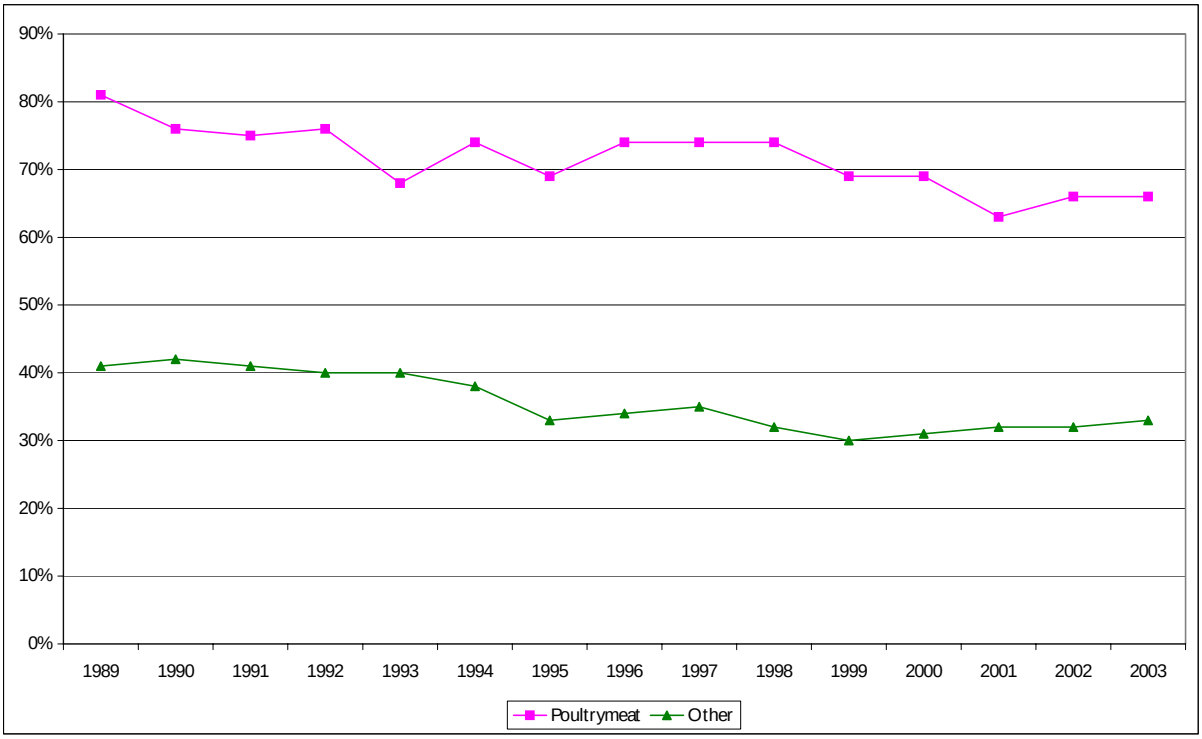

Figure 3.22: Evolution of share of feed for broilers in total livestock specific costs

Source: FADN – processing DG AGRICULTURE G3

Influence of community feed legislation

In January 2001, the EU Agriculture Council approved an EU wide ban on feeding processed animal proteins to farm animals. However, for the UK this ban had been in force since 1996. The feeding of processed animal proteins was a cost-effective way to increase the levels of protein and/or minerals in animal diets and complemented protein from grain ingredients to improve dietary protein quality. Accordingly, this ban has added additional costs to the production of animal feed which may

account to some extent for the slight increase in feed prices during 2001 and 2002, as shown in Figure 3.22 above. However, as illustrated above the cost of feed in the EU has fallen in absolute terms over the evaluation period.

« Secondary data analysis »
Although the European Feed Manufacturers' Federation FEFAC (Agra Europe, 2000), estimated that the extra cost of replacing meat and bonemeal with soybean meal would result in a 14% rise in poultry feed prices, analysis undertaken by the Agricultural Economics Research Institute in the Netherlands found that feed costs have risen by a much lesser extent of 3% to 4% (Van Horne, 2003).

According to the UK's Food Standards Agency[135], it is estimated that the annual cost to pig and poultry producers in 1998 of using alternative, more costly feed supplements was £14 million (approximately €22 million).

« Interview results »
The results of the interviews found that the industry was unanimous in the view that the feed ban had added costs to the sector. However, limited data was available to quantify the extent of these additional costs on the sector.

3.3.2.3. Analysis of manure disposal and emission reduction costs

EU environmental protection measures have imposed additional costs on EU poultrymeat production concerning manure disposal and reductions of emissions. However, it should be noted that these measures do provide environmental and cost benefits to society as a whole.

« Secondary data analysis »
Poultry manure is managed in different ways both between and within Member States, with some poultry farms exchanging poultry manure (for use as a fertiliser) with arable enterprises for straw (for use in poultry production) at no cost. In contrast, other poultry farms operate manure disposal systems, which incur a cost. This cost varies according to the type of poultry production system, location of the farm, size of farm, etc.

« FADN analysis »
Although there is no specific cost category in the FADN database for manure disposal and emission reduction, such costs would be included in the 'other specific costs' category (which includes expenditure on medicines, veterinary fees, waste processing etc.). Analysis of the FADN data (Appendix 6) shows that between 1989

[135] In its BSE controls final report (20 December 2000).

and 2000, other specific costs for specialist poultrymeat producers remained relatively constant accounting for around 3-4%. However, since 2000 other specific costs for these specialist poultrymeat producers have increased to 6% of the total specific expenses. It is expected that much of this increase is attributable to additional costs associated with manure disposal and emission reduction (Appendix 6). In 2003, specialist broiler producers spent an average €14,060 on total specific costs, suggesting that up to €422 is spent on manure disposal and emission reduction.

« Interview results »
Although there is limited comparable costs for manure disposal and emission reductions for poultrymeat production, the following estimates were collected during interviews with industry stakeholders:

- In **France**, estimates from the ITAVI suggest that the cost of manure management totals €0.003/Kg liveweight for broilers (and €0.008/Kg liveweight for turkeys).

- In the **Netherlands**, industry data suggests that average manure disposal costs totalled €19,000 per farm in 2001. This is much greater than the EU average of €422 (FADN analysis) which highlights the degree to which the Netherlands have implemented additional national requirements to limit domestic pollution.

3.3.2.4. Analysis of costs due to animal welfare standards and animal health provisions

« Secondary data analysis »
There have been no developments in EU animal welfare standards for poultry for meat production over the evaluation period. However, in some countries (such as the UK and Germany) stocking densities have been lowered for much of the domestic production through local regulations and codes of practice. According to Van Horne (2003), these reduced stocking densities have led to increased production costs (on a per farm basis), although this impact has not been quantified.

Concerning animal health provisions, there have been no significant developments in animal health provisions over the evaluation period. However, some countries (such as the UK and Germany) have been working without preventative antibiotics in animal feed since 2000, which will have had a slight impact on feed costs (Van Horne, 2003). However, it should be recognised that such costs need to be balanced off against any benefit of this measure.

3.3.2.5. Synthesis of results from the tools used and conclusion

Drawing on the results of the above analysis as well as the findings of the Evaluation Questions 2 and 3, the following conclusions can be drawn in relation to this specific Evaluation Questions which required:

An analysis of production costs in the poultrymeat sector to identify the impacts of the different measures of the CMO as well as other policies related to them (namely manure disposal and emission reduction, animal welfare and animal health).

Analysis of the impact of the different measures of the CMO on production costs

Based on the modelling results presented in Evaluation Questions 2 and 3, it was found that the use of export subsidies and import tariffs over the evaluation period had a positive effect on production of poultrymeat in the EU. Accordingly, production was 11.8%, 8.0% and 6.6% higher in the three reference periods (1990-92 period, 1995-97 period and 2000-02 period, respectively) than it otherwise would have been. The modelling results presented also calculated that the increased feed cost associated with this increased production amounted to 13.0%, 9.2% and 8.1% in the three reference periods. However, on a per animal basis there is no impact on feed cost from the CMO measures.

Analysis of the impact of other policies relating to the CMO on production costs

The above analysis quantified the impacts of the other CMO instruments and other related policies on production costs. The following General conclusions were identified, with respect to their impact on production:

- The main cost element in the production of poultrymeat is the **feed cost** and this has primarily been affected over the evaluation period by the CAP reform induced reduction in cereal intervention price. Moreover, the fall in the cost of poultry feed over the evaluation period as a result of the reduction in intervention prices has more than offset increases in feed costs as a result of community feed legislation.

- Compared to the positive impact of the CAP reform induced reduction in cereal intervention prices on the cost of poultry feed, the individual impact of changes in policies on **manure disposal and emission reduction**, **animal welfare** and **animal health**, although resulting in costs[136] to farmers, have *in general* been relatively small. That said, evidence from the case studies would suggest that the

[136] While this Evaluation Question only concerns an analysis of the impact of different measures of the CMO as well as other policies related to them on production costs, it should be noted that such measures *may* accrue additional production benefits to producers as well as society as a whole.

impact of these policies on costs differed *considerably* both between and within Member States, particularly with respect to the additional costs associated with manure disposal and emission reduction because of the wide ranging implementation standards and environmental conditions within the EU.

Table 3.16: Summary of the impact of other CMO measures and of other related policies on production costs

	Impact on production costs
Influence of arable sector price levels	+++
Community feed legislation	-
Manure disposal and emission reduction	-
Animal welfare standards	-
Animal health provisions	-

Note: - negative impact, + positive impact

Box 3.7: Main conclusions on production costs

In conclusion, with respect to the **CMO measures for poultrymeat** themselves the evidence suggests that they have not had a significant impact on production costs on a per animal basis.

With respect to **other CMO measures and other related policies**, the evidence does not suggest that the overall impact the other CMO measures and other related policies on the sector has been negative with respect to production costs. This is because the above analysis suggests that *in general* the increased costs associated with the Community feed legislation, manure disposal and emission reduction, animal welfare and animal health are likely to be offset by the impact of the CAP reform induced reduction in cereal intervention price on animal feed prices, given the extent of this reduction and the relative importance of feed in total production costs. However, it has not been possible to quantify whether the overall impact on the sector has actually been positive.

Nevertheless, it would seem unlikely that overall these other CMO measures and other related policies will have added significant cost to the production of poultrymeat during the evaluation period, thereby maintaining the objective of the CMO to *ensure a fair standard of living for farmers*.

3.4. Theme 3: Rural development and the environment

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.3.1.

3.4.1. Question 9: Impacts on rural development and the environment

This question has been addressed through an analysis of available secondary data in conjunction with interviews conducted in the case study regions (see Appendix 7 section A7.2). The primary limitation in answering the evaluation questions and sub-questions is the lack of adequate secondary data, particularly at regional level. Similarly, given the 'light' nature of the CMO regime, it is understandable that interviewees place greater emphasis on more tangible direct impact on the sector arising from other factors. However, the CMO regime is likely to have influenced production decisions, thereby influencing the process of regional concentration and distribution of production, the evolution of the size and number of holdings, the specialisation of holdings and also the relationships between upstream and downstream industries, even though there may be little or no direct evidence to quantify their direct or indirect impacts on rural development and the environment. Therefore it is important for the reader to note the scale of the simulated impacts of the CMO measures set out previously when reading the analysis, in order to put the evidence presented into context.

3.4.1.1. Regional distribution of production and concentration of production in certain regions

Community situation and development

EU-15 broiler numbers increased by 45% between 1990 and 2003 (Figure 3.23), while other poultry numbers increased by 31% (Figure 3.24), according to data from Eurostat. The five Member States with the largest share of total broiler numbers (France, Spain, Italy, Germany, and the UK, from which the case study regions in this analysis have been selected) account for a share of 80% of EU-15 total broiler numbers (Table 3.17) and nearly a 93% share of other poultry (Table 3.18).

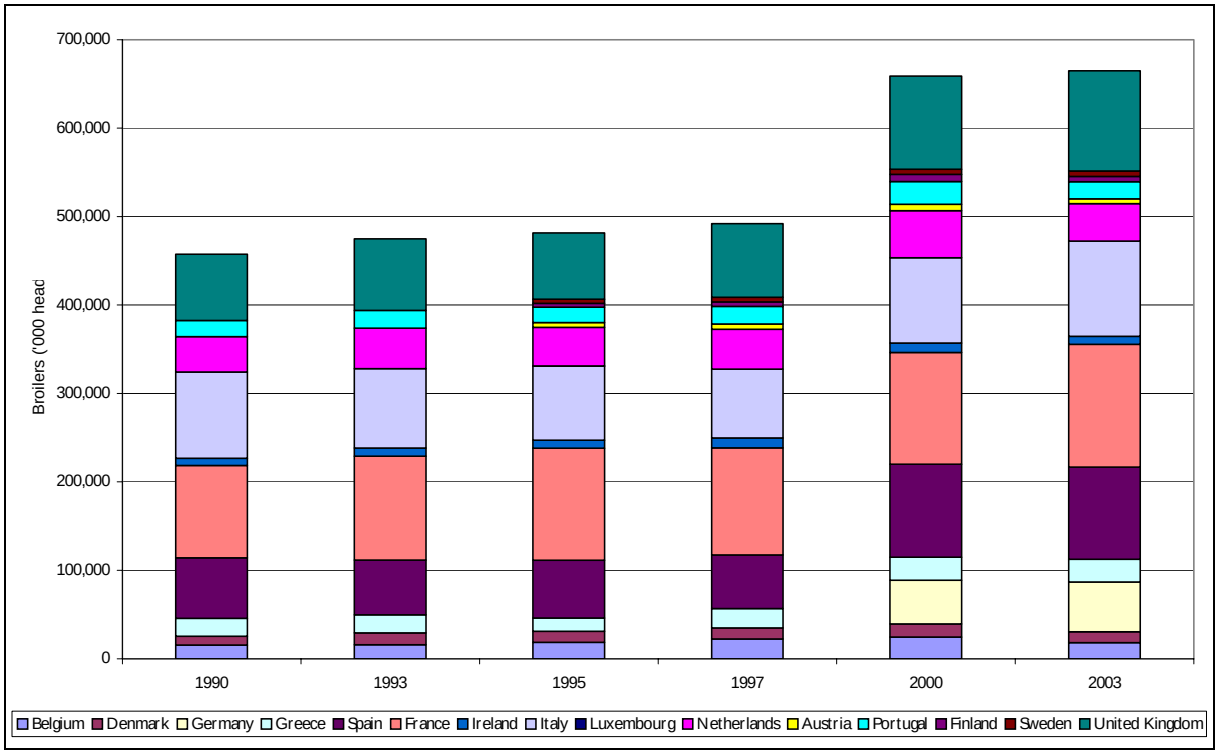

Figure 3.23: Evolution of EU-15 broiler numbers, 1990-2003 ('000 head)

Source: Eurostat.

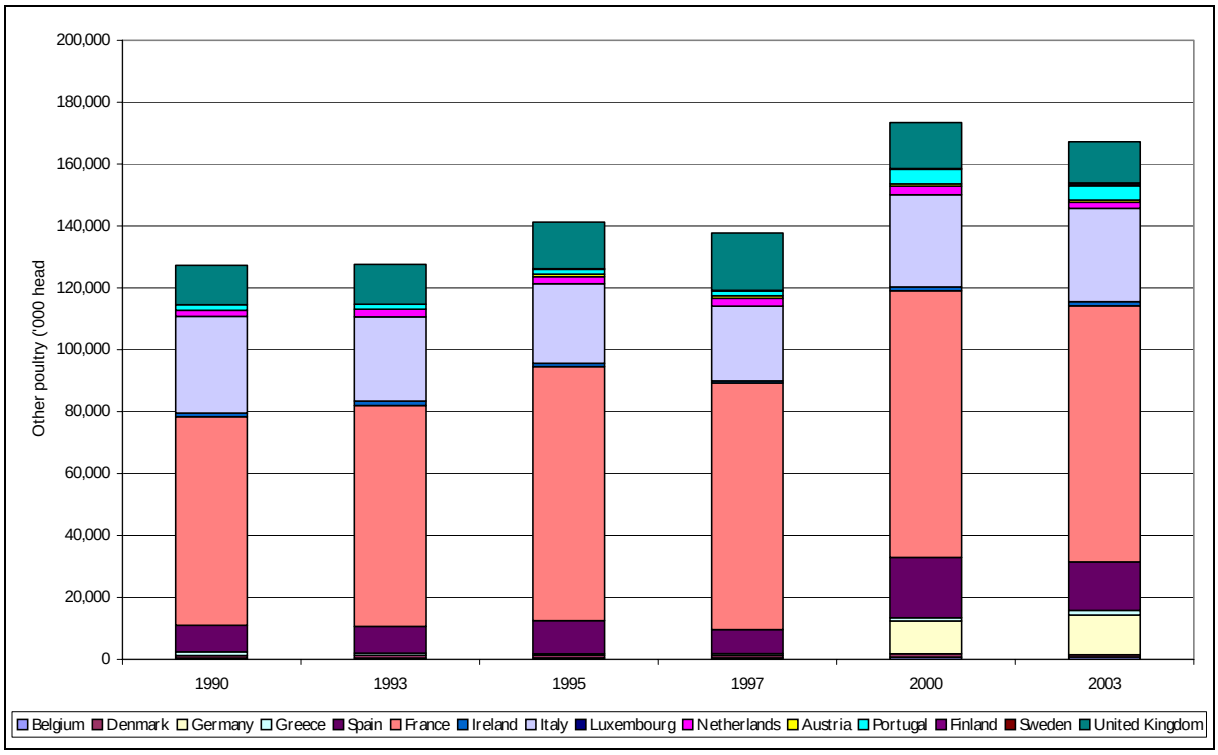

Figure 3.24: Evolution of EU-15 other poultry numbers, 1990-2003 ('000 head)

Source: Eurostat.

Table 3.17: EU-15 broiler numbers and share, 1990-2003 ('000 head, %)

	1990		1993		1995		1997		2000		2003	
	'000	% share	'000	% share	'000	% share	'000	% share	'000	% share	'000	% share
Belgium	15,480	3.4%	15,900	3.3%	18,550	3.9%	22,300	4.5%	24,500	3.7%	18,190	2.7%
Denmark	10,000	2.2%	13,400	2.8%	12,580	2.6%	12,510	2.5%	14,920	2.3%	12,210	1.8%
Germany									**49,330**	**7.5%**	**56,390**	**8.5%**
Greece	20,130	4.4%	20,350	4.3%	15,010	3.1%	22,110	4.5%	26,100	4.0%	25,650	3.9%
Spain	**68,540**	**15.0%**	**61,900**	**13.0%**	**65,270**	**13.6%**	**60,480**	**12.3%**	**105,080**	**16.0%**	**104,440**	**15.7%**
France	**104,510**	**22.8%**	**117,620**	**24.8%**	**126,520**	**26.3%**	**121,150**	**24.6%**	**126,300**	**19.2%**	**138,590**	**20.8%**
Ireland	8,060	1.8%	9,070	1.9%	9,350	1.9%	11,130	2.3%	10,800	1.6%	9,260	1.4%
Italy	**97,450**	**21.3%**	**89,740**	**18.9%**	**83,700**	**17.4%**	**77,810**	**15.8%**	**96,470**	**14.6%**	**107,600**	**16.2%**
Luxembourg	20	0.0%	10	0.0%	10	0.0%	10	0.0%	10	0.0%	10	0.0%
Netherlands	39,950	8.7%	45,780	9.6%	43,830	9.1%	44,990	9.1%	53,250	8.1%	42,290	6.4%
Austria	0	0.0%	0	0.0%	5,260	1.1%	6,050	1.2%	7,010	1.1%	5,590	0.8%
Portugal	18,380	4.0%	20,100	4.2%	17,520	3.6%	19,940	4.1%	25,930	3.9%	19,250	2.9%
Finland	0	0.0%	0	0.0%	4,230	0.9%	5,140	1.0%	7,920	1.2%	6,050	0.9%
Sweden	0	0.0%	0	0.0%	4,700	1.0%	5,080	1.0%	5,860	0.9%	5,910	0.9%
UK	**74,890**	**16.4%**	**80,820**	**17.0%**	**74,810**	**15.5%**	**83,260**	**16.9%**	**105,300**	**16.0%**	**113,360**	**17.1%**
EU-15	**457,410**	**100.0%**	**474,690**	**100.0%**	**481,340**	**100.0%**	**491,960**	**100.0%**	**658,780**	**100.0%**	**664,790**	**100.0%**

Source: Eurostat

Table 3.18: EU-15 other poultry numbers and share, 1990-2003 ('000 head, %)

	1990		1993		1995		1997		2000		2003	
	'000	% share	'000	% share	'000	% share	'000	% share	'000	% share	'000	% share
Belgium	400	0.3%	370	0.3%	420	0.3%	470	0.3%	720	0.4%	770	0.5%
Denmark	840	0.7%	980	0.8%	950	0.7%	840	0.6%	1,040	0.6%	690	0.4%
Germany									**10,640**	**6.1%**	**12,860**	**7.7%**
Greece	1,200	0.9%	640	0.5%	440	0.3%	540	0.4%	1,010	0.6%	1,490	0.9%
Spain	**8,570**	**6.7%**	**8,590**	**6.7%**	**10,660**	**7.5%**	**7,710**	**5.6%**	**19,530**	**11.3%**	**15,650**	**9.4%**
France	**67,370**	**52.9%**	**71,450**	**56.0%**	**82,070**	**58.1%**	**79,750**	**57.9%**	**86,120**	**49.7%**	**82,730**	**49.5%**
Ireland	1,200	0.9%	1,370	1.1%	1,080	0.8%	640	0.5%	1,240	0.7%	1,370	0.8%
Italy	**31,180**	**24.5%**	**27,250**	**21.4%**	**25,720**	**18.2%**	**24,150**	**17.5%**	**29,800**	**17.2%**	**30,120**	**18.0%**
Luxembourg	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Netherlands	1,980	1.6%	2,510	2.0%	2,300	1.6%	2,570	1.9%	2,800	1.6%	2,000	1.2%
Austria	0	0.0%	0	0.0%	790	0.6%	800	0.6%	690	0.4%	650	0.4%
Portugal	1,830	1.4%	1,600	1.3%	1,570	1.1%	1,570	1.1%	4,720	2.7%	4,650	2.8%
Finland	0	0.0%	0	0.0%	160	0.1%	150	0.1%	250	0.1%	640	0.4%
Sweden	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	290	0.2%
UK	**12,710**	**10.0%**	**12,830**	**10.1%**	**15,110**	**10.7%**	**18,570**	**13.5%**	**14,820**	**8.5%**	**13,300**	**8.0%**
EU-15	**127,280**	**100.0%**	**127,590**	**100.0%**	**141,270**	**100.0%**	**137,760**	**100.0%**	**173,380**	**100.0%**	**167,210**	**100.0%**

Source: Eurostat

Case study regions

Information on the regional distribution[137] and concentration[138] of production in the case study regions can be found in Appendix 7 section A7.2. The case study regions selected (see Appendix 1 Table A.1) are:

- France – Brittany
- Germany – Weser Ems
- Italy – Emilia Romagna, Veneto, Lombardia
- Spain – Lérida
- UK – Eastern England

The secondary data gathered and the evidence from the interviews conducted with industry experts in each of the case study regions show that the current patterns of regional distribution and concentration of production are the result of the interplay of a number of economic, geographical and historical factors and it would be impossible to precisely determine the impact of any of these factors in isolation. In all regions (with the exception of Brittany, where export refunds are judged to have had a more direct impact), over the time period reviewed the CMO is likely to have had a small and indirect impact on the regional distribution and concentration of production (see conclusions below) in the context of the other factors outlined below and set out in detail in (see Appendix 7 section A7.2.1.1).

The development of regional concentrations of pigmeat production in **Spain (Lérida)**, **Italy (Emilia Romagna**, **Veneto**, **Lombardia)** and **UK (Eastern England)** is historically due to a combination of physical and economic factors, in particular, the suitability of the regions for feed production.

- **Lérida** was an important cereal production region, with an abundance of flourmills, but few livestock enterprises. In the 1950s, small farmers began seeking sources of complementary income and the development of animal feed plants provided the necessary ingredients for intensive livestock production. In the 1960s, the principal feed companies established vertical-integration contracts, which were fundamental to the rapid development of intensive poultry production. It should be noted that the development of the sector in Spain (Lérida) and the process of structural change and adaptation to market conditions had already started prior to Spain's accession to the EU in 1986. Therefore, while the CMO is likely to have influenced the sector since accession, it was not a factor underlying trends prior to this time.

[137] The number of poultry farms by specific geographic region.
[138] The spatial distribution of poultry farms within a specific geographic region.

- **Emilia Romagna, Veneto, Lombardia** – the concentration of poultry production in the four northern regions is largely due to concentration of Italy's most important cereal production areas on the plains bordering the river Po (Pianura Padana), which is also consequently the main location of the animal feed industry. In addition, regional and provincial institutions provided financial support for the development of the industry.

- **Eastern England** – the open flat terrain favours the production of cereals and consequently provided a ready source of poultry feedstuffs.

The development of regional concentrations of poultrymeat production in **Germany (Weser-Ems)** and **France (Brittany)** is primarily due to geographical and economic factors, particularly the proximity to maritime ports.

- **Weser-Ems** is characterised by the proximity of maritime ports (e.g. Germany - Wilhelmshaven, Bremerhaven, Bremen) and navigable rivers, enabling relatively inexpensive imports of feed stuffs and in particular, imports of lower cost cereal substitutes prior to the 1992 MacSharry reforms of the CAP. However, when cereal prices fell as a result of CAP reforms in 1992, this competitive advantage ceased, although the competitiveness of poultrymeat production in the regions continued to increase, due to the agglomeration advantages and economies of scale that had already been established.

- **Brittany** developed its poultrymeat production industry also as a result of the proximity of maritime ports (e.g. Brest and Lorient), for the same reasons outlined above. However, it can be argued that an export oriented industry serving Middle-East markets has effectively been opened and maintained by the CMO, since the region has been the major beneficiary of export refunds in the sector over the evaluation period.

- **Eastern England** - the development of maritime ports such as Felixstowe and Harwich, with good trading links with Germany and the Netherlands, and also Hull for trade with the port of Rotterdam, allowed for the easy import of cereal substitutes for the animal feed industry in the region.

Another major factor in the development of regional production concentrations is proximity to main markets, particularly in the case of **Lérida** (proximity to Barcelona), **Weser-Ems, Emilia Romagna, Veneto** and **Lombardia**.

Conclusion

The evidence suggests that the development of the poultry sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of protection for the EU market and consequently have provided an incentive for to increase poultrymeat production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

According to the simulations and analysis undertaken for the previous evaluation questions, the direct impact of the CMO on both price and production has been greater than in the pigmeat sector, resulting in prices that were around 10.8% higher and production that was around 8.8 % higher as a result of the CMO measures (see section 3.2.3.2). The notable regional exception to this would be the case of broiler production in Brittany, since France has been the main recipient of export refund expenditure under the poultrymeat CMO and developed an export oriented industry serving Middle-East markets.

The impact of the CMO on the patterns of regional distribution and concentration of production was both minor and indirect, although it plausible that the CMO measures may have actually reduced the pace of structural change by providing a beneficial economic environment for producers to remain in production which would not have otherwise existed.

3.4.1.2. Evolution of the number, size and specialisation of holdings or enterprises

Community situation and development

Structural change in the poultrymeat sector has taken place across all EU Member States over the past 20 years. This has meant a decrease in the overall number of poultry holdings and a shift towards greater numbers of birds per holding. Figure 3.25 shows the decrease in the number of holdings with poultry in the EU and by Member State between 1990 and 2003.

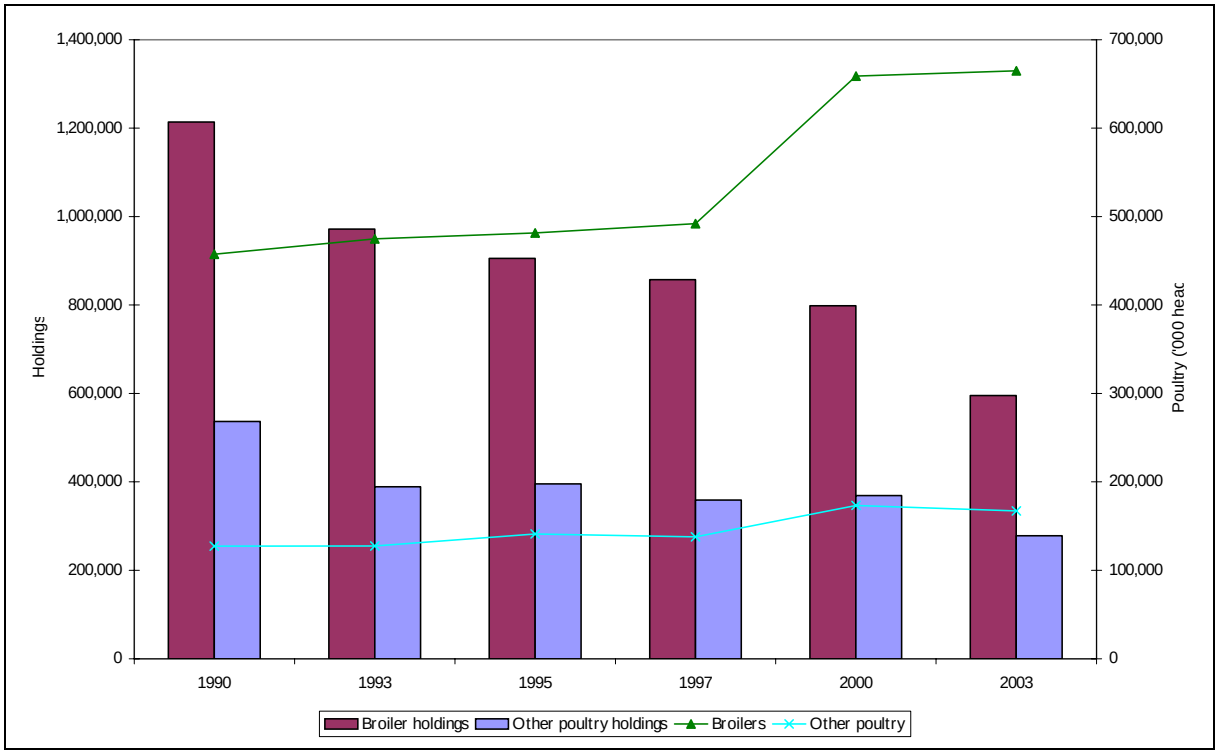

Figure 3.25: Evolution of EU-15 poultry and poultry holding numbers, 1990-2003

Source: Eurostat

The process of structural change taking place in the EU has resulted in an increase in the number of birds per farm holding, as shown in Table 3.19. This trend is also fairly uniform across regions with the exception of Greece, Austria and Sweden, although structural change is most pronounced in those Member States with the highest poultry numbers.

Table 3.19: Average number of broilers and other poultry per holding, 1990-2003

	1990	1993	1995	1997	2000	2003
Broilers	376.8	488.4	531.5	573.7	825.3	1,117.0
Other poultry	237.3	328.2	357.1	384.0	469.9	600.5

Source: Eurostat

Figure 3.26 shows the change in poultry holdings and poultry numbers by size class. With the exception of the 100-999 head size class, the number of smaller sized holdings with broilers in the EU has decreased over the period 1990 to 2003, while the number of larger sized holdings has increased. The fastest rates of growth have been in holdings with more than 50,000+ and 100,000+ head size classes. A similar trend has occurred for broiler numbers. The pattern is less clear for other poultry holdings,

although again the smallest sized holdings have decreased in number and there has been a modest increase in the mid-sized holdings.

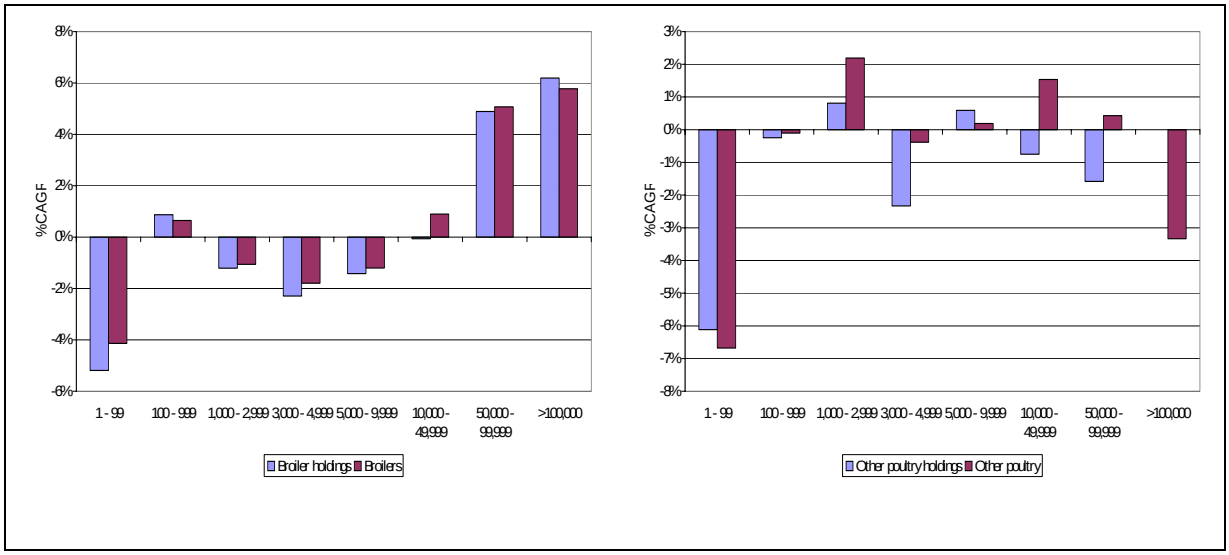

Figure 3.26: Evolution of EU-15 broilers and holdings (left graph), other poultry and holdings (right graph) by holding size, 1990-2003 (% CAGR)

Source: Eurostat

Poultry numbers per unit of land area also increased over the period, although it should be noted that there is no satisfactory data available to quantify this precisely. This is because the available data sources usually apply this measure to grazing livestock only.

As an indicator, the numbers of poultry in holdings by area is used, which shows that both broilers and other poultry numbers have increased in larger sized holdings by area, although this has also been the case for smaller sized holdings as well, albeit to a lesser extent. This indicates an overall trend in increasing numbers of livestock per unit of land area, evidence for which is particularly compelling when you look at the first column of the graph that shows just under a 5% increase (CAGR) in broiler numbers on holdings classified as zero hectares in size (Figure 3.27).

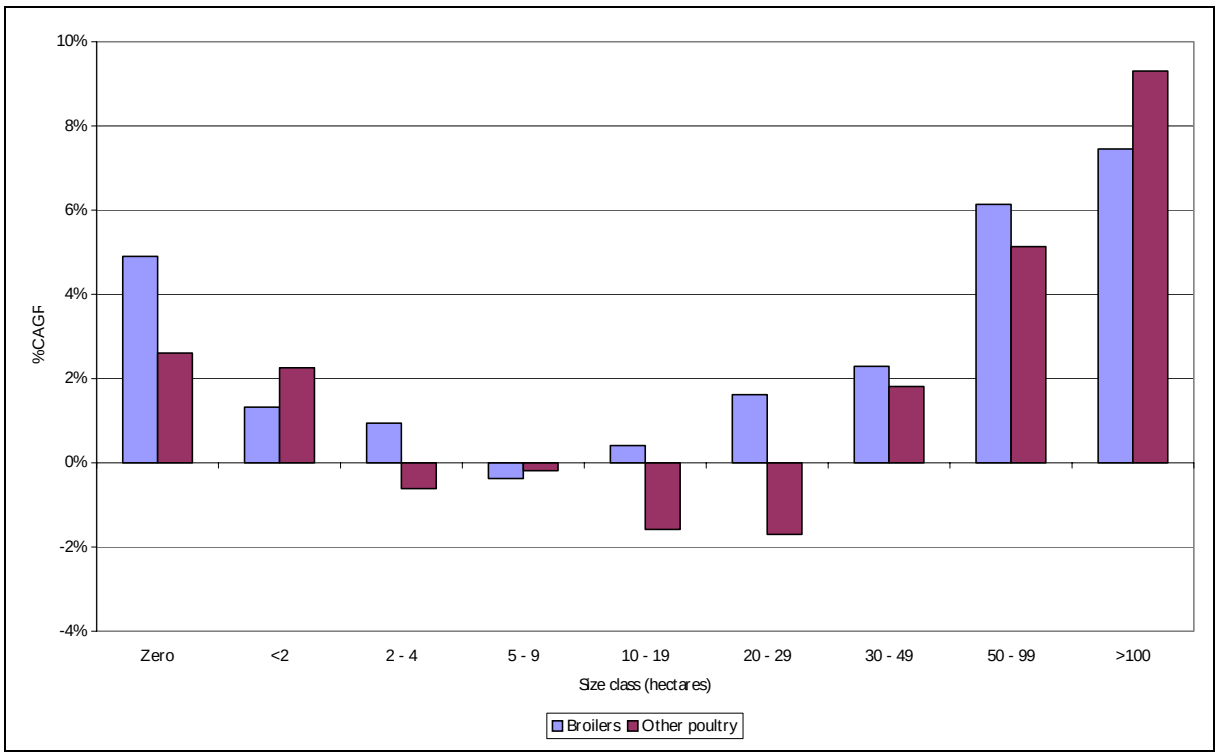

Figure 3.27: Evolution of EU-15 broilers and other poultry by area, 1990-2003 (% CAGR)

Source: Eurostat

FADN analysis indicates that the production share of specialist broiler farms has decreased over the evaluation period, from 35.6% in 1989 to 34.9% in 2003 (see Table 3.13 in section 0). Figure 3.13 in section 0 shows the importance of total specialised poultry production, by Member State. While around half of all EU-15 poultry production takes place on specialised holdings, this varies significantly by Member State. In most Mediterranean countries, almost all poultry production takes place on specialised farms. In contrast, production in the Nordic countries generally takes place on mixed farms[139]. For broiler production, the main specialist poultrymeat holdings are located in France, Spain, Italy and the UK.

Case study regions

Each of the case study regions has undergone significant structural change over the period covered by this evaluation, resulting in a decrease in poultry farm numbers, an increase in the numbers of poultry per holding and also an increase in the number of livestock per hectare (see Appendix 7 section A7.2.1.2). It is clear that there are economic, geographical and historical reasons underlying the

[139] In Sweden, for example, there are no specialised farms found in the FADN database.

development of the sector. However, although there is no direct evidence, it is likely that the CMO regime has indirectly influenced the process of structural change taking place in the pig sector (see conclusions below), since scale-economies, market trends and competitiveness are indirectly influenced by the advantageous conditions created by the CMO

In **all the case study regions**, structural change in the poultrymeat sector was found to have been largely been driven by the existence of economies of scale. Furthermore, the decline in producer numbers is largely due to the effects of competition in the sector, with the least profitable producers dropping out of production, or smaller units closing when farmers retire.

It should be noted that the development of the sector in **Spain (Lérida)** and the process of structural change and adaptation to market conditions had already started prior to Spain's accession to the EU in 1986. Therefore, while the CMO is likely to have influenced the sector since accession, it was not a factor underlying trends prior to this time.

Conclusion

The evidence suggests that the development of the poultry sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of protection for the EU market and consequently have provided an incentive for to increase poultrymeat production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

According to the simulations and analysis undertaken for the previous evaluation questions, the direct impact of the CMO on both price and production has been greater than in the pigmeat sector, resulting in prices that were around 10.8% higher and production that was around 8.8 % higher as a result of the CMO measures (see section 3.2.3.2). The notable regional exception to this would be the case of broiler production in Brittany, since France has been the main recipient of export refund expenditure under the poultrymeat CMO and developed an export oriented industry serving Middle-East markets.

The impact of the CMO on the number and size of holdings was both minor and indirect, although it plausible that the CMO measures may have actually reduced the pace of structural change by providing a beneficial economic environment for producers to remain in production which would not have otherwise existed.

3.4.1.3. Relationships with the upstream and downstream industries, with particular attention to the development of integration of primary production with the compound feed and/or processing industry

Community situation and development

The analysis of the relationship of the poultry production sectors with upstream (breeders, feed compounders, machinery manufacturers etc.) and downstream (slaughterhouses, processors etc.) industries has confirmed Agra CEAS' initial hypothesis that apart from the border protection provided by import tariffs which have provided a more secure investment environment, the CMO has allowed the internal market to operate largely unfettered and hence allow the non-CMO forces driving greater integration to evolve freely. Drawing on the case studies undertaken the following analysis therefore analyses how this integration process has occurred.

The process of integration within the poultry production sector has been taking place ever since more modern methods of production for breeding, feeding, housing and poultry farm management were introduced (primarily from the US) in the period running from the 1950s to the 1970s. Integration in this sector is a world-wide phenomenon that is driven by *inter alia* the need to:

- optimise returns by achieving economies of scale;
- improve the competitive position of the sector vis-à-vis downstream operators, notably retailers;
- guarantee market outlets for suppliers of feed and other inputs;
- improve production planning and logistics;
- ensure traceability and uniform product quality;
- the fact that breeding world-wide is dominated by three major companies (Cobb, Ross and Hubbard).

The nature and degree of integration varies by country and region and is therefore now analysed in more depth by country.

Case study regions

The picture of integration presented as a result of data analysis and the case studies is reasonably uniform from Member State to Member State, with a high degree of integration observed in all the case study countries (see Appendix 7 section A7.2.1.3). The CMO is likely to have influenced relationships with the upstream and downstream industries (see conclusions below) since scale-economies, market trends and competitiveness are indirectly influenced by the advantageous market conditions created by the CMO.

- **Brittany (France)** – the initial push for greater integration in the 1960s and 1970s came from upstream sectors in the form of the feed compounders while latterly in the 1980s and 1990s the push has come from downstream in the form of backward integration by the slaughterhouses. Between 1993 and 2000 the share of the four largest companies in the total output of the branch rose from 32% to 57%.

- **Weser Ems (Germany)** – it is estimated that some 80% of chicken and turkey production takes place within integrated units. Independent producers are in any case limited in scope as there is virtually no live market for poultry and so every producer needs to have a guaranteed slaughterhouse outlet. A further factor encouraging integration appears to have been the encouragement given to the development of producer groups and long term (3-5 year) contracts as part of the structural support measures for agriculture.

- **Emilia Romagna, Veneto, Lombardia (Italy)** – it is estimated that nearly 90% of all poultrymeat is produced within vertically integrated or closely co-ordinated systems (Source: Unione Nazionale delle Avicoltura (UNA)). This process was initiated by the feed industry in the 1960s. Subsequently, the industry completed the process of vertical integration into all stages of production downstream to the control of the distribution of finished products. In the last decade the central role in terms of integration has, however, increasingly been played by the processing industry.

- **Eastern England (UK)** – it is estimated that 85% of poultrymeat producers are integrated through all stages of production, from birth to slaughter of broilers including breeding, fattening and the production of animal feed for their livestock.

Conclusion

The evidence suggests that the development of the poultry sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of protection for the EU market and consequently have provided an incentive for to increase poultrymeat production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

According to the simulations and analysis undertaken for the previous evaluation questions, the direct impact of the CMO on both price and production has been

greater than in the pigmeat sector, resulting in prices that were around 10.8% higher and production that was around 8.8 % higher as a result of the CMO measures (see section 3.2.3.2). The notable regional exception to this would be the case of broiler production in Brittany, since France has been the main recipient of export refund expenditure under the poultrymeat CMO and developed an export oriented industry serving Middle-East markets.

Therefore, it is likely that the CMO has had an indirect impact on the process of vertical integration and expansion of production to take advantage of scale-economies, since these are influenced by market trends and competitiveness and thus influenced by the advantageous conditions created by the CMO.

3.4.1.4. Economic importance (in terms of employment and gross value added) including the upstream and downstream industries in the production regions, in particular in those with a high concentration of production

Community situation and development

The assessment of the impact of the main instruments of the CMO on the economic importance of the sector in terms of gross value added has been assessed through the answers to Evaluation Questions 2 and 3. This has shown that in aggregate the contribution of these CMO instruments to the value added of the sector has been relatively more significant in this sector than in the other sectors under review. By implication this means that the CMO's role in employment terms is also more significant than for the other sectors under review.

While clearly the employment impacts across the sector are not precisely quantifiable, to the extent there are impacts, there is no doubt that the greatest direct impact of the CMO measures will be in those regions, notably Brittany, which account for the highest proportion of EU and national production and particularly exportable production. In other regions, which do not have production focused particularly on exports, the employment impacts are more indirect and result from the combination of border protection and the fact that the EU internal market will not be absorbing the quantities exported with refund i.e. prices will tend to be higher than they otherwise might be. Thus in the Italian, German, Spanish and UK poultry producing regions reviewed here the CMO was not considered to have a significant direct impact on the development of the sector particularly since only a small proportion of output is destined for export to third countries.

Case study regions

The value added and employment generated by the sector in regions with high concentration of production is considerably greater than that generated by the primary sector alone, particularly in Brittany, but also to a lesser extent in all the other case study regions (see Appendix 7 section A7.2.1.4). The evidence suggests that the CMO has had an indirect impact on the development of the sector, since scale-economies, market trends and competitiveness are indirectly influenced by the advantageous market conditions created by the CMO (see conclusions below). Some of the notable findings of the case studies are presented below:

- **Brittany (France)** – more than 18,000 persons currently estimated to be employed in the sector (in production sectors and upstream and downstream industries), 12,500 of which are in the slaughtering and processing industry. The added value of the poultry meat industry in Brittany amounted to €229.6 million in 2002, i.e. 17.5% of the added value of the total meat industry and 10% of the total added value of the food industry in the region.

- **Weser Ems (Niedersachsen**, **Germany)** –the share of poultry sector output in total regional agricultural output in the case study region of has increased from some 4% to 7% between 1991 and 2003. In the Weser-Ems case study region which accounts for 86% of poultry sector output within Niedersachsen the value of the sector's output is estimated at 11.3% of total agricultural sector output. No data is available on output or employment for the downstream sectors in this region.

- **Emilia Romagna, Veneto, Lombardia (Italy)** – Veneto accounts for 29% of the national Broilerproduction (which was nearly 97m heads in 2000), Emilia-Romagna for 15.9%, Lombardia for 12.9% and Piemonte for 9.5%. Veneto is the main producer of turkeys, accounting for nearly 50% of the entire Italian production (13m heads in 2000), with Lombardia and Emilia-Romagna accounting for another 20% and 14.4% respectively. There are no specific details on employment generated in the regions.

- **Lérida (Spain)** - poultry production represents around 5.4% of Gross Value Added Value (GVA) of the agricultural sector as a whole and approximately 0.1% of the total GVA of the province. No estimation exists of the economic importance of the poultry chain as a whole in Lérida.

Conclusion

The evidence suggests that the development of the poultry sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a

measure of protection for the EU market and consequently have provided an incentive for to increase poultrymeat production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

According to the simulations and analysis undertaken for the previous evaluation questions, the direct impact of the CMO on both price and production has been greater than for the pigmeat sector, resulting in prices that were around 10.8% higher and production that was around 8.8 % higher as a result of the CMO measures (see section 3.2.3.2). The notable regional exception to this would be the case of broiler production in Brittany, since France has been the main recipient of export refund expenditure under the poultrymeat CMO and developed an export oriented industry serving Middle-East markets.

Therefore, it is likely that the CMO has had an indirect impact on employment and gross value added, particularly in Brittany.

3.4.1.5. Synthesis of results of the tools used and conclusion

Regional distribution of production and concentration of production in certain regions

There is little evidence to support a conclusion that the direct impact of the CMO measures has resulted in a concentration of production in certain regions. The secondary data gathered and the evidence from the interviews conducted with industry experts in each of the case study regions show that the current patterns of concentration are the result of the interplay of a number of economic, geographical and historical factors and it would be impossible to precisely determine the impact of any of these factors in isolation. What is clear is that the primary CMO measures of border protection (import tariffs and export refunds) and the wider agricultural policy environment have helped to create favourable economic environment that created an incentive for production and that indirectly, other sector CMOs and agricultural policies served to create advantageous market conditions generally. These conditions are likely to have contributed to the process of increasing poultrymeat production and to have resulted in the continuation of the pre-existing trend towards regional production concentrations, although it equally plausible that indirectly, the CMO measures actually reduced the pace of this structural trend by providing a beneficial economic environment for producers to remain in production which would not have otherwise existed.

Evolution of the number, size and specialisation of holdings or enterprises

Each of the case study regions has undergone significant structural change over the period covered by this evaluation, resulting in a decrease in poultry farm numbers, an increase in the numbers of poultry per holding and also an increase in the number of livestock per hectare. It is clear that there are geographical and historical reasons underlying the development of the sector. What is less clear is the impact that the CMO has had on this process of structural development and also what the indirect impact of agricultural policies in other sectors have had on the poultry sector. Most of the evidence suggests that the direct impact of the CMO has been relatively minor, supporting Agra CEAS initial hypothesis. It is clear that border protection measures (import tariffs and export refunds) have resulted in an economic environment that created an incentive for production and that indirectly, other sector CMOs and agricultural policies served to create advantageous market conditions generally. These conditions, whether directly attributable to the CMO for poultrymeat or not, are likely to have contributed to the process of structural change in the sector, although it equally plausible that indirectly, the CMO measures actually reduced the pace of this structural trend by providing a beneficial economic environment for producers to remain in production which would not have otherwise existed.

Relationships with the upstream and downstream industries, with particular attention to the development of integration of primary production with the compound feed and/or processing industry

In summary the picture of integration presented as a result of data analysis and the case studies is reasonably uniform from Member State to Member State with a high degree of integration observed in all the case study countries. More generally the CMO is not considered a significant driver for this process.

Economic importance (in terms of employment and gross value added) including the upstream and downstream industries in the production regions, in particular in those with a high concentration of production

In summary the results of the data analysis, interviews and case studies indicate that:

As is set out by this detailed review the value added and employment generated by the sector in regions with high concentration of production is considerably greater than that generated by the primary sector alone. For the poultrymeat sector the impact of the CMO specifically on the case study regions suggests that the CMO and particularly the export refunds have significant impact specifically in Brittany but to a much lesser direct extent in all the other case study regions.

Quality of water and air, land use and landscape

The issue of the CMO impact on water and air, land use and landscape is fully addressed in chapter 5 on the joint environmental impact of the three sectors (see section 5.1.1.6).

3.5. Theme 4: Overall impacts

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.4.

3.5.1. General judgement of the CMO

Internal and external competitiveness of Community production

The results of the CAPSIM modelling for Evaluation Question 3 illustrates that export refunds and import tariffs have improved the competitive position of the EU poultrymeat sector on the world market. The modelling results indicate that the presence of import tariffs and export refunds has boosted the net trade position of the EU, resulting in the EU becoming a net exporter of poultrymeat. In contrast, the results of the CAPSIM analysis suggests that the removal of export refunds and import tariffs would weaken the EU aggregate competitive position with the EU becoming a net importer as a result of a surge in imports.

Further CAPSIM analysis presented the competitive position of the EU poultrymeat sector on the internal market using the self-sufficiency ratio as an indicator of competitiveness. The analysis suggests that export refunds and import tariffs have marginally increased the self-sufficiency ratio over the period, by 13.7% in the 1990-1992 period, 9.9% in the 1995-1997 period and 8.1% in the 2000-2002 period. This is mainly due to their stimulating effect on production on the EU domestic market as a whole and the decreasing significance of export refunds over the period as the volume and value of exports with refund decreased. In this context it is, however, essential to note that the historical analysis and stakeholder interviews have indicated that refunds are focused primarily on the frozen whole bird market segment and the significance of the refunds for this particular segment is seen as critical to maintaining the EU export market position.

In conclusion the results show that import tariffs (combined with the effect of export refunds) have the effect of significantly improving the net trade position of the EU, particularly with respect to protecting the EU from import surges. The high deadweight effect[140] attached to the achievement of the result in terms of export volumes, particularly towards the end of the evaluation period does however suggest this result might have been achieved largely without the measure having been used. In this context it should be noted that since the start of the URAA implementation the effort to focus refunds on more added value products, apart

[140] See Footnote 2 and Box A1 in Appendix 4.

from in periods of market crisis, will have contributed to reducing this deadweight effect.

Satisfaction of consumer demand in terms of price and quality

In terms of satisfying consumer demand with respect to price, the impact of the CMO is at best indirect since the effects of changes at consumer level will ultimately depend on transmissibility down the food chain. No direct evidence on this issue has emerged during the course of this evaluation but as has been shown by the modelling analysis in all three sectors the effect of the two key support measures, export refunds and import tariffs, has been to raise EU prices above the levels they would have been in the absence of the measure and thus have a potentially adverse effect on consumer 'welfare' (see below) although this cost must be set against greater security of supply.

In terms of satisfying consumer demand with respect to quality the evaluation has not been able to obtain evidence of the proportion of output produced in accordance with EU poultry marketing standards but a priori they play a significant role in ensuring basic standards with respect to quality are adhered to.

In conclusion, while the analysis would suggest that basic marketing standards have played a useful role in guiding production in terms of better meeting consumer requirements, more generally the findings of the industry interviews suggested that the sector's own efforts to meet internal and external consumers' demands in terms of price and quality are probably equally or more significant than the role of the CMO in this regard.

Transfers from consumers to producers via high price levels in the Community

As would be expected a priori the export refund and import tariff regimes have in effect redistributed income from consumers to poultrymeat farmers. Analysis using the CAPSIM model tested this hypothesis by quantifying the effects of a hypothetical abolition of tariffs and export refunds in the poultrymeat sector.

The results suggest that the expenditure incurred to achieve a relatively significant amount of producer income was relatively low and the cost of the transfers made from taxpayers and consumers was lower than the gains to producers suggesting that liberalisation would not increase efficiency. This overall picture is repeated for the simulation for the 1995-97 and 2000-02 periods. As with all such estimates it must always be borne in mind that the absolute estimates must be treated with caution since they reflect a broad range of statistical inputs and assumptions notably with

regard to the relatively high import supply elasticity for the rest of the world which has been postulated on the basis of expert judgement here.

Economic cost of income support through prices

The modelling results in answer to Evaluation Questions 2 and 3 quantified the extent to which the CMO measures (export subsidies and import tariffs) have had a significant joint impact on the income of poultrymeat production in the EU through producer prices. The results suggest that the CMO instruments have raised producer prices above what they would otherwise have been in the absence of the use of the instruments in all three periods considered. The modelling results found that the direct (positive) impact of export subsidies and import tariffs on producer poultrymeat prices and production was 11.8% and 11.6% respectively in the 1990-92 period, 8.0% and 10.5% respectively in the 1995-97 period and 6.6% and 10.4% respectively in the 2000-02 period. As a result, income levels were found to be 24.4%, 20.4% and 19.1% higher in the three reference periods, which will have helped to maintain production and employment above what it would otherwise have been, particularly amongst the more marginal poultrymeat producers, in the absence of such instruments.

This would represent a significant economic cost of the income support through prices to consumers to the extent that in the absence of the use of the instruments the expected reduction in producer prices would be passed back to consumers. This assumes that a competitive supply chain exists and that there is perfect price transmission between producers and consumers.

3.5.2. Coherence with other relevant Community policies

Animal health and welfare

Animal health and welfare has been particularly adversely affected by the concentration and intensification of production in a number of regions across Europe. The evidence collected in this evaluation suggests that, with the notable exception of the poultrymeat sector in Brittany, the measures of the poultrymeat CMO have not been the major drivers for this intensification and concentration since this has been part of a longer term trend driven inter alia by a range of other economic, historical and geographic factors. In contrast, in Brittany the development and continued support of an intensive and concentrated production sector via export refunds would seem to generate higher animal health risks and would thus also be at odds with the objectives of the Community animal health policy.

Trade

As has been shown by the historical data analysis over the period under review the operation of the CMO with respect to trade has been liberalised as a consequence of the URAA (via increased market access under TRQs, lower import tariffs and a reduction in the use of refunds). This is consistent with the aims of EU agricultural trade policy.

Environment

Adverse environmental impacts have particularly resulted from the intensification and concentration of production in particular regions. The evidence collected in this evaluation suggests that, with the notable exception of the poultrymeat sector in Brittany, the measures of the poultrymeat CMO have not been the major drivers for this intensification and concentration since this has been part of a longer term trend driven inter alia by the interplay of a number of economic, geographical and historical factors. However, as a component of the wider EU agricultural policy environment, the CMO has created a favourable economic environment for the continued growth and development of the sector and can thus be said to have had an indirect impact which is at odds with the aims of EU environmental policy.

Regional cohesion

This evaluation has not found any evidence on the issue of whether the CMO contributes to the Community objective of achieving greater regional cohesion by reducing economic imbalances between the regions. A priori it can, however, be stated that CAP Pillar 1 market support policies which operate horizontally across all regions will tend not to be in harmony with Pillar 2 and other Structural Fund measures which may be seeking to focus support on particular regions. Thus in the case of poultrymeat the bulk of support will tend to be directed towards regions with the highest concentration of production which will not necessarily coincide with those in greatest need of regional support measures.

3.5.3. Impacts of national measures on production

Regional and local planning permissions

No particular evidence was forthcoming from the stakeholder interviews or the case studies with respect to the impact of regional and local planning requirements on poultrymeat production, but based on analogous Agra CEAS work on the laying hen sector, a comment can be made that due to the large number of likely objectors in more prosperous and increasingly urban oriented rural areas it appears to be becoming increasingly difficult to locate new/expanded production units in such

regions. It was also noted in the case studies for a number of regions that there was increasing public concern with the adverse environmental impacts, particularly emissions to air, of intensive pig, poultry or laying hen units. This suggests that the need to comply with such rules may in some instances be leading to a relocation of production as the number of objections to any new unit/expansion of existing units may be high. We would note that in the long term this could result in a 'de-intensification' in areas that currently have relatively high livestock densities, although as stated above no evidence was forthcoming to suggest that these additional costs have affected production.

National restrictions on production due to environmental measures

No specific evidence of the impact on poultrymeat production of national measures designed to safeguard the environment was found by either the case studies or stakeholder interviews, but as has been noted in the review of the data from the case studies in response to Evaluation Question 9, all regions with intensive production of livestock have introduced measures to limit the adverse impacts of such production on air, soil and water quality in particular. The effects of these measures on poultrymeat output have not been specifically measured but some indication of costs incurred is available from FADN data.

Although there is no specific cost category in the FADN database for manure disposal and emission reduction, such costs would be included in the 'other specific costs' category (which includes expenditure on medicines, veterinary fees, waste processing etc.). Analysis of the FADN data (Appendix 6) shows that between 1989 and 2000, other specific costs for specialist poultrymeat producers remained relatively constant accounting for around 3-4%. However since 2000, other specific costs for these specialist poultrymeat producers have increased to 6% of the total specific expenses. It is expected that much of this increase is attributable to additional costs associated with manure disposal and emission reduction (Appendix 6). In 2003, specialist broiler producers spent an average €14,060 on total specific costs, suggesting that up to €422 is spent on manure disposal and emission reduction.

As has been indicated by the stakeholder interviews, where costs are incurred for disposing of manure, these differ both between and within Member States due to variations in production systems, location of the farm, size of farm, etc. Thus, while it is difficult to provide actual costs for manure disposal, various indications of what these costs may be were provided by the industry. In France, estimates from the ITAVI suggest that the cost of manure management totals €0.003/Kg liveweight for broilers (and €0.008/Kg liveweight for turkeys). In comparison, in the Netherlands average manure disposal costs totalled €19,000 per farm in 2001. This is much greater than the

EU average of €422 (FADN analysis) which reflects both the fact that farm sizes are generally greater in the Netherlands as well as the degree to which the Netherlands have implemented additional national requirements to limit domestic pollution.

Measures for improving animal welfare standards

There appear to be no specific additional welfare measures relating to this sector.

National restructuring measures

During the evaluation period, there is no evidence of national restructuring measures affecting the poultrymeat sector, although it is noted that in the Netherlands, a stock buy-up scheme for poultry producers leaving production was in operation from 2000 onwards (although no analysis of the scheme's impact is as yet available) and in France two restructuring plans have been produced more recently. The 2003/04 French plan envisaged the removal of 400,000m^2 of poultry breeding buildings, while a further plan that entered into force in 2005 is directed at poultrymeat producers in zones of structural surplus (for Nitrogen).

Co-financed and national investment aid

There appear to have been no particular co-financed or national measures for this sector apart from those coming under the heading of Rural Development Programmes for which no data on impact is available.

3.5.4. Is the scope and coverage of the instruments adequate to achieve the objectives of the CMO and to what extent is the CMO adapted to current market developments?

The above analysis suggests that the instruments of the CMO have been successful in the sense of contributing to the provision of a fair income for poultrymeat producers. The modelling analysis also indicates, however, that the instruments used to achieve such income support (export refunds and import tariffs) may not be the economically most efficient way of achieving the desired results in that there may be a high cost in terms of transfers from taxpayers and consumers to achieve the aim of securing farm incomes. It can also be said that although the CMO has been successfully adjusted to take into account the new trade realities arising from the URAA. At the same time the EU faces increased potential competition from third country exports while seeking to maintain higher welfare, health and environmental standards. The current scope and coverage of the CMO has helped the sector to meet the latter challenges and this could be said to provide a new rationale for the

CMO but this benefit must be weighed against the potential consumer and taxpayer cost of raising producer incomes. .

This having been said it is noted that in particular with respect to the export refund instrument, which is now focused largely on the frozen whole bird segment in view of the potential lack of coherence of the application of this measure with other Community policies, e.g. on the environment and animal health, consideration of the continued validity of the intervention/scope for further liberalisation or alternatively the need for restructuring support to this segment may be required. .

3.5.5. Conclusions and recommendations

Price reporting system

The evaluation assessed the extent to which prices reported to the Commission, which form the EU reference price for poultrymeat, *correspond* to the prices obtained by slaughterhouses, the extent to which the reference price reflects market developments and the extent to which this information is comparable across Member States.

The industry interviews undertaken indicated that for most Member States[141] the prices reported to the Commission *correspond* to the prices obtained by slaughterhouses, in terms of the extent to which the markets and quotation centres on which the reported prices are based can be considered *representative,* as well as *corresponding* closely to the prices obtained by slaughterhouses in *absolute* terms. Accordingly, the interviews supported the view that there is *correspondence* in that there is generally a high degree of *concordance* between the reported price and the price obtained by producers.

In terms of the comparability of prices between Member States stakeholders in a number of Member States took the view that the prices were useful for comparison with neighbouring markets suggesting comparability across borders. On the other hand, it was noted in Italy that due to the structure of retailing as well as the differing nature of production prices reported would not be directly comparable with those in other Member States. This leads to the conclusion that the prices reported are not fully comparable across all Member States.

In spite of this caveat, the information gathered by the price reporting system under the CMO for poultrymeat can generally be regarded as adequate for use by the

[141] The only exception reported was the Netherlands, where 90% of broilers sold are sold as chicken parts. Therefore the market for whole birds is not considered representative and thus the price of whole birds would not correspond to the price that slaughterhouses receive.

Management Committee as a basis to assess general trends in the sector. It was, however, noted that:

- In light of the changing structure of the sector and the increasing use of contracts in the sector it is important to ensure that the market *representativeness* of the data collected is regularly reviewed and maintained by ensuring that the market sample on which the price reporting system is based is sufficiently high.

- To possibly improve the timing of the application of market instruments such as export refunds/private storage some consideration might be given as to how it might be possible to establish an 'early warning' system for price developments.

- Greater efforts need to be made to ensure comparability of price data between Member States by reducing the variability between Member States by making adjustments to the calculations which would reduce the differences in terms of what is measured in each country.

Export refunds

The evidence from the historical analysis of the application of this instrument indicated that it was now primarily focused on maintaining the position of the segment of frozen chicken, mainly from France[142]. Looked at in aggregate across the EU and across the sector as a whole the evaluation has shown that the contribution of the measure to meeting the objectives of the CMO in terms of ensuring greater market stability and contributing to a fair income to producers is therefore relatively limited[143]. It was concluded that while the targeting of the measure had improved following the URAA the deadweight effect[144] associated with this measure remained relatively high.

Import regime

The above analysis of historical data suggests that the Community policy with respect to imports has played a significant role in supporting Community preference, in contrast to the analysis of export refunds, which were found to have had a relatively minor impact when looked at in aggregate at the EU level. This can be explained by the fact that import tariffs apply equally to all Member States, whereas

[142] In 2002 the proportion of poultrymeat export refunds attributed to France came to 84%

[143] If income is measured as gross value added at basic prices the modelling results indicate that for the period 2000-2002 export refunds increased the sector's contribution to the Economic Accounts for Agriculture adjusted for feed costs from €8.494 bn to €8.594 bn or more precisely by €100..2 million

[144] See Footnote 2 and Box A1 in Appendix 4.

the main beneficiary of export refunds in the sector has been a single Member State, i.e. France.

The modelling results indicate that as would be expected a priori, the import protection provided first by variable levies and subsequently by fixed tariffs is estimated to have led to lower volumes of total annual imports than would otherwise have taken place and that in the absence of border protection, the EU would likely shift from a net export to a net import position. Nevertheless, it is evident that third country imports have occurred with the full tariff duty paid, indicating that the level of protection has decreased as envisaged under the URAA, and for this reason *inter alia*, the competitiveness of third country production has increased. The continuing significance of the import protection in place is highlighted by the fact that relatively large volumes poultrymeat attracting relatively low rates of duty enter the EU from third countries.

Income level and development

The evidence suggests that the CMO measures have been effective in achieving their objective of contributing to the provision of a fair standard of living for farmers. The modelling results indicate that border protection measures did maintain prices and production and thus income at levels significantly higher than would otherwise have been the case, although the evidence suggests that in the broiler sector, export refunds have largely benefited conventional barn producers only, as there is virtually no demand for and no differentiation in refunds for higher cost birds produced in free range, organic or other types of production system. This having been said, the production sector in all Member States took the view that the prime drivers for income evolution in the sector were factors not directly linked to the CMO, notably demand conditions (including levels of retailer concentration) as well as export marketing strategies and branding.

Production costs

The primary component of poultrymeat production costs is the feed. Over the evaluation period, the cost of feed has fallen, primarily due to the CAP reform induced reduction in cereal intervention prices, rather than the CMO for poultrymeat itself. Nevertheless, the cost of poultry feed as a proportion of total poultrymeat production costs has decreased. Moreover, this decrease in the cost of poultry feed as a result of the reduction in intervention prices has more than offset observed increases in the cost of feed as a result of developments in Community feed legislation.

Compared to the positive impact of the CAP reform induced reduction in cereal intervention prices on the cost of poultry feed, the individual impact of changes in policies on manure disposal and emission reduction, animal welfare and animal health, although resulting in costs[145] to farmers, have *in general* been relatively small. That said, evidence from the case studies would suggest that the impact of these policies on costs differed *considerably* both between and within Member States.

As has been noted above the income benefits derived from the CMO instruments have helped the sector to absorb these costs.

Rural development and the environment

There is little evidence to support a conclusion that the CMO measures have had a direct impact on the concentration and intensity of production in certain regions, as these patterns have largely been observed since prior to the introduction of the CMO and are the result of the interplay of a number of economic, geographical and historical factors. The exception to this overall picture would appear to be the special case of poultry production in Brittany, where it can be argued that a new market (whole frozen chickens for export) has effectively been opened and maintained by the CMO. More generally as a component of the wider EU agricultural policy environment, the CMO has created a favourable economic environment for the continued growth and development of the sector and therefore can be said to have had an indirect adverse impact. Similarly, although the impacts of intensive poultry farming on the quality of water, air, land use and landscape may have intensified over the period, the impact of the CMO can be said to be largely indirect also (with the aforementioned exception of Brittany).

[145] While this Evaluation Question only concerns an analysis of the impact of different measures of the CMO as well as other policies related to them on production costs, it should be noted that such measures *may* accrue additional production benefits to producers as well as society as a whole.

4. Egg sector CMO evaluation

4.1. Introduction

4.1.1. CMO objectives

The overarching objectives for the CMO for eggs reflect those in Article 39 of the Treaty of Rome, namely:

1) to increase agricultural productivity;
2) to ensure a fair standard of living for farmers;
3) to stabilise markets;
4) to assure availability of supplies; and,
5) to ensure reasonable prices for consumers.

Figure 4.1 summarises the intervention logic of the CMO. As shown in this diagram, the various measures under the CMO for eggs (namely import tariffs, export refunds and marketing standards) aim to meet objectives 1, 2 and 3.

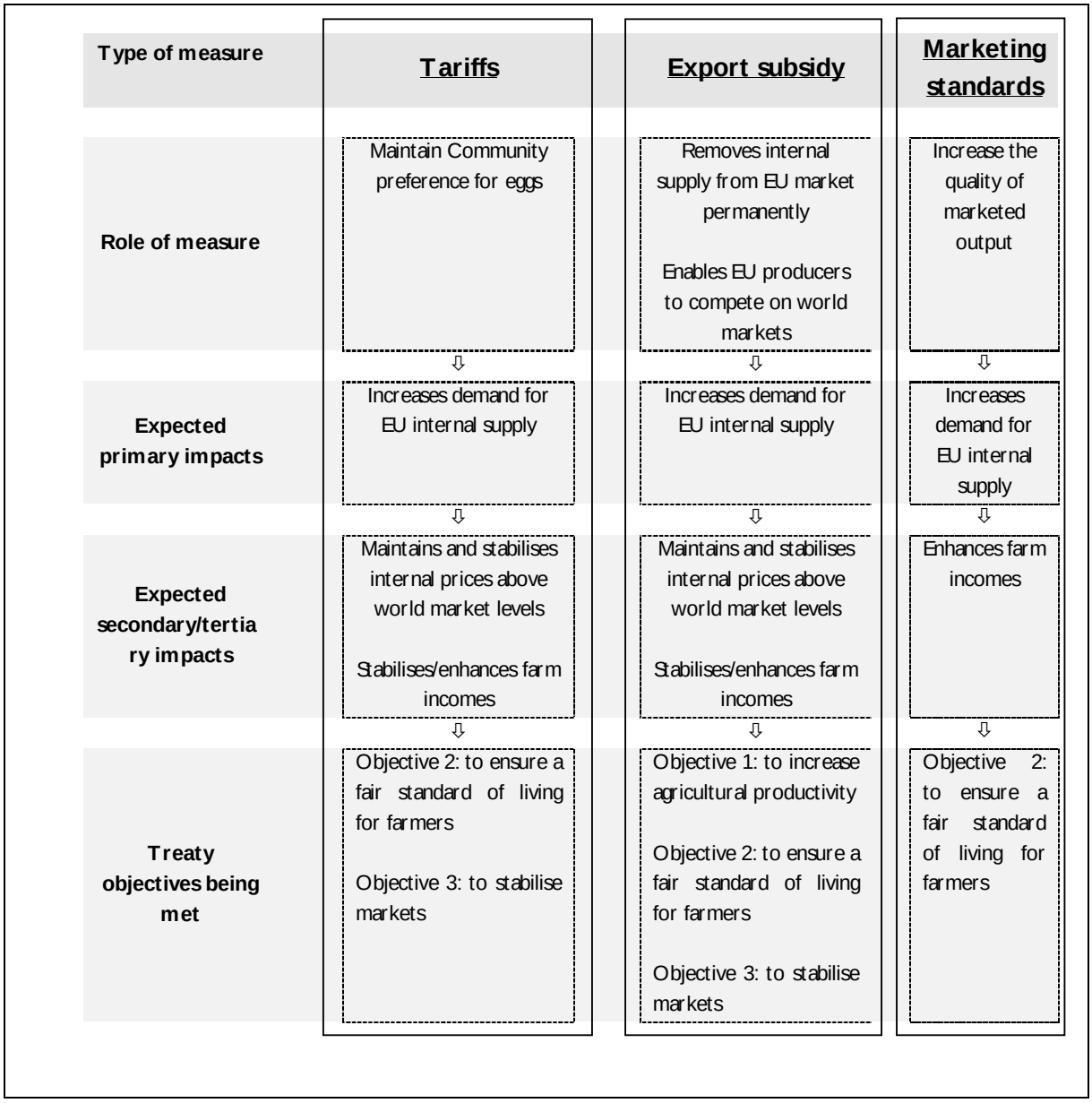

Figure 4.1: Intervention logic: Eggs CMO

4.1.2. Operation of the CMO instruments

The CMO for eggs does not include any guaranteed prices or direct aid, only protection at borders with a very low customs duty in accordance with the agreement reached during the GATT Uruguay Round. Minimum access quotas have been instituted, for which customs duties are limited to a percentage of the basic tariff. Moreover, a special safeguard clause provides for additional duties where the volume of imports rises too sharply or the price of imports falls too low. This safeguard clause has, however, not been invoked since 23 May 1996.

The egg regime (EC Reg. 2771/75) covers the following categories of products:

- poultry eggs in shell, fresh, preserved or cooked; and,
- other eggs, not in shell; and,
- and other egg yolks, fresh, dried, cooked by steaming or by boiling in water, moulded, frozen or otherwise preserved, whether or not containing added sugar or other sweetening matter.

The common agreements for eggs and poultrymeat were introduced in July 1967 via EC Regulations 122/67 and 132/67 and later replaced by the introduction of 2771/75 and 2777/75 in November 1975[146].

The EU has never operated a domestic support 'regime' for egg producers. It has relied in the past on tariffs to help stabilise the EU market and keep market prices in proportion to prices for cereals, and other costs, thus allowing EU producers sustainable profit margins. However, following the World Trade Organisation (WTO) Uruguay Round agreement, these tariff barriers have been gradually eroded.

4.1.3. CMO disbursements

Export refund payments to the EU egg sector have gradually declined since 1993 from 41 million Euro to 5 million Euro in 2003.

[146] Links to the individual pieces of legislation incorporated into the poultrymeat and egg regimes can be found at http://europa.eu.int/scadplus/leg/en/lvb/l11057.htm and http://europa.eu.int/scadplus/leg/en/lvb/l11056.htm, respectively.

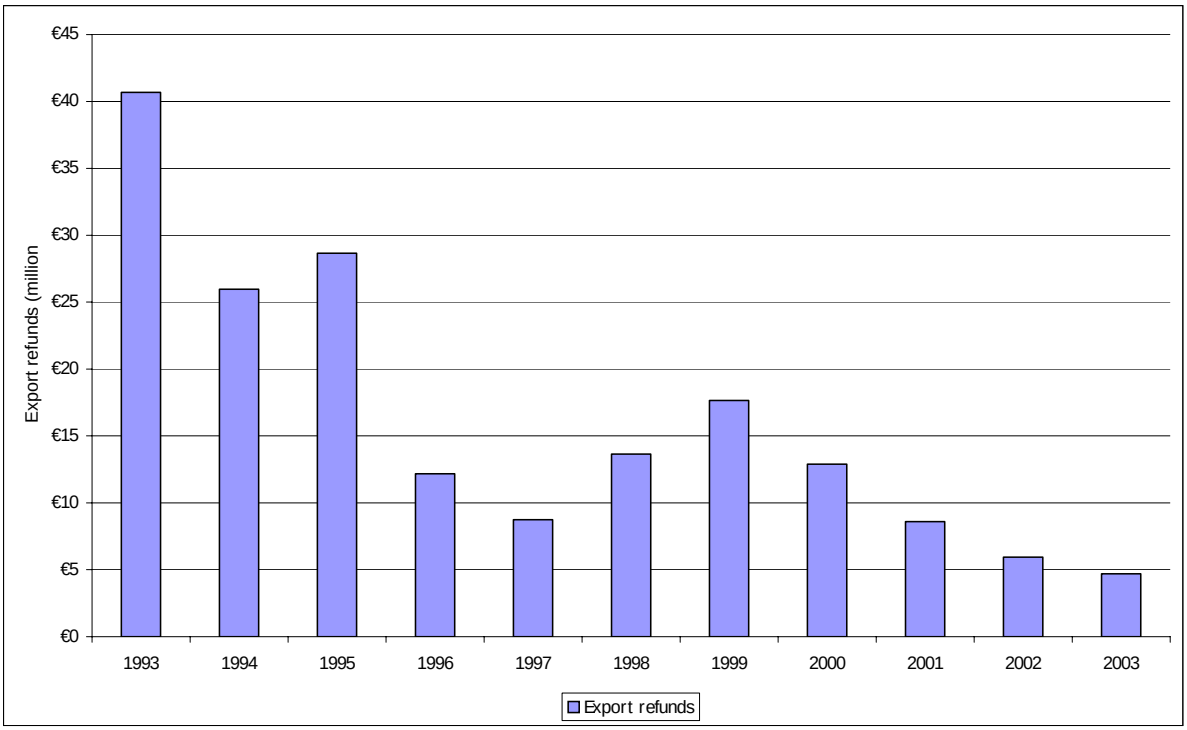

Figure 4.2: Egg CMO disbursements in EU 1993-2003 (million Euro)

Source: DG AGRICULTURE.

By far the largest recipient of export refunds has been the Netherlands, which has however, shown a substantial decline in receipts of refunds during the evaluation period from 26 million Euro in 1993 to 3 million Euro in 2003.

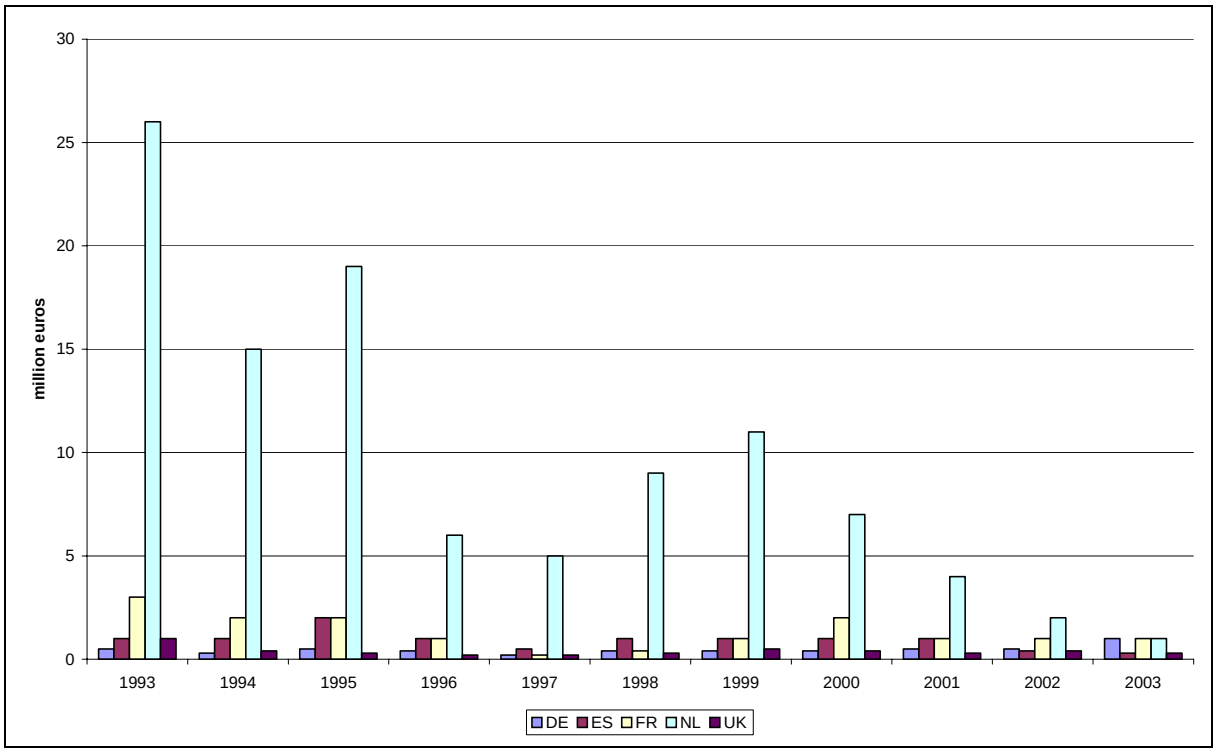

Figure 4.3: Egg CMO disbursements in case study countries 1993-2003 (million Euro)

Source: DG AGRICULTURE.

4.2. Theme 1: Market equilibrium and price stability

4.2.1. Question 1: Price reporting system

This evaluation question concerns the extent to which prices reported to the Commission, which form the EU reference price for eggs, *correspond* to the prices obtained by packers, the extent to which the reference price reflects market developments and the extent to which this information is comparable across Member States. For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.1.

4.2.1.1. Limitations of the techniques used for the analysis

This question has primarily been addressed through the interviews carried out with stakeholders in the sector. Clearly the validity of the results depends on the reliability of the estimates and views obtained from such stakeholders and therefore to ensure that these are as consistent as possible a range of stakeholders has been consulted in each Member State. It should also be noted that while the results obtained may hold for the period covered the picture may change quite rapidly as, for example, the number of markets covered by the price reporting system may be reduced or the structure and behaviour of the sector changes.

4.2.1.2. Analysis of results

Do the prices reported correspond to the selling price in packing stations?

All Member States have to report egg prices to the Commission on a weekly basis according to Regulation (EC) No 546/2003 (see Box 4.1 and Table 4.1). Under the terms of the Regulation, these prices are the selling price in packing stations for eggs in class A from caged hens, being the average of categories L and M.

Box 4.1: Commission Regulation (EC) No 546/2003

Commission Regulation (EC) No 546/2003 - Article 1 (1a) No later than 12.00 each Thursday, each Member State shall electronically notify the Commission of the selling price in packing stations for eggs in class A from caged hens, being the average of categories L and M.

Characteristics of grade A eggs

The Regulations specify the minimum characteristics for Quality Grade A (Appendix A of the regulation). All eggs which do not meet these requirements are Grade B and may only be passed to approved food industry undertakings. Grade A eggs may be described as "Extra" if they meet certain additional conditions.

Grade A eggs shall be graded by weight as follows:

- Very Large (XL) - 73g and above
- Large (L) - 63g-73g
- Medium (M) - 53g-63g
- Small (S) - below 53g

Eggs may also be marketed as "eggs of different sizes" with a net or minimum weight on the label. Further information on this mode of sale is available from the Egg Marketing Inspectorate.

Source: Commission Regulation (EC) No 546/2003 and Scottish Executive, 2005

Table 4.1: Reference price for eggs (in € per 100 Kg)

Yr/Mn	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1990	103.25	103.71	109.56	101.56	90.67	86.98	84.09	82.26	90.09	91.83	100.94	109.71	96.22
1991	102.78	104.48	107.50	96.19	83.63	82.92	79.58	86.01	88.36	90.74	102.42	107.82	125.02
1992	99.90	93.70	93.35	89.16	79.04	74.53	74.07	75.16	85.12	85.78	90.01	90.74	120.92
1993	85.44	83.52	97.15	93.65	76.94	74.87	74.17	79.47	83.71	83.76	87.58	96.35	113.84
1994	86.18	90.88	92.71	78.33	72.54	68.16	66.75	66.34	71.39	70.48	69.92	67.85	111.37
1995	67.06	87.15	83.86	77.01	71.64	71.51	70.47	76.58	88.53	90.36	92.69	99.49	122.09
1996	67.06	87.15	83.86	77.01	71.64	71.51	70.47	76.58	88.53	90.36	92.69	99.49	137.82
1997	105.71	109.71	103.58	91.29	82.48	82.25	85.63	88.58	93.40	91.53	94.22	100.61	136.90
1998	98.82	95.28	91.96	84.59	77.80	78.32	82.43	82.01	88.89	85.31	85.49	92.66	140.62
1999	83.87	83.35	86.68	75.61	70.76	69.67	69.63	70.92	83.97	82.51	89.04	96.80	133.46
2000	91.12	100.63	108.80	103.36	95.34	89.72	92.05	96.63	96.68	98.94	103.40	103.47	145.22
2001	96.86	98.99	100.27	95.31	86.77	83.46	85.72	88.01	91.62	94.85	84.02	106.81	151.97
2002	101.58	101.55	100.94	90.73	86.79	83.93	84.86	87.56	95.09	99.98	104.56	107.94	141.32
2003	99.71	98.97	105.95	106.97	98.10	94.68	93.10	98.56	126.45	133.79	136.65	134.04	110.58

Source: DG Agriculture.

In order to establish the correspondence between prices reported to the Commission and those obtained by packers it is necessary to first consider the extent to which the reported price is representative of the Member State sector. This varies according to Member State.

In the Netherlands, the reported price is drawn from four egg packers who together account for just over a quarter of eggs packed in the Netherlands. Despite this the Dutch NOP price (a producer price series) is often used in preference as it differentiates eggs by production system. In Spain, the 17 packers contributing data to the reported price account for a fifth of total eggs packed. In Denmark and Finland the largest packers contribute price information and the reported prices therefore take into account more than half of all eggs packed. However, in Denmark, a different price series, E-kontrollen, operated by the Poultry Council is considered more accurate as it differentiates prices according to production system. This series is drawn from 27% of total egg production sent through packing stations and includes premiums and deductions for quality.

In a number of other Member States it is not clear what proportion of transactions are covered by the reported price, but the industry uses the reported price series and considers it to be accurate, suggesting that it is representative. This is the case in Germany[147], Portugal, Greece and Belgium.

The prices reported to the Commission are not used and/or are not considered useful in France, the UK, Sweden, Ireland and Austria. The reasons for this differ, for example in Austria, at least half of the main packing stations contribute information, but the sector's view is that the information provided is not accurate with the same price reported for many weeks at a time[148]. A reference price calculated by Frischeier, a producer and marketing organisation whose members have around 1 million laying hens, 20% of the Austrian total, is used instead. In France the industry refers to the TNO price series which represents the wholesale price plus transport from packers to buyers and the TNO Industry price which is an *ex*-farm-gate price for eggs destined for the processing sector. Both TNO series are derived from a panel of buyers and sellers in the wholesale market, which accounts for 10% to 15% of the total egg market in France.

In the case of Denmark, it is clear that the price reported is actually that paid by the packers to the producers, and not *ex*-packer as it should be according to Regulation (EC) No 546/2003. This results in a consistently lower reported price for this Member State than should be the case.

[147] Although producers refer to the Weser-Ems price series suggesting that they find this of greater relevance.

[148] It should be noted that the government view is that the prices reported to the Commission are accurate and representative.

Does the information correctly reflect market developments?

Based on the above, the conclusion is that in most Member States the reported price series is not wholly representative of all transactions taking place in the industry. However, in some Member States reported prices are considered to be more relevant than in others and the extent to which a lack of representativeness invalidates the data is unclear. In most Member States the reported price is considered to provide an accurate indication of general price trends, even if the veracity of the absolute price is questioned. This suggests that even if not fully representative, the reported price is often considered to be in concordance with actual prices, in other words, the reported price may differ in magnitude from prices generally received, but these are correlated and the series do move together.

Furthermore, the reported egg price is calculated for eggs produced from caged hens. The proportion of eggs produced in this system varies according to Member State from around half the total in Sweden and Denmark to almost all production in, for example, Spain and Portugal[149]. The EU reference price is therefore be less relevant for packers dealing in eggs produced under alternative systems. In those Member States with a relatively high proportion of egg production taking place in alternative (non-caged) systems, this fact provides some explanation for the gap between the reported price series and prices actually received by packers which are usually higher[150].

Finally, in Portugal, for example, the fact that the reported price is collected on a Monday and Tuesday is reported to yield a higher price than would otherwise be the case - as prices tend to fall from Wednesday onwards in a weekly cycle[151].

Is the information comparable between Member States?

It is difficult to judge the extent to which the reported price is comparable between Member States. For example, in the case of Denmark, it is clear that the price reported is actually that paid by the packers to the producers, and not ex-packer as it should be according to Regulation (EC) No 546/2003. This results in a consistently lower reported price for this Member State than should be the case. The extent to which quality bonus payments/deductions are included in the price is also unclear in some cases. Where the price reported is clearly ex-packer, this should not be an

[149] See the Agra CEAS Consulting report to DG SANCO (2004) The socio-economic implications of the various systems to keep laying hens. Available from: http://europa.eu.int/comm/food/animal/welfare/farm/laying_hens_en.htm for further detail on production by system.

[150] This is considered a problem even by actors in Finland where there is a low proportion of production from alternative systems.

[151] Prices in Spain are also collected on a Monday and Tuesday, but there is no suggestion from the Spanish industry that this has any impact on the level of price reported.

issue, but in Belgium the price reported to the Commission appears to be a market price (itself based on a Dutch national price series (less €0.5 per 100 eggs) which differs from the price reported to the Commission from the Netherlands) and the industry states that this price does not include bonus payments/deductions for production system, quality, weight and shell colour.

A government official in a northern Member State expressed the view that prices are not comparable across the EU as a result of rather loose price reporting procedures. A Danish operator stated that prices are not comparable between Member States because of the inconsistencies in bonus payments which are not always included in the packer price data. The majority of those interviewed in Finland also expressed the view that reported prices are not comparable between Member States with the reporting conventions being interpreted differently and some of the resulting prices rather unrealistic as a result.

Despite the comments above, it is clear that some EU markets are highly linked to one another and that price evolution in these markets is comparable. For example, the German Weser-Ems price series is considered relevant by many in the Netherlands egg industry because around 40% of Dutch eggs are marketed in Germany. The Weser-Ems price also has relevance in Austria where the industry view is that Austrian caged egg prices depend heavily on prices in this German region. The Dutch NOP price is also considered relevant to the Austrian domestic market, as is the German Munich price, both of which are used in price negotiations between producers and packing stations.

4.2.1.3. Question 1: Price reporting system - synthesis of results and conclusion

Box 4.2: Main conclusions on price reporting system

Do the prices reported correspond to the selling price in packing stations?

In most Member States the industry interviews indicated that the prices reported to the Commission are not wholly representative of all transactions taking place in the industry. However, partly due to the fact that the reporting only addresses caged birds in some Member States reported prices are considered to be more relevant than in others and the extent to which a lack of representativeness invalidates the data is unclear. The proportion of eggs produced in this system varies according to Member State from around half the total in Sweden and Denmark to almost all production in, for example, Spain and Portugal[152]. The EU reference price is therefore less relevant for packers dealing in eggs produced under alternative systems. In those Member States with a relatively high proportion of egg production

[152] See the Agra CEAS Consulting report to DG SANCO (2004) The socio-economic implications of the various systems to keep laying hens. Available from: http://europa.eu.int/comm/food/animal/welfare/farm/laying_hens_en.htm for further detail on production by system.

taking place in alternative (non-caged) systems, this fact provides some explanation for the gap between the reported price series and prices actually received by packers which are usually higher[153].

Does the information correctly reflect market developments?

In spite of this in most Member States the reported price is considered to provide an accurate indication of general price trends, even if the veracity of the absolute price is questioned. This suggests that even if not fully representative, the reported price is often considered to be in concordance with actual prices, in other words, the reported price may differ in magnitude from prices generally received, but these are correlated and the series do move together. This suggests that the series is adequate for assessing general trends in the sector.

Is the information comparable between Member States?

In respect of the level of comparability between Member States of prices reported there is some scepticism in the industry concerning the extent to which the reported price is comparable. Despite these comments it is clear that some EU markets are highly linked to one another and that price evolution in these markets is comparable.

[153] This is considered a problem even by actors in Finland where there is a low proportion of production from alternative systems.

4.2.2. Question 2: Export refunds

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.2.

4.2.2.1. Description and analysis of the historic functioning of the instrument

Description of the export refund instrument

The standing refund for eggs and egg products has remained relatively stable over recent years. Being cereal based products refunds on eggs are based on the difference between EU and world market feed grain prices also taking into account the exchange rate between the Euro and the US dollar. Refunds under the CMO are mainly applied to egg products (e.g. egg ingredients in certain processed products) but also to eggs in shell, e.g. hatching eggs. Separate refunds are provided for non Annex 1 products (albumen). As set out in the intervention logic the aim of the refunds is to offset cost differences and assist in the stabilisation of the market if possible by acting counter-cyclically.

Analysis of historical data

The EU has been consistently self-sufficient in eggs with a small exportable surplus as can be seen in Figure 4.4. The smaller exportable surplus in 2003 is likely to be the result of avian influenza in the Netherlands and Belgium.

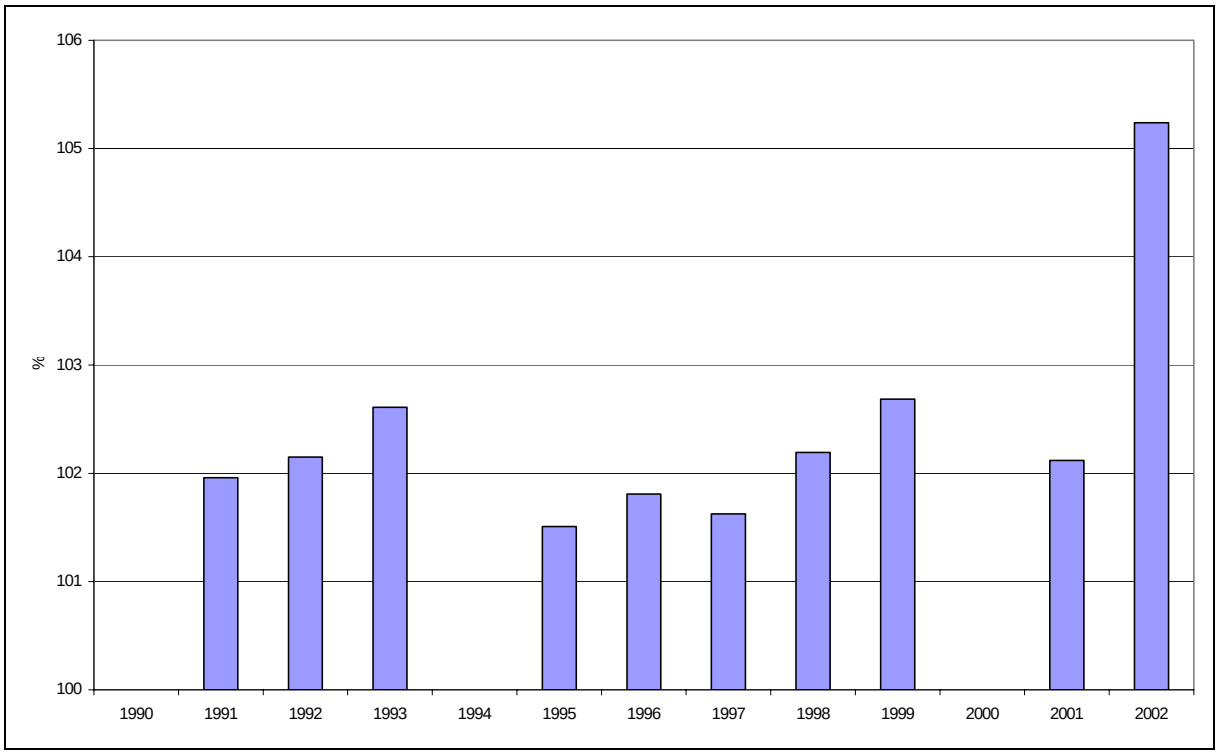

Figure 4.4: EU-15 self sufficiency in eggs 1990-2004

Source: Eurostat.

Examining the Member States in more detail for 2003, it can be seen that even with the avian influenza outbreak, the Netherlands still has the largest exportable surplus. Belgium, Finland, Spain, Portugal and Italy are also more than 100% self sufficient. The least self sufficient Member States are Germany, Austria, Denmark and Ireland.

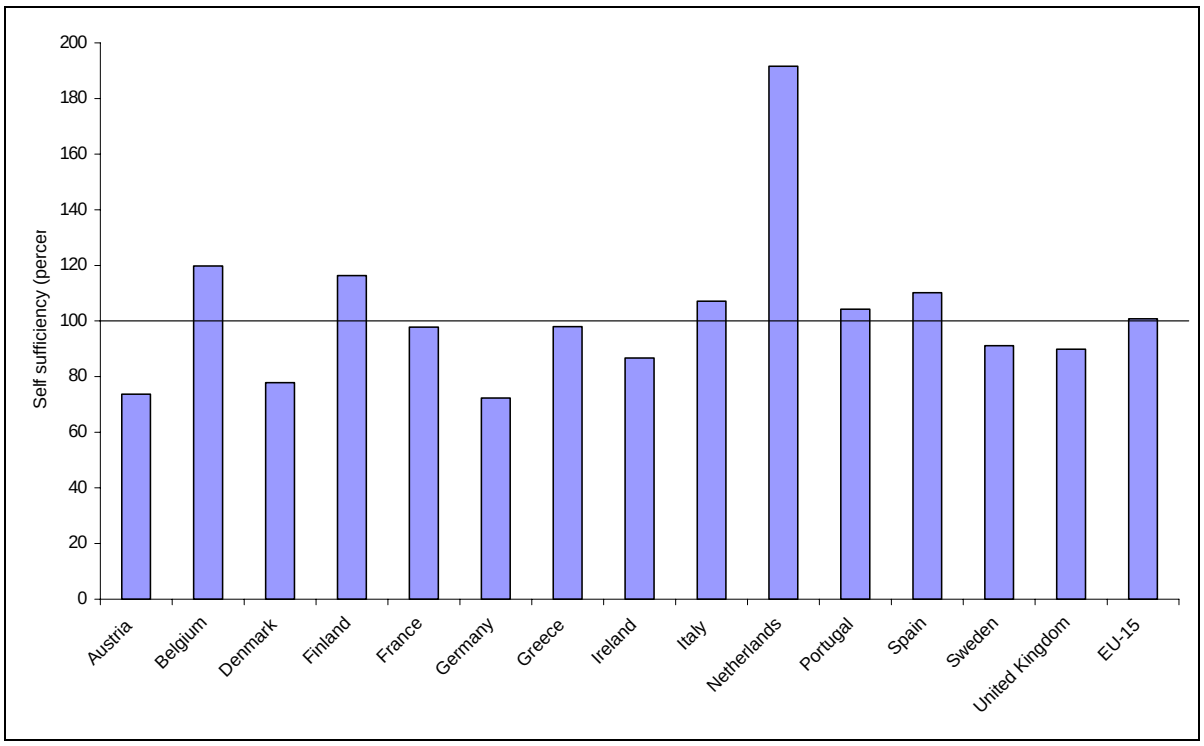

Figure 4.5: EU-15 Member State self sufficiency in 2003

Source: DG Agriculture.

There have been relatively few changes in this position since 1990, the most notable being the decline in self sufficiency in the Netherlands from 338% to 192% (43%) in 2003, partly the result of avian influenza and partly due to a general reduction in self sufficiency; a decline of 21% for Denmark from 99% to 78% self sufficient and increases of 13% and 12% respectively for Spain and Italy turning both from having a small net import requirement to having an exportable surplus. Both Austria and Sweden went from self sufficiency in 1991 to having net import requirements in 2003 whilst Finland's self sufficiency became an exportable surplus.

The evolution of EU-15 third country trade is presented in Figure 4.6. The upper part of the vertical line marks exports and the lower part imports. The column shows the trade balance with the positive values indicating net exports. The EU-15 has been a net exporter throughout the period shown with a general upward trend between 1990 and 1995 and again from 1996 to 1999. Since 2000 the trade balance has worsened, although it remains positive.

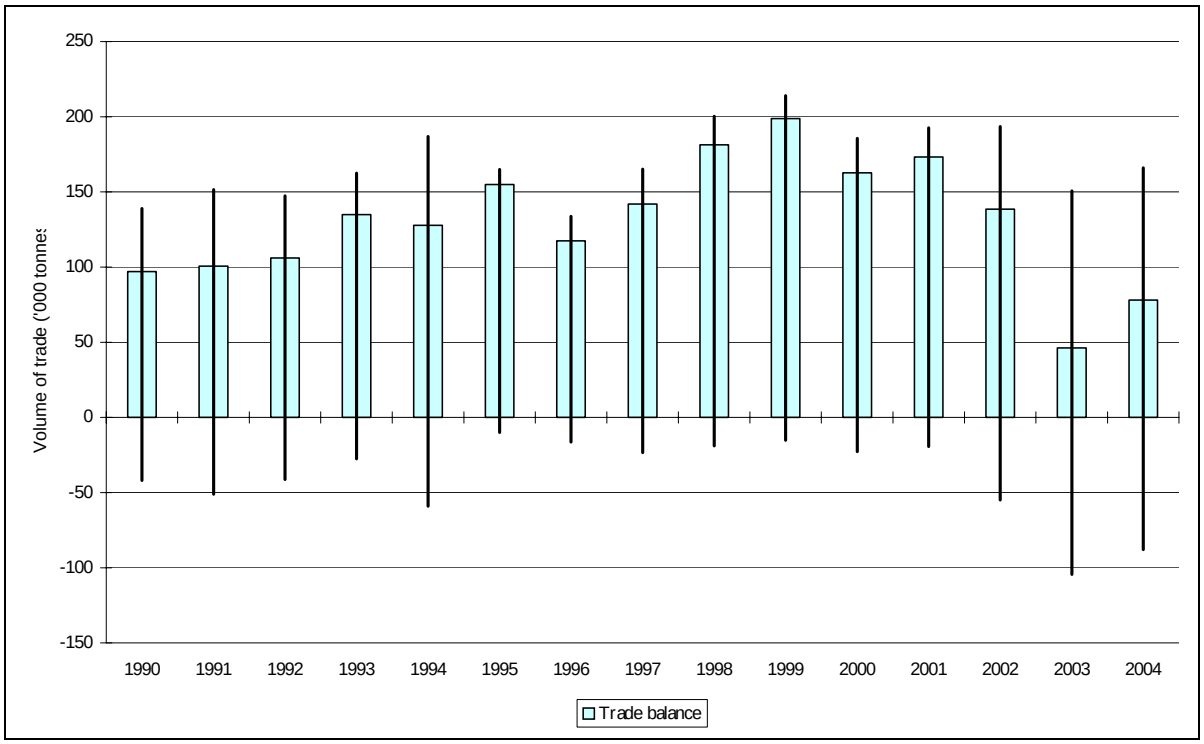

Figure 4.6: Third country imports, exports and trade balance for eggs EU-15 1990-2004

Note: 1990 is EU-12.
Source: DG Agriculture.

The main suppliers to the EU are the US, Norway and Israel. The main export destinations are Japan, Switzerland and China.

Analysis of export refunds

Table 4.2 describes the expenditure on export refunds for the egg sector, which has generally declined over the period between 1991 and 2003. Expenditure on refunds on the egg content of non-Annex 1 products is shown in Table 4.3, which increased during the period 2000 to 2005.

Under the URAA, the EU committed to cut the volume of egg and egg product exports benefiting from export refunds by 21%. Based on the average annual exports between 1986 and 1990[154] of 125,000 tonnes, subsidised exports had to be cut by 26,200 tonnes to 98,800 tonnes by July 2001. This represented a decline on the volume of exports supported in the period running up to the URAA indicating that a

[154] The base period for computing most export refunds is 1986-1990. This differs from the 1986-88 base period used for several other provisions of the URAA, and perhaps reflects the desire of the negotiating parties to establish a higher base since export refunds were increasing during this period. On top of this, a "front loading" accord was negotiated which allowed the use of the 1991-92 period as the starting point for reductions, if higher, although the end-point remained that based on the 1986-90 base period level. This front loading provision proved to be particularly useful in the case of certain agricultural products.

more 'prudent' approach to the use of refunds needed to be adopted after URAA implementation and as is shown in Tables 1.3 and 1.4 this has indeed been the case as lower average expenditure and lower average volumes of exports with refunds have occurred since the URAA was adopted. It should nevertheless be noted that the URAA constraints on expenditure appear not to have been particularly onerous to comply with as expenditure has tended to remain well below the URAA ceilings. The expenditure on export refunds had to be reduced by 36% or €24.5 million over the six-year period, from €68.0 million to €43.5 million. As is shown in Table 4.2 as a consequence of the URAA, refunds on shell eggs and related products have fallen from a peak of €40.7 million in 1993-94 to €4.6 million in 2002-03, although it should be noted that refunds on non-annex 1 products (primarily egg albumen) amounted to €6.2 million in 2002/03 .

As is illustrated in the data and confirmed by interviews with the market management unit within DG Agriculture, in contrast to the poultrymeat sector where refunds have been used to maintain exports to a particular 'traditional' market, in the egg sector the refunds have mainly been used counter-cyclically. Thus refund levels have been raised when the reference price has been decreasing in order to ensure that the selling price covers the costs of production. The degree to which this has occurred is illustrated in Figure 4.7 below. This shows that refund expenditure has tended to peak when prices have been relatively low and conversely refund expenditure has generally fallen when prices have tended to rise. This indicates that in line with the objectives of the CMO the instrument has generally been used to stabilise the market when there has been a serious need for support.

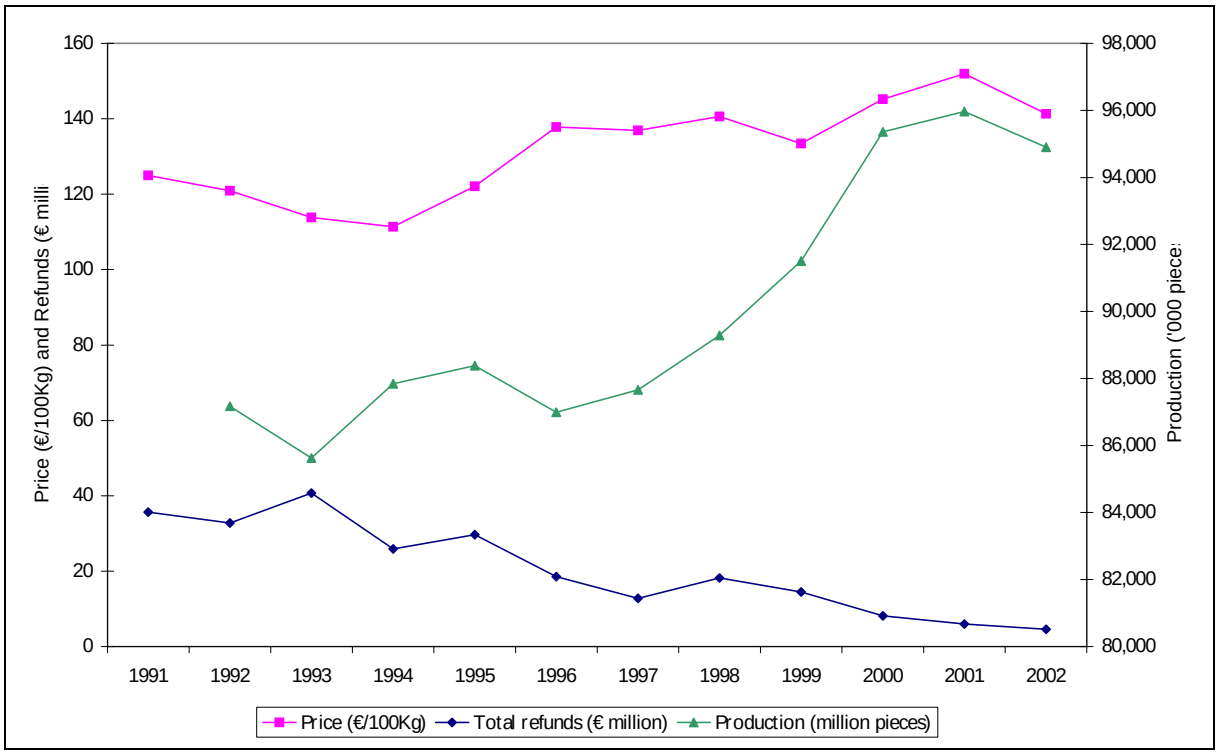

Figure 4.7: Export refund expenditure, EU egg production and EU reference price

Source: ZMP, Eurostat, DG Agriculture.

Table 4.2: Export refunds in the egg sector, 1991 – 2003 (€ million)

Marketing Year	EU-12								EU-15															
	91/92		92/93		93/94		94/95		95/96		96/97		97/98		98/99		99/00		00/01		01/02		02/03	
	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget	€ mio	Budget
Total refunds on Eggs	35.7		32.8		40.7		25.9		29.7		18.6		12.8		18.2		14.5		8.2		6.0		4.6	
Non differentiated data	35.7	91	32.8	92	40.7	93	1.1	94	0	95														
Eggs for hatching	-		-		-		6.6		5.0		5.9		2.7		3.9		4.0		3.1		2.5		2.0	
							6.6	94	4.6	95	3.5	96	0.4	97	0.5	98	0.6	99	0.2	2000	0.3	2001	0.3	2002
									0.4	97	1.9	97	2.1	98	3.2	99	3.2	2000	2.6	2001	2.1	2002	1.7	2003
											0.5	98	0.2	99	0.2	2000	0.2	2001	0.3	2002	0.1	2003		
Eggs in shell	-		-		-		16.6		22.4		10.7		9.2		13.2		9.5		4.0		2.8		1.8	
							16.6	94	21.9	95	7.5	96	1.8	97	2.5	98	2.1	99	0.6	2000	0.6	2001	0.3	2002
									0.5	97	2.9	97	6.7	98	10.1	99	7	2000	3.3	2001	2.1	2002	1.5	2003
											0.3	98	0.7	99	0.6	2000	0.4	2001	0.1	2002	0.1	2003		
Egg products							1.6		2.3		2.0		0.9		1.1		1.0		1.1		0.7		0.8	
							1.6	94	2.1	95	1.2	96	0.0	97	0.0	98	0	99	0	2000	0	2001	0	2002
									0.2	97	0.6	97	0.7	98	0.7	99	0.6	2000	0.9	2001	0.5	2002	0.8	2003
											0.2	98	0.2	99	0.4	2000	0.4	2001	0.2	2002	0.2	2003		

Note: Data excludes non-Annex 1 products.
Source: DG Agriculture.

Table 4.3: Export refund expenditure for egg content of non-Annex 1 products, 2000-2005 (€ million)

Year	€ million
2000/2001	5.3
2001/2002	4.3
2002/2003	6.9
2003/2004	6.2
2004/2005	8.9

Source: DG ENTR

Table 4.4: Egg exports with and without refund (tonnes egg equivalent)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
With refund	90,089	111,475	103,048	109,907	114,371	138,582	71,622	80,576	108,452	117,326	85,008	86,265	75,690
Without refund	18,013	13,474	12,948	11,688	8,997	9,577	37,175	43,812	38,046	41,565	42,635	47,159	53,603
Total exports	108,101	124,949	115,996	121,595	123,368	148,159	108,797	124,388	146,498	158,891	127,643	133,424	129,293

Source: Eurostat and DG Agriculture.

The result of the historical data analysis indicates that export refunds have tended to be used counter-cyclically to stabilise markets in line with the intervention logic of the instrument. The overall use of the instrument has tended to decline particularly since the URAA and this suggests that a more 'prudent' approach to the use of refunds was adopted at this point although the expenditure ceiling as such did not prove to be a constraint.

4.2.2.2. Modelling results

In order to assess the impact of a particular policy instrument it is useful to establish the counterfactual i.e. what would have occurred by way of impact if the instrument had not been used. In order to provide clear results on some of the evaluation questions, this aspect of the assessment was therefore addressed using the CAPSIM econometric model. The operation of this model is discussed in detail in Appendix 3. Full details of the modelling results can be found in Table 4.5 and Appendix 4 section 4.3.1.

Assumptions and limitations of the model for the analysis of egg export refunds

The general limits of the model are determined by its specification i.e. by what it sets out to address from the start. First the CAPSIM model is specified at the level of individual EU Member States. It is a 'partial equilibrium' model, meaning that it does not cover the whole economy but focuses on agriculture. Within agriculture it distinguishes between beef, veal, pigmeat, sheep meat, poultrymeat, eggs, butter,

cheese, skimmed milk powder, and other milk products to mention the most important outputs from the animal sector. However, CAPSIM does not differentiate between the different cuts, qualities and preparation forms real market participants are dealing with. Furthermore it is a 'comparative static' model which implies that the model seeks to indicate average and medium outcomes rather than picking up yearly particularities resulting from short run fluctuations on the adjustment path to a new equilibrium. For this reason all simulations conducted for this evaluation are carried out not for single years but for three year averages. Finally it is a *'deterministic'* model, which means it ignores random factors and removes certain issues such as the merits of market or income stabilisation policies from the array of questions which can be addressed. The above model characteristics are clearly simplifications of reality which are nonetheless typical for applied modelling. Finally it should be noted that the model results rest on the parameters of the model which in themselves cannot be determined with certainty. Given these general limitations it is clear that these, and indeed all, modelling results have to be supplemented with expert judgement to answer evaluation questions.

The main assumptions beyond the general characteristic of the modelling tool mentioned above relate to the parameters driving export demand for subsidised and unsubsidised exports. They have been specified based on the literature, but the final choice also reflects plausibility assessments.

It is not possible to present concisely the key basic data in the simulation model (production and trade quantities, prices, tariffs, export subsidies) on which the simulations are based. This is because equilibrium models determine the endogenous variables (production and trade quantities, market prices, border prices) as solution values of a set of equations (behavioural functions, market balances and other constraints) which depend in turn on certain exogenous variables (macroeconomic variables, tariffs and other policy instruments). A change in an exogenous variable, say a tariff cut, will disturb the equilibrium such that a new solution of the set of equations results. Because the tariff inclusive border price would be below initial EU market prices, for example, the price linkage would be disturbed which triggers an increase in imports leading to an increase in border prices according to the Rest of the World import supply function. Whereas in reality these adjustment would occur in a sequence of disequilibria, the partial equilibrium model determines the required changes of endogenous variables in one step which gives the new simulation result for the tariff cut.

Synthesis of CAPSIM modelling results

Table 4.5: Impact of export refund removal on the egg sector

	Unit	1990-92			1995-97			2000-02		
		Base	Simulation	Change	Base	Simulation	Change	Base		Change
Export volume	000 tonnes	131	69	-47.3%	106	76	-28.3%	125	102	-18.4%
Price	€/tonne	€ 1,073	€ 1,061	-1.2%	€ 1,011	€ 1,004	-0.6%	€ 972	€ 967	-0.5%
Supply	000 tonnes	5,260	5,207	-1.0%	5,240	5,212	-0.5%	5,718	5,698	-0.4%
Demand	000 tonnes	5,161	5,165	0.1%	5,158	5,159	0.0%	5,631	5,632	0.0%
World Trade	%	32.8%	17.4%		36.4%	24.2%		18.1%	14.8%	
Self-sufficiency	%	101.9%	100.8%		101.6%	101.0%		101.5%	101.2%	
EEA net contribution	€ million	2,893	2,802	-90.4%	2,731	2,684	-46.8%	2,964	2,928	-36.8%
EEA net contribution *- 15% cereal price cut*	€ million	2,893	2,888	-4.4%	2,731	2,712	-19.3%	2,964	2,969	4.5%
Welfare		**Total difference**			**Total difference**			**Total difference**		
Income (GVAB)	€ million	-74.4			-39.4			-32.0		
EAGGF expenditure	€ million	32.8			15.7			11.4		
Consumer welfare	€ million	75.2			39.8			31.9		

Source: CAPSIM

4.2.2.3. Interview results

Assumptions and limitations of the interviews

Interviews were conducted with industry stakeholders and experts in each Member State. The interviews were semi-structured, involving a series of open-ended questions based on the topic areas. The open-ended nature of the questions defined the topic under investigation but provided opportunities for both interviewer and interviewee to discuss some topics in more detail. Because of the personal nature of interviewing, the scope for introducing error and bias is quite large and can affect all the subsequent stages of the interviewing process, such as recording and interpreting the answers.

The most significant limiting factor of the interviews as a tool for evaluating the CMO was found to be a significant lack of knowledge and understanding of the role and activities of the CMO including among public sector staff with responsibility for the sector. This was often interpreted by the respondents as indicating a lack relevance to the Member States concerned, but also resulted in a failure to provide relevant national data relating to the sector and the evaluation questions.

What impacts do export refunds have on export volumes?

It is interesting to note that there is a widespread perception in the egg sector that extra-EU exports of egg products would be reduced dramatically or even cease if export refunds were removed. There may also be a change in the mix of products exported. This perception tends to be more widespread (and the likely impact considered to be more extreme) in Member States making third country exports. This would appear to be in contradiction to the model results which show a reduction in third country exports if refunds were to be removed, but these do no suggest that exports would cease. The result may explained by the fact that non-Annex 1 products are implicit rather than specified in the model[155] and it is these products which are likely to be those referred to in this context. It should be noted that export refunds are of great importance for non-Annex 1 products and influence export volumes considerably.

Interviews in the egg sector suggest that while the overall impact of export refunds is small, the presence of this policy mechanism was nevertheless a key driver in the establishment of EU exports (predominantly from the Netherlands and Belgium) on

[155] A linear relationship with constant volume is assumed.

the world market[156], mainly by countering the higher cost of production arising from higher cereal prices. Although reforms to the cereal regime have resulted in lower feed costs over the evaluation period (and this can be seen in the declining impact of export refunds and increasing deadweight effect[157] (see Appendix 4 section 4.3.1.)), export refunds today are considered to help to compensate for higher production costs in the EU arising from higher environmental, sanitary and welfare standards than many third country competitors[158]. This is considered to be particularly the case where the EU competes with India and China in other (non-Japanese) Asian markets. In this context industry organisations note that the full implementation of the EU food hygiene regulations from January 2006 and the IPPC measures from January 2007 will add to the cost of this regulatory burden, as will the costs associated with changing to enriched cage production systems from 2012.

Industry commented that export refunds are especially important for processed products that are not considered likely to be competitive on the world market without this support. In the absence of the measure certain egg products are not expected to remain competitive on the world market and it is thought this would have a knock-on effect on domestic prices for egg products and also on the domestic shell egg sector. Export refunds are also considered important by some actors (although this depends on the Member State) in compensating for seasonal supply fluctuations on the EU market, especially in periods when a strong Euro results in larger differences in EU and world prices. This counter-cyclical effect is, however, lagged with typically some months between the industry's perceived need to adjust supply and changes to export refunds.

What impacts do export refunds have on Community price levels?

The consensus view among interviewees is that export refunds have had a small, but positive impact on domestic price as a result of the low levels of extra-EU trade. This impact is considered to be more significant where a Member State exports to third countries with export refund. In summary, therefore, other market factors such as disease outbreaks, retailer pressure etc. are considered to have a far greater impact on egg sector prices than the export refund instrument.

[156] This is predominantly the view of those who use export refunds for processed products. Other parts of the EU egg industry (and Member States who do not make third country exports) do not attach so much importance to the refunds, although many actors consider that a knock-on effect in Member States not making third country exports is likely.

[157] See Footnote 2 and Box A1 in Appendix 4.

[158] Some traders commentated that export refunds would need to increase to keep pace with an increasing regulatory burden as higher animal welfare standards and a better environmental profile are not demanded on the world market.

What impacts do export refunds have on supply and demand volumes on the internal market?

Those interviewed did not generally consider that export refunds had any significant impact on supply and demand levels on the domestic market. There were a number of reasons for this assertion, primarily because export refund expenditure has been concentrated in a few Member States and because the significance of export refunds has gradually decreased over time. Another factor was thought to be the relatively low trade volumes in the sector compared to other sectors.

What impacts do export refunds have on the competitive position of Community egg production on the internal market and in third countries?

It is considered likely by many in the industry at all levels that there would be some displacement effects in the absence of export refunds. Exports of processed products no longer competitive in third country markets may be competitive in intra-EU markets and might displace processed production in less competitive Member States. If this led to the closing of processing facilities in some, less competitive, Member States this would be likely to have an impact on the shell egg markets in these countries by reducing overall returns to producers who are less likely to be able to dispose of second quality eggs in the processing sector[159]. There will of course be no displacement impact in Sweden or Finland where all imports of shell eggs are banned to maintain salmonella-free status.

4.2.2.4. Synthesis of results from the tools used and conclusions

The key results from the analysis of the egg sector derived from the historical data, stakeholder interviews and the modelling in relation to the EQs are as follows:

Impact of export refunds on export volumes

The analysis of the **historical data** indicates that export refunds for shell eggs tend to operate in a counter-cyclical sense in that refund expenditure is incurred when market prices in the sector fall. Thus correlation of the relationship between the reference price and total refunds indicates there is a strong inverse relationship between these two elements (correlation coefficient of –0.83) which strongly suggests such a link exists. It should be noted that this does not apply to processed egg products (primarily the non- Annex 1 product egg albumen which the EU has a continuous surplus of) where the refunds are primarily used to support and sustain exports to a third country market (Japan).

Stakeholder interviews confirmed that export refunds are especially important for processed products that are not considered likely to be competitive on the world market without this support. In the absence of the measure certain egg products are not expected to remain competitive on the world market and it is thought this would have a knock-on effect on domestic prices for egg products and also on the domestic shell egg sector.

As would be expected a priori the **modelling results** for the shell egg sector indicate that export refunds have a significant positive impact on export volumes raising exports 65% above what they would have been in the absence of the instrument in the 1990-92 period, 43% in 1995-97 and 23% in 2000-02. There is, however a relatively high deadweight effect[160] involved (46%, 62%, 72% respectively) suggesting that some refunded exports might have occurred even without the presence of the refund (see Table 4.5 and corresponding paragraph in Appendix 4 section 4.3.1).

The conclusion from the above analysis is that export refunds in the shell egg and related products sector are used countercyclically to respond to market imbalances but that they also have a significant impact on the relatively modest volumes of such exports. In this context a high deadweight effect[161] was noted in the application of the measure suggesting that such exports might well have occurred even in the absence of the refunds. By contrast it was noted that by stakeholders that exports of non-Annex 1 products primarily in the form of egg albumen were highly reliant on the use of the refunds to maintain their competitive position and hence export volumes.

Impact of export refunds on supply and demand volumes on the internal market and price

Stakeholder interviewees considered that export refunds have a small but significant impact on price, supply and demand volumes on the internal market but that other factors such as changing consumer preferences, retailer pressure, disease outbreaks etc. were of far greater significance.

This view is confirmed by the **modelling analysis** of the counterfactual i.e. removal of the refund, which indicates that the aggregate impact of the measure on price is relatively small pushing up prices by respectively 1.1%, 0.6% and 0.5% in the three time periods considered. Supply (production) impacts are estimated at under1% in

[159] Typically the processing sector absorbs eggs which cannot be sold in shell (although some eggs are also produced specifically for processing on contract). Without a market for these eggs overall returns to producers would be reduced.

[160] See Footnote 2 and Box A1 in Appendix 4.

[161] See Footnote 2 and Box A1 in Appendix 4.

each period and impacts on demand are negligible. These results are in line with expectations in that the weight of the intervention is relatively low (and declining) in relation to the size of the sector i.e. at most 2.2% of production is supported (see Table 4.5 and corresponding paragraph in Appendix 4 section 4.3.1).

In conclusion the impact of refunds on price demand and supply in the shell egg and related products sector is small and, as has been confirmed by the stakeholder interviews, is likely to be less significant than a range of other external factors including changes in demand driven by general economic performance, exchange rate fluctuations, impact of disease outbreaks, animal welfare concerns etc.

Impact of export refunds on the competitive position of Community egg production on the internal market and in third countries.

Stakeholder interviews indicated that export refunds are especially important for processed non Annex 1 products such as egg albumen which are not considered likely to be competitive on the world market without this support.

In terms of improving the competitive position of shell eggs and related products on the internal market the effect of the refunds has been estimated through the **modelling** of the counterfactual (i.e. the removal of refunds). This indicates that the effect on self sufficiency is extremely marginal in that it raises EU self sufficiency by 1.1% in the 1990-92 period, 0.6% in the 1995-97 period and a mere 0.3% in the 2000-02 period (see Table 4.5 and corresponding paragraph in Appendix 4 section 4.3.1). This is as would be expected a priori given the relatively low weight of the intervention in terms of budgetary expenditure.

As would be expected a priori the modelling results indicate that export refunds improve the competitive position of the EU in the shell egg and related products sector by increasing its share of world exports above what it would have been in their absence. Thus in the 1990-92 period it is estimated that the EU share of world exports was boosted by 15.4%, in the 1995-97 period by 12.2% and in 2000-02 by 3.3% (see Table 4.5 and corresponding paragraph in Appendix 4 section 4.3.1). These results must, however, be seen in the context that world trade in these products is relatively low.

In conclusion the aggregate effect of the export refunds on the competitive position of the EU egg sector internally and externally is marginal although it should be noted that for the sub-sector covered by non-Annex 1 refunds the impact is considered significant.

If impacts can be identified, are they significant, in particular in relation to other determining external factors? If impacts are significant, what is their dimension and are they achieved at a reasonable budgetary cost?

The **modelling** results indicate that export refunds increase the contribution of the egg sector adjusted for feed costs to the Economic Accounts for Agriculture by a relatively small and declining amount (€90.4 million in 1990-92, €46.8 in 1995-97 and €36.4 million in 2000-02) (see Table 4.5 and corresponding paragraph in Appendix 4 section 4.3.1). This highlights the fact that the egg market is strongly influenced by other factors, notably feed costs.

The overall effect on producer and total welfare[162] was estimated by means of the CAPSIM model which indicates that in aggregate the measure added some €74 million to producer welfare in the 1990-1992 period with EAGGF budgetary expenditure incurred of €33 million. This in turn generated consumer and downstream sector welfare costs (in terms of higher prices) of some €75 million (see Table 4.5 and corresponding paragraph in Appendix 4 section 4.3.1). While clearly the assumptions underlying these estimates may be discussed this suggests that in this period an overall small net welfare loss was incurred which casts doubt on the efficiency of the measure. A similar relationship holds for the later periods modelled although the orders of magnitude are considerably lower due to the lower welfare impact and budgetary expenditure for the measure and it should be noted that a change in the assumptions could relatively easily lead to different absolute outcomes.

The above results from the historical data and modelling analysis were generally confirmed and validated by the **stakeholder interview** results which indicated that stakeholders considered the refunds worked countercyclically, had generally declined in importance but remained of significance in that they helped counteract the higher costs experienced by producers within the EU. More generally stakeholders noted that other market factors such as retailer pressure, changing consumer demand trends, disease outbreaks and regulatory requirements had a greater impact than the export refund instrument itself.

[162] as measured by gross value added at basic prices

Box 4.3: Main conclusions on export refunds

The evidence from the historical analysis of the application of this instrument indicated that it was effective in counteracting market imbalances by acting countercyclically and thus stabilising the market in line with the objectives of the CMO. It was concluded from the modelling that the deadweight effect[163] associated with this measure was, however, relatively high. On the basis of the historical analysis and interviews it was noted that for egg products the refund was used to maintain a third country market presence for a product (egg albumen) which is reported to be in continuous surplus in the EU.

This leaves open the question of whether the budgetary expenditure incurred can be considered 'reasonable'. The evaluators take the view that they cannot make a final judgement on this issue as it involves issues of equity between different segments of the population. This having been said the evaluation results have highlighted the direction and likely extent of transfers being made and thus the nature of the choice involved.

[163] See Footnote 2 and Box A1 in Appendix 4.

4.2.3. Question 3: Import tariffs

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.2.

4.2.3.1. Description and analysis of the historic functioning of the instrument

Description of the import tariff instrument

Prior to the URAA, in a manner analogous to that described for pigmeat, sluicegate prices were set quarterly for eggs in shell which acted as a minimum import price. The sluicegate price was composed of three elements: a variable amount to represent the world market value of the quantity of cereals used to produce one kilogram of pigmeat abroad; a fixed element to represent the cost of other protein feed used in producing the same kilogram and a further element to represent overhead, production and marketing costs. To this sluicegate price a levy was added which represented the difference between producing one kilogram of eggs in shell and in third countries. This levy in turn reflected the difference between feed cereals used to produce eggs in the Community and that in third countries as well as a component to cover processing costs. Levies were also applied to hatching eggs and to egg products.

As part of the Uruguay Round Agreement on Agriculture, the EU variable import levy on most agricultural products had to be converted into fixed import tariffs ("tariffication"). These tariffs were subject to reduction commitments over the implementation period. For eggs and egg products, the tariffs had to be cut by 36% over the implementation period, from an initial rate of €164/tonne to a final tariff of €105/tonne. As part of the URAA, minimum access quotas were established for the import of eggs and egg products into the EU. Table 4.6 presents data concerning the EU preferential tariff rate quotas which currently amount to 135,000 tonnes for shell eggs and 22,500 tonnes for egg products.

Traders importing under a TRQ must be in possession of a valid import license before imports can be effected. However, where traders wish to take advantage of the reduced tariffs that apply to shipments within the import tariff rate quotas (TRQs) in place for certain products, they must be in possession of a TRQ import license. The method by which this import license is issued is: i) on a first-come, first-served basis; ii) to traders who have imported in the past; or iii) it may be made freely available to all who wish to request an import license, but with all applications scaled back the match the quantities available. Traders must lodge a surety when taking out an

import license, which will be released when the import is effected. Failure to use the license will result in forfeiture of the surety.

Table 4.6: Preferential import quotas on eggs and egg products, 2004/05

Import quotas on eggs and egg products (1 June to 1 July)*			
Nomenclature	Description	Annual tariff quota (tonnes)	In-quota duty, Euro/tonne product weight
0407 0030	Shell Eggs	135,000	152
	Egg Products		
0408 1180	Egg yolk dried		711
0408 1981	Egg yolk liquid		310
0408 1989	Egg yolk frozen	7,000 (a)	331
0408 9180	Whole egg dried		687
0408 9980	Whole egg other than dried; egg rolls (long egg)		176
	Egg White		
3502 1190	Egg white dried	15,500 (a)	617
3502 1990	Egg white other than dried		83

* Tariff quotas for 1 June 2004 to 1 July 2005, as laid down in Commission Regulation 593/2004

Footnotes:

Shell egg equivalent. Conversion according to the yield rate fixed in Annex 69 to Commission Regulation 2454/93.

Source: European Commission.

As is set out in Figure 4.8 imports of eggs and egg products into the EU have remained relatively stable over the evaluation period with imports up until 2002 rarely exceeding 50,000 tonnes. This situation only changed in 2003-4 when imports increased substantially due to the disease induced supply shortage in the EU. This reflects the limited tradability of eggs in shell as well as the fact that the level of import protection appears to have been sufficient to deter imports. This position does not appear to have changed following the URAA.

4.2.3.2. Modelling results

In order to assess the impact of a particular policy instrument it is useful to establish the counterfactual i.e. what would have occurred by way of impact if the instrument had not been used. In order to provide clear results on the evaluation questions, the assessment of the impacts of the instrument was therefore, in the first instance, addressed using the CAPSIM econometric model. The operation of this model is discussed in detail in Appendix 3. Full details of the modelling results can be found in Table 4.8 and Appendix 4 section A4.3.2.

Assumptions and limitations of the model for an analysis of import tariffs

The impact analysis on import tariffs has been based on a counterfactual simulation with CAPSIM of postulating an abolition of both import tariffs and export refunds, because removing import protection without also removing export refunds would mean that domestic producers would face consistently cheaper imported products on the EU market, but would be able to achieve higher prices through exporting with subsidy. This might lead to a situation where a large proportion of domestic demand would be met through imports whilst a large proportion of domestic production would be exported to third countries with subsidy. Alternatively, it might also give rise to an increase in imports for re-export onto the world market, to take advantage of the EU export refunds. import tariffs during the time periods 1990/92, 1995/97, and 2000/02. The results are in particular sensitive to the detailed specification of the import regime of the EU and the import supply function from the Rest of the World.

Because CAPSIM only considers the aggregate of 'eggs' a first key parameter regarding the import regime the average tariff is assumed. This is not offered in relevant statistical databases such as TARIC but would have to be calculated based on many single CN codes with appropriate weighting. Because this calculation would require significant resources and any weighting scheme may be questioned[164] the development of tariff protection is characterised by means of the tariff on a lead product comparable to the EU 'reference prices' (see Table 4.1), namely eggs in shell (CN code 04070030). The development of these tariffs has been presented in Section 4.2.3.1 above.

In Appendix 3 our preference for this indicator of tariff protection compared to a 'price gap approach' is explained in more detail. Nonetheless it is to be noted that the choice of a single lead product may be produce poor results if it is not representative for the unknown average tariff. A preferable approach would be to work on a more disaggregated level, ideally at the level of the tariff code (CN8), which would identify eggs in shell, processed eggs and egg yolk as well as albumen. For example, third country imports of shell eggs for the EU table market are relatively small in volume whereas by contrast third country imports of egg products are high. Some extra-EU imports are made under Inward Processing Relief (IPR). No import duty is paid on these imports and an equivalent volume of processed product must be exported within six months (without refunds). The rationale for this is that it is more efficient to run processing plants at full capacity and imports are sometimes needed to maintain this throughput. IPR is used mainly in Belgium, the Netherlands and Germany. Our inability to undertake the quantitative analysis on such a disaggregated level is a limitation for the use of the model.

[164] Simple import weights are often criticised because they would imply a zero weight for prohibitive tariffs.

Another relevant issue for tariff protection is the existing tariff preferences. Again the ideal approach for modelling would be as detailed as possible because this would capture the various preferences granted to different regions, in different years and for different processing forms of eggs. The regional heterogeneity made it almost impossible to compile a disaggregated database of these tariff preferences and to aggregate them in a defensible manner. For the quantitative analysis the WTO notifications by the EU as reproduced in Table 4.7 below were therefore used. In this context is to be noted that the CAPSIM database relies on, but is not identical to Eurostat data. For eggs the Eurostat definitions appear to be broader than those used for the DG Agriculture market balance data, but the exact Eurostat definition is not documented in the literature. In view of this weakness, the TRQs have been incorporated according to the share of preferential imports in total imports according to DG Agriculture data.

Table 4.7: Import data used by CAPSIM (tonnes)

	1995/96	1996/97	1995/97	2000/01	2001/02	2000/02
Total imports (CAPSIM data[1])			24,100			37,500
Total imports (DG Agriculture)			16,562			31,651
WTO notified TRQ for reduced tariffs	89,204	89,525	89,365	142,000	142,000	142,000
WTO notified in quota imports	6,630	6,904	6,767	9,885	7,944	8,815

Note [1]: Based on data for total pigmeat imports - Eurostat market balance data (as downloadable from Eurostat website)
Source: CAPSIM.

For the quantitative analysis it is assumed that preferential imports would not benefit at all from hypothetical tariff abolition on the part of the EU such that they could be separated from the price responsive part of imports.

The price responsiveness of non-preferential imports was introduced through a Rest of the World import supply elasticity. This was set rather high (7.0) to reflect the possibilities for imports to compete strongly on the market segments for processed eggs. In addition, other model parameters such as the Rest of the World export demand elasticity and supply and demand elasticities in EU Member States also have a bearing on the simulations results related to tariff protection.

It is clear that the simulation results below all rest on the above assumptions regarding data issues, specification choices and parameter selection. Due to these limitations our simulations will provide indicators for the evaluation questions, but they have to be judged in the context of the descriptive analysis and expert opinions.

Synthesis of CAPSIM modelling results

Table 4.8: Impact of export refund and import tariff removal on the egg sector

	Unit	1990-92			1995-97			2000-02		
		Base	Simulation	Change	Base	Simulation	Change	Base	Simulation	Change
Import volume	000 tonnes	33	834	2427%	24	557	2221%	37	281	659%
Net trade volume	000 tonnes	99	-735	-842%	82	-461	-662%	87	-167	-292%
Price	€/tonne	€ 1,074	€ 889	-17.2%	€ 1,011	€ 892	-11.8%	€ 972	€ 915	-5.9%
Supply	000 tonnes	5,260	4,491	-14.6%	5,240	4,730	-9.7%	5,718	5,475	-4.3%
Demand	000 tonnes	5,161	5,226	1.3%	5,158	5,190	0.6%	5,631	5,642	0.2%
Self-sufficiency	%	101.9%	85.9%		101.6%	91.1%		101.5%	97.0%	
EEA net contribution	€ million	2,893	1,711	-40.8%	2,731	1,935	-29.1%	2,964	2,544	-14.2%
Border price/export	€/tonne	771	889	15.3%	846	892	5.4%	875	915	4.6%
Border price/import	€/tonne	560	889	58.8%	530	892	68.4%	658	915	39.1%
Welfare		**Total difference**			**Total difference**			**Total difference**		
Income (GVAB)	€ million	-1,015.6			-692.2			-374.9		
EAGGF expenditure	€ million	-61.3			-14.4			4.0		
Tariffs	€ million	-22.2			-5.7			-4.3		
Consumer welfare	€ million	1,094.4			727.5			380.1		

Source: CAPSIM

4.2.3.3. Interview results

Assumptions and limitations of the interviews

Interviews were conducted with industry stakeholders and experts in each Member State. The interviews were semi-structured, involving a series of open-ended questions based on the topic areas. The open-ended nature of the questions defined the topic under investigation but provided opportunities for both interviewer and interviewee to discuss some topics in more detail. Because of the personal nature of interviewing, the scope for introducing error and bias is quite large and can affect all the subsequent stages of the interviewing process, such as recording and interpreting the answers.

The most significant limiting factor of the interviews as a tool for evaluating the CMO was found to be a significant lack of knowledge and understanding of the role and activities of the CMO including among public sector staff with responsibility for the sector. This was often interpreted by the respondents as indicating a lack relevance to the Member States concerned, but also resulted in a failure to provide relevant national data relating to the sector and the evaluation questions.

What impacts do import duties and the volumes of tariff rate quotas have on import volumes?

The EU egg sector is unanimous in its view that import tariffs serve to keep out third country imports of eggs and processed egg products to some degree. The extent of protection offered, i.e. what level of third country imports would take place in the absence of this measure is generally less clear to those interviewed, although a large northern European processing company suggested that in the absence of import tariffs EU production and processing capacity would decline by a third. Industry representatives in Germany believe that it would not be possible to use domestically produced eggs for the processing sector without the protection offered by import tariffs. Indeed, they feel that ultimately even the shell egg sector would be unsustainable in the long-term in the absence of this measure.

An industry organisation commented that the reference period used to set import tariffs in the Uruguay GATT Round was favourable to the EU industry and as a result the degree of protection offered is reasonably high suggesting that a relatively significant volume of third country product is probably kept out of the EU. That said, it was noted that it is important to consider the different market segments and within these, Tariff Rate Quotas (TRQs) are generally almost fully taken up on products (liquid and frozen whole egg), whilst those for shell eggs are barely utilised at all.

TRQs for albumen have a utilisation level of between a half and two thirds. This might suggest that there is scope for a greater volume of third country egg products in the absence of import tariffs, but little for shell eggs or albumen.

What impacts do import duties and the volumes of tariff rate quotas have on Community price levels?

The stakeholder interviews indicated there is a widespread view that import tariffs, by reducing the competitiveness of third country imports, serve to maintain higher domestic prices which are necessary given the cost imposed on the EU sector by high animal welfare and environmental standards.

What impacts do import duties and the volumes of tariff rate quotas have on supply and demand volumes on the internal market?

Discussions with the egg sector stakeholders indicated that they considered that import tariffs result in significantly higher domestic production than would otherwise be the case. Some operators in the industry feel that it is demand for eggs for processing that causes this impact.

4.2.3.4. Synthesis of results from the tools used and conclusions

The results from the historical data analysis, the modelling of the counterfactual and the stakeholder interviews provide the following key conclusions on the EQs relating to import tariffs in the egg sector:

What impacts do import duties and the volumes of tariff rate quotas have on Community import volumes?

The **historical data analysis** indicates that the overall level of egg imports has not increased significantly over the evaluation period reflecting the limited tradability of shell eggs and suggesting that as would be expected the level of import protection has acted as a deterrent to such imports. **Stakeholder interviews** indicate that import tariffs are considered by most in the industry to be a highly significant factor affecting volumes of third country egg products entering the EU through their impact on relative price, which is the ultimate driving factor behind import levels, given certain quality requirements. The difficulties and expense of transporting shell eggs also serve as a barrier to trade in this market segment, as do non-tariff barriers including sanitary issues[165]. Other significant factors impacting on relative price include exchange rate fluctuations, transport costs and the export policies of

[165] In some Member States, for example, Denmark and Germany, there is a degree of consumer suspicion of non-domestic eggs, according to industry bodies, and this presents a further barrier to third country shell egg imports (and often this barrier extends to intra-EU imports as well).

competing countries. In this context the stakeholder interviews indicated that it was important to consider the different market segments and within these, Tariff Rate Quotas (TRQs) are generally almost fully taken up on products (liquid and frozen whole egg), whilst those for shell eggs are barely utilised at all. TRQs for albumen have a utilisation level of between a half and two-thirds. This might suggest that there is scope for a greater volume of third country egg products in the absence of import tariffs, but little for shell eggs or albumen although this clearly depends on the competitiveness of those countries not benefiting from TRQs.

The above views from stakeholders on the role of import tariffs in general are largely confirmed by the **modelling results**. As would be expected a priori the modelling of the counterfactual i.e. the removal of import protection (and export refunds) are estimated to lead to lower volumes of total annual imports than would otherwise take place. In the 1990-92 period, the presence of import tariffs is estimated to have resulted in an annual decrease in imports of 96%. Import tariffs are estimated to have resulted in decreases in the volume of imports of 96% and 87% per year in the 1995-97 and 2000-02 periods respectively (see Table 4.8 and Appendix 4 section A4.3.2). The estimated effects decline over time because the EU market became less protected as a result of the URAA meaning that a complete dismantling of tariff protection would have been likely to have less substantial impacts.

In conclusion the impact of TRQs may be considered to be marginal in the overall market context but the impact of import protection on the volume of imports is considered to be highly significant throughout the period even though this overall result must be differentiated by type of product considered i.e. the impact of the removal of refunds would most likely be far greater for processed egg products excluding albumens than for shell eggs.

What impacts do import duties and the volumes of tariff rate quotas have on Community price levels? What impacts do import duties and the volumes of tariff rate quotas have on supply and demand volumes on the internal market?

The **stakeholder interviews** and **modelling results** indicate that import protection and the relatively limited TRQs may be seen as having a significantly positive impact on EU internal prices (20.8% in 1990-92; 13.3% and 6.2% respectively) and a correspondingly positive impact on domestic production (supply) (15.6%,11.6%, 4.5% in 1990-92, 1995-97 and 2000-02 respectively) but virtually no impact on domestic demand (approximately 1% or less) (see Table 4.8 and Appendix 4 section A4.3.2).

What impacts do import duties and the volumes of tariff rate quotas have on the competitive position of Community egg production?

The **data analysis** has shown that TRQs are of limited significance in the context of the overall market. The **stakeholder interviews** indicate that export refunds in the non-Annex 1 processed products sub-sector are important for maintaining the competitive position of the EU in the major export market in Japan. The **modelling results** suggest that the combined effect of the two instruments (import tariffs and export refunds) is to substantially alter the net EU trade position from a net exporting position (99,000t/year on average in 1990-92; 82,000 t/year in 1995-97; and 87,000 t/year in 2000-02) to an estimated net import position (735,000 t/year on average in 1990-92; 461,000 t/year in 1995-97; and 167,000 t/year in 2000-02) (see Table 4.8 and Appendix 4 section A4.3.2). This estimate of the significance of import duties is confirmed by the views of stakeholders although it is noted that exchange rates, transport costs, regulatory compliance costs and the export policies of competing countries will also significantly affect the EU's competitive position.

In conclusion it can be clearly stated that while the TRQs can be considered to have a marginal impact the import tariffs under the CMO strongly effect the competitive position of the EU on both the internal and external market.

If impacts can be identified, are they significant, in particular in relation to other determining external factors?

In line with the above modelling estimate for the impact on trade and production, the **modelling results** indicate a significant contribution (adjusted for feed costs) of import tariffs (and export refunds) in terms of the egg sector's contribution to the Economic Accounts for Agriculture. This amounts to an increase of some €1.2 billion in 1990-92, €796 million in 1995-97 and €420 million in 2000-02 (see Table 4.8 and Appendix 4 section A4.3.2). The likelihood of a substantial effect from the removal of these instruments was corroborated by the stakeholder interviews.

If impacts are significant, what is their dimension? Could any efficiency losses be determined?

The impact of the import tariffs in aggregate has been assessed through the **modellling** of the impact of the removal of export refunds and import tariffs on total welfare in terms of producer gross value added at basic prices, EU expenditure on export refunds, revenues from variable levies and duties and the impact on consumer welfare via price. Taken together these estimates produce aggregate measures of the distribution of impact and allow a commentary on efficiency.

Looking at these results indicates that in the first 1990-1992 period overall producer gains come to €1 billion. To this must be added estimated revenue of some €22 million from import levies. These two elements are, however, offset by aggregate EAGGF expenditure of €61 million and consumer welfare losses (through higher prices) of some €1.1 billion (see Table 4.8 and Appendix 4 section A4.3.2). Thus the net result indicates that while the budegtary expenditure incurred to achieve a relatively significant amount of producer income was relatively low the cost of the transfers made from taxpayers and consumers was in excess of the gains to producers suggesting the measure was lacking in efficiency. This overall picture is repeated for the simulation for the 1995-1997 and the 2000-2002 periods. As with all such estimates it must always be borne in mind that the absolute estimates must be treated with caution since they reflect a broad range of statistical inputs and assumptions.

Box 4.4: Main conclusions on import tariffs

The evidence from all the tools used in this evaluation suggests that the maintenance of import protection is critical to the maintenance of a significant proportion of shell egg and egg product production in the EU since in the absence of the measures a significant proportion of production would be displaced by imports.

4.2.4. Question 6: Overall market impacts

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.1.5.

Can a joint impact of the different CMO measures on market equilibrium and on price development be identified? If this is the case, what is the interaction between the individual measures and their relative importance?

The assessment of the joint impact of the key market support instruments, export refunds and import tariffs, in this sector on market equilibrium and prices, was primarily undertaken by means of modelling the counterfactual in three separate time periods. The results suggest that the combined impact of these instruments has been to significantly raise prices in the EU egg sector above what they would have been in their absence (by 20.2% in 1990-92,13.3% in 1995-97 and 6.2% in 2000-02). In this context it should be noted that the significance of the import tariffs is much greater than that of export refunds in that the tariffs effectively appear to prevent a large proportion of EU production from being potentially displaced by imports while export refunds affect only relatively limited volumes.

4.2.4.1. Impacts of the market instruments

To what extent are production cycles counterbalanced by the CMO measures?

The historical data analysis, as well as stakeholder interviews indicate that the export refund instrument appears to have been used counter-cyclically to counteract the effects of low market prices. This is confirmed by a correlation charting the evolution of egg production, market prices and the use of the export refund instrument in terms of annual expenditure which is presented in Figure 4.9 below, which indicates that the use of refunds in the egg sector has been countercyclical in the sense of the intervention taking place to counteract the downward price effects of market imbalances. This does not demonstrate causality but analysis shows that there is a strong inverse relationship between the reference price and total refunds (correlation coefficient of –0.87) strongly suggesting that such a link exists.

It should be noted that export refunds in the processed egg product sector are used differently in that they are designed to maintain a market outlet (specifically for egg albumen in Japan) for a product that is in continuous surplus in the EU.

In conclusion it can be stated clearly that export refunds for products other than non-Annex 1 processed products have been used effectively to stabilise the market as intended by the objectives set for the CMO. The strong inverse relationship

estimated by the correlation does not indicate causality but strongly suggests this impact has been significant.

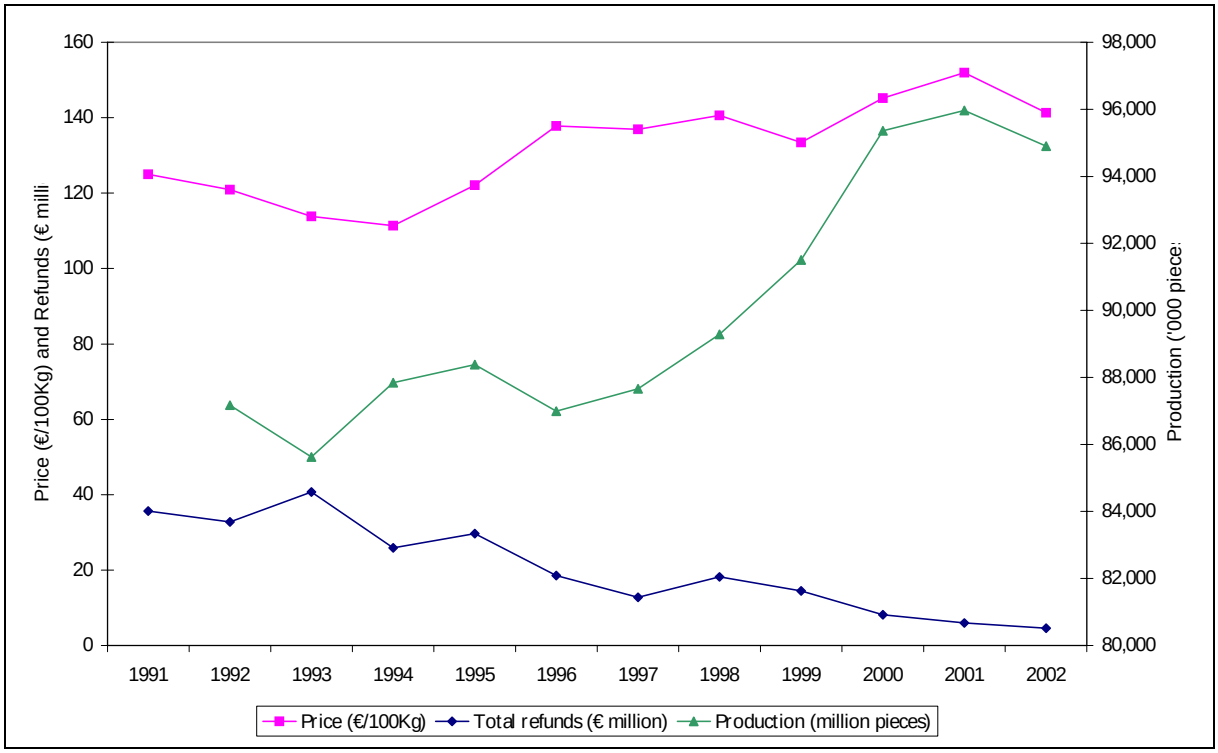

Figure 4.9: Comparison of reference price, production and export refunds, 1991-2002

Source: Eurostat, DG Agriculture, LEI.

Long term impacts of all market support instruments on production and identification of feedback loops

The modelling of the counterfactual produces results which clearly indicate that in all three periods reviewed the joint impact of the main CMO instruments has been to increase EU production significantly above what it would have been likely to have been in the absence of the instruments (by 15.6%; 11.6% and 4.5% respectively). This suggests that by raising production and indeed self-sufficiency levels (by respectively 16%, 10.5% and 4.5%) there has been a potential feedback in that, particularly in the early part of the evaluation period higher production would in turn have generated a greater need for export refunds. It should be noted that the significance of this potential feedback has reduced considerably as the extent of tariff protection in particular has fallen.

Importance of the impacts of the CMO instruments amongst other determining factors on supply and demand

The modelling tool generated an analysis of the counterfactual for the impact of the simultaneous removal of import tariffs and export refunds on supply and demand over three time periods. This indicates that the removal of refunds and tariffs would have reduced Community supply by 14.6 % in the 1990-92 period, by 9.7% in the 1995-97 period and 4.3% in the 2000-02 period. In this context it should be noted that the model used seeks to reflect a medium term perspective but that if a longer-term perspective (using higher supply elasticities) had been used the estimated production impacts would be much higher. The estimated reduction in demand over these periods was much lower at 1.3%, 0.6% and 0.2% respectively. This relatively low impact is in part due to the specification of the model. However, in this context it is also important to note that the stakeholder interviews emphasised the important roles played in supply and demand evolution by feed costs, disease outbreaks, regulatory actions relating to animal welfare and health and above all the many changes to consumer purchasing behaviour and food retailing.

In conclusion it can be stated that while the results of the CMO instruments suggest a relatively low impact of the CMO on supply and particularly demand a longer-term analysis using different supply elasticities would almost certainly generate a stronger supply effect. The modelling results indicate a relatively low impact of the CMO on demand but this may in part be attributable to the model specification. This having been said, it is clear that a broad range of other factors have a greater impact on supply and demand than the CMO instruments themselves.

4.3. Theme 2: Producer income

4.3.1. Question 7: Income level and development

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.2.1.

Do the measures of the CMOs have a significant joint impact on the level and development of producers' incomes? If impacts can be identified, can they be specified (impacts through the volume of production, prices, and/or costs) and quantified?

As discussed in Section 4.1.1, two of the overarching objectives of the CMO for eggs (relevant to this evaluation question) are *to stabilise markets*, thereby stabilising incomes, and *to contribute to a fair standard of living for farmers*. It can therefore be hypothesised that (to the extent that support is forthcoming given that the CMO for eggs is a relatively lightly supported sector), any intervention over the evaluation period will have had a positive effect on the level and development of producers' incomes.

This evaluation question was answered based on an analysis of Farm Accountancy Data Network (FADN) data[166] (much of which was based on a specific study carried out by DG Agriculture (Appendix 6)) and other secondary data. The findings of this quantitative analysis were supplemented by interviews with industry stakeholders in the EU egg sector to provide contextual information as to any link between changes in income levels and the role of the eggs CMO.

Table 2.18 shows the FADN sample sizes used for analysing income level and development over the evaluation period based on different categories of egg producers. The key indicator used to measure income, and assess the effect of the CMO, is Farm Net Value Added (FNVA) per Annual Work Unit (AWU)[167]. The FNVA represents the payment for factors of production (work, land and capital), whether

[166] When using FADN data, the following caveats must be noted:

- FADN is designed to monitor only the professional farms. The smallest holdings are excluded from the sample. This is done using a threshold of minimum economic size for inclusion in the sample. This varies from Member State to Member State.
- FADN information is principally based on the financial accounts of the holding. This has some implications about the availability of certain information, especially on the input side. (e.g.: while FADN registers the total labour cost, it can not split up this cost according to the speculation).
- FADN data monitor the situation of the agricultural holdings in the EU. This means that data from Austria, Sweden and Finland are only included since 1995. Furthermore, 1995 marks the inclusion of data from the new German Bundesländer in FADN.

[167] Where FNVA per AWU = ((output + subsidies)-(intermediate consumption + taxes))/annual work units.

they are external or family factors. The AWU measures the total labour input of holding expressed in annual work units (equal to full-time person equivalents).

For practical reasons, the smallest holdings (unless otherwise stated) have been excluded from the sample of the analysis presented in (Appendix 6). As such, the analysis presented is based on the largest 20% of all poultry holdings in the EU (in terms of LU of poultry), which represents 96% of total production (LU). In addition, all financial analysis has been done in real terms with 1995 as the reference year; deflators have been applied at Member State level and aggregated to EU-15 level. In order to compare the different types of livestock farms, all numbers of animals have been calculated to livestock units using the appropriate conversion rate (laying hens = 0.014 LU and other poultry = 0.03 LU).

Table 4.9: Poultry sector sample size

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Specialist laying hens[1]	76	79	78	92	83	84	91	100	110	102	100	86	74	97	126
Other/ mixed poultry farms[2]	2,226	2,204	2,057	1,924	1,929	1,717	2,801	2,713	2,767	2,649	2,639	2,555	2,451	2,432	2,396

[1] Specialist laying hens: at least 2/3 of the total SGM is linked to laying hens.

[2] Specifically for this study, a further category of other or mixed poultry farms has been created. This was done given the fact that the specialist poultry farms only cover about 50% of the total production. To obtain this other or mixed poultry farm category, all farms in the FADN database larger than 16 ESU were ranked according to their number of livestock. All farms belonging to the group that has the 20% most poultry and that does not belong to one of the specialist types was grouped in this classification.

Source: FADN.

4.3.1.1. Analysis of FADN data

Detailed analysis of the level and development of income in the poultry sector in general is provided in the answer to Question 7 of the poultrymeat sector in Section 4.3.1. The analysis in this Section concentrates on analysing the impact of the CMO on egg producers' income. Therefore, only a brief summary of the analysis of the level and development of income in the poultry sector in general is provided.

Size of the holding or enterprise in livestock units

Over the evaluation period, the EU poultry sector has been characterised by an increase in output and scale of production. The scale of poultry production has increased by a similar rate to that of the level of output, although much of the

increase in the scale of production has occurred in the latter half of the evaluation period.

Table 3.11 clearly indicates the relationship between income level (expressed in FNVA/AWU) and the size of poultry flocks for egg production (expressed in LU), with income levels increasing as the scale of production increases from a FNVA/AWU of €13,127 for flocks with <50 LU to a FNVA/AWU of €52,163 for flocks with 750 <1,000 LU. However, for the size classes presented in Table 3.11, there seems to be some diseconomies of scale in egg production when moving from a flock with 750 <1,000 LU to a flock with 1,000 <5,000 LU. That said, the majority of the poultry producers in the EU are less than 500 LU.

Table 4.10: Income by size of poultry flock (expressed in LU) for the accounting year 2003

Number of LU poultry	Specialist laying hens and other poultry
<50	13,127
50 < 100	18,800
100 < 150	25,543
150 < 250	27,850
250 < 500	32,502
500 < 750	31,714
750 < 1000	52,163
1000 < 5000	48,632

Source: FADN – processing DG AGRICULTURE G3.

In line with increases in production and associated economies of scale over the period, average annual income for poultry producers in general has increased slightly over the evaluation period.

Looking specifically at the evolution in FNVA per AWU for egg producers, Figure 4.10 shows the trend in income over the period. Consistent with the findings presented in Table 3.11, higher levels of income for egg producers are generally associated with larger sized enterprises. However, Figure 4.10 suggests that the trend in income for different size categories of holdings has varied over the period. While income on larger sized laying hen holdings (≥ 100 ESU) seems to have been increasing over the period, this trend has been marked with more annual income volatility. In contrast, income on smaller sized laying hen holdings (16-40 ESU) appears to have fallen over the period, although there has been less volatility in income between years.

Figure 4.10: Comparison of average FNVA per AWU between farm enterprise size categories (real terms)

Source: FADN.

Table 4.11 shows the level of and development in egg producer incomes by Member State over the evaluation period, illustrating the extent to which incomes vary between Member States. Average annual incomes have generally been higher in the Netherlands (€40,576), Denmark (€33,196) and Belgium (€32,734) over the period and lower in Portugal (€4,457), Ireland (€8,169) and Greece (€8,496).

In addition, the data shows that there has been significant variation in income levels within Member States between years. Portugal, Ireland and Greece have shown the lowest annual variation in income levels between years. In contrast, the Netherlands, Denmark, Luxembourg and Belgium have shown the highest variation in income levels between years.

Table 4.11: Average FNVA per AWU for Member States in real terms

Country	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Average 89-02
BEL	45,311	37,821	41,325	28,444	24,958	28,067	23,308	22,839	23,872	10,135	37,037	39,682	54,754	40,722	32,734
DAN	34,048	20,973	28,520	22,592	26,997	33,996	35,178	34,972	37,260	32,365	28,429	48,978	35,627	44,808	33,196
DEU	17,639	14,624	15,466	14,554	21,474	19,941	29,950	25,027	24,867	20,134	22,183	20,763	21,457	21,465	20,682
ELL	10,894	10,916	11,643	8,527	8,140	7,007	6,389	7,407	5,604	4,805	5,291	8,350	10,403	13,568	8,496
ESP	16,428	9,544	10,234	17,820	11,462	10,762	20,367	20,569	22,844	14,163	29,994	19,472	21,527	35,626	18,629
FRA	18,636	19,450	20,458	19,473	22,431	20,222	22,137	26,728	22,816	23,747	18,942	21,914	20,681	21,170	21,343
IRE	7,101	8,508	10,392	11,663	8,805	13,548	7,812	9,032	8,363	5,556	4,775	6,626	7,993	4,190	8,169
ITA	24,208	15,473	18,521	17,668	20,828	16,072	15,885	15,481	18,104	19,219	18,461	27,668	20,613	13,391	18,685
LUX	15,478	19,279	8,662	7,788	15,547	28,336			7,738	50,980	50,340	42,391	40,016	45,709	27,689
NED	50,197	51,091	54,686	34,606	39,279	25,932	39,039	62,210	58,057	18,625	23,566	48,755	40,730	21,291	40,576
OST							16,266	20,939	20,829	19,010	20,132	10,108	14,270	17,527	17,385
POR	17,422	4,644	5,168	1,701	4,103	4,201	2,541	4,882	2,617	3,434	2,548	4,074	2,460	2,596	4,457
SUO							12,788	16,538	28,280	8,017	12,085	20,743	27,419	18,412	18,035
SVE							14,789	28,983	16,891	9,932	9,111	13,485	17,770	13,834	15,599
UKI	18,475	20,885	17,732	17,526	18,212	19,901	17,486	19,524	17,913	24,275	24,781	20,043	18,463	20,532	19,696
EU-15 average	**22,986**	**19,434**	**20,234**	**16,864**	**18,520**	**18,999**	**18,852**	**22,509**	**21,070**	**17,627**	**20,512**	**23,537**	**23,612**	**22,323**	20,506

Note: The income data is for the whole of egg sector including small holders and non-specialised farmers.
Source: FADN.

Production systems

Table 4.12 shows the evolution in the proportion of total EU poultry production of specialist and non-specialist farm in terms of number of LU. Based on the years for which data is presented, the proportion of specialist egg producers has fallen over the period from 20.2% to 15.7%. In contrast, there has been an increase in the proportion of non-specialist other poultry holdings, accounting for almost a half of all poultry holdings by 2003.

Table 4.12: Evolution of the production share of the different types of farm (% of LU)

	1989	1995	2003
Specialist broilers	35.6	33.1	34.9
Specialist laying hens	20.2	19.5	15.7
Other	44.2	47.4	49.4

Source: FADN – processing DG AGRICULTURE G3.

While around half of all EU-15 poultry production takes place on specialised holdings, this varies significantly by Member State. In most Mediterranean countries, almost all poultry production takes place on specialised farms. In contrast, production in the Nordic countries generally takes place on mixed farms[168].

For egg production, the main specialist laying hen holdings are located in the Netherlands, Italy, France and UK.

Figure 4.11 and Table 4.11 examines the relationship between income level and degree of specialisation. Average annual income between 1989 and 2003 has been marginally higher (3.1%) on specialist egg systems at €31,500 compared to €30,567 on non-specialist other poultry holdings. However, average incomes for specialist egg systems have been more volatile over the period. On (non-specialised) other poultry production systems, income fluctuated by 21% above and 21% below the average for the period compared to 53% above and 51% below the average for specialised egg production systems.

[168] In Sweden, for example, there are no specialised farms found in the FADN database.

Figure 4.11: Evolution of the income for the different types of poultry producers (excluding specialist broilers)

Source: FADN – processing DG AGRICULTURE G3.

Table 4.3 Average, minimum and maximum FNVA per AWU, by production type (1989-2003)

	Average	Minimum		Maximum	
	€	€	% deviation from average	€	% deviation from average
Layers	31,500	15,500	-51%	48,000	53%
Other Poultry	30,567	24,000	-21%	37,000	21%
All Poultry	31,000	24,500	-21%	38,000	23%

Source: FADN.

The most important determinants of the level of income over the evaluation period are the value of total output and the value of immediate consumption. Figure 4.12 and Figure 4.13 provide more detail on the determinants of income for egg production, by assessing how the value of costs and the value of output have developed by level of specialisation over the evaluation period (Appendix 6). Regardless of the level of specialisation, the level of output and inputs vary considerably between years.

However, there has been a marked difference in the evolution in the value of costs and value of output between 1989 and 2003. For specialist egg production, the

difference between the value of costs and value of output has varied significantly over the period, with relatively large differentials in 1996, 2002 and 2003 and relatively small differentials in 1994 and 1998. In contrast, for non-specialist other poultry farms the value of output has decreased while the value of costs has increased since 1999[169].

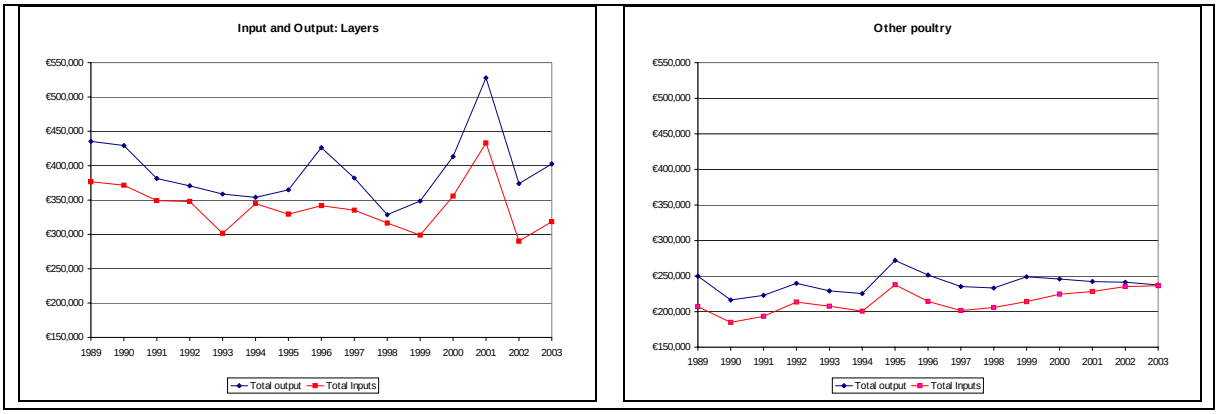

Figure 4.12: Evolution of the value of output and inputs (in real terms) on laying farms, 1989-2003

Source: FADN – processing DG AGRICULTURE G3

[169] Although it is not known whether this trend arises from poultry production per se or because of factors on other enterprises on the holding.

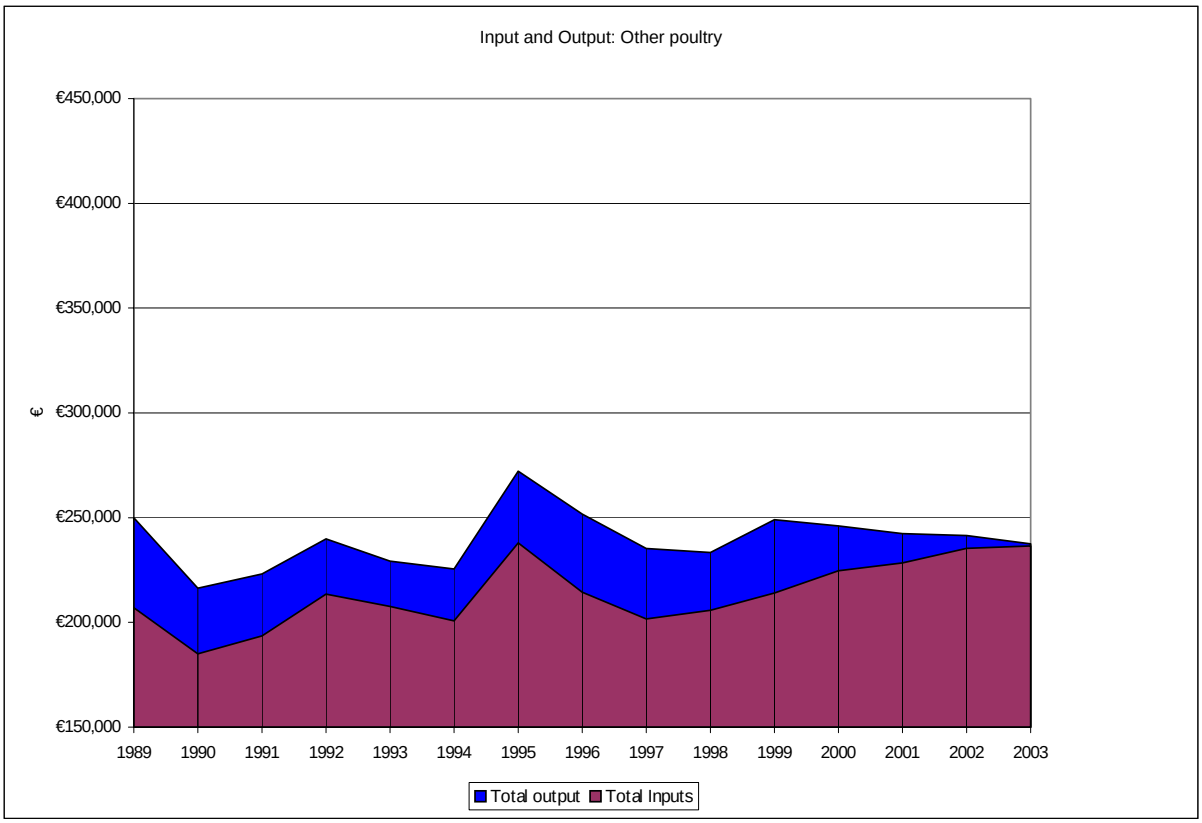

Figure 4.13: Evolution of the value of output and inputs (in real terms) on other poultry farms, 1989-2003

Although incomes are generally higher on specialist egg holdings, the importance of subsidies as a proportion of total income is relatively low compared to mixed poultry holdings. In 2003, specialist egg producers received an average €4,456 in subsidies compared to non-specialist mixed producers who received an average €19,264. However, it should be noted that this analysis does not include payments made to poultry producers for flocks destroyed by animal disease or the measures to control disease outbreaks.

Form of vertical integration

The level of vertical integration in egg production has increased over the period, particularly on specialist poultry production units; for specialist egg producers, 18% of all holdings produce birds on contract.

Table 3.15 examines the relationship between income level and production on contracts. For both specialist egg and non-specialist poultry production, producers on contracts tend to receive higher incomes. In 2003, average income for specialist egg producers producing under contract was 13.6% higher than those producers not

using contracts. This compares to a slightly higher difference (14.7%) for non-specialist poultry producers because of the higher proportion of broiler producers that use contracts.

Table 4.13: FNVA/AWU in € (1995 terms) according to type of farm and contracting, 2003

	Layers	Mixed poultry
No contract	48,153	26,548
Contract	54,718	30,459

Source: FADN – processing DG AGRICULTURE G3.

Regional importance of the poultry sector

Detailed analysis of the regional importance of the poultry sector in general is provided in the answer to Question 7 of the poultrymeat sector in Section 4.3.1.

Comparison of the poultry sector with other sectors

Analysis of the evolution of average incomes in the poultry sector between 1989 and 2003 compared to total agricultural income suggests that for every year in the period under examination, average income for all poultry producers has been lower than the average income for the agricultural sector as a whole.

4.3.1.2. Synthesis of results from the tools used and conclusion

Although it is difficult to quantify the joint impact of the CMO on income, the analysis of the FADN results has provided a number of General conclusions on the level of and development in egg producers' income over the evaluation, which in conjunction with the findings of the other Evaluation Questions and the stakeholder interviews can be used to form a judgement in relation to the following specific evaluation questions:

Box 4.5: General conclusions on the level and development in egg producers' income over the evaluation period

- **In terms of the egg sector as a whole,** incomes are generally marginally lower in the egg sector than for the agricultural sector as a whole, although egg incomes have increased at a greater rate over the period. There has been a general increase in egg producers' incomes over the period, although much of this increase has been due to an increase in the scale of production from the associated economies of scale.
- **In terms of size**, income levels are higher and more volatile on larger holdings compared to smaller holdings, although there seems to be some diseconomies of scale on holdings of 1,000 <5,000 LU.
- **In terms of degree of specialisation**, incomes are marginally higher, but more volatile, on specialist egg holdings compared to non-specialist holdings. The difference between the value of income and costs is greater for specialist egg producers, compared to non-specialist producers where the difference is smaller and has decreased over the period. Subsidies form a greater share of income for non-specialist producers compared to specialist egg producers. Income levels for all egg producers in concentrated poultry producing regions in the EU tend to be higher than in less dense regions. However, this is not the case for specialist egg producers; specialist egg producers in concentrated poultry producing regions in the EU tend to have lower incomes than those in less dense regions.
- **In terms of vertical integration**, integration in the sector has increased, particularly on specialist holdings, with egg producers supplying birds on contract having higher incomes.
- **In terms of geography**, there is substantial income variation between countries as well as substantial annual variation within countries.

Do the measures for the CMO for egg have a significant joint impact on the level and development of producers' income? If impacts can be identified, can they be specified (impacts through the volume of production, prices and/or costs) and quantified?

- **Impact of the CMO on the level of producer's income.** Analysis of the FADN data found that, in general, average income levels (in terms of FNVA/AWU) are marginally lower in the egg sector than for the agricultural sector as a whole. Despite this, the modelling results in answer to Evaluation Questions 2 and 3 has quantified the extent to which the CMO measures (export subsidies and import tariffs) have had a significant joint impact on the profitability of egg production in the EU. The results found that export subsidies and import tariffs have generally maintained internal producer egg prices and production at higher levels than would otherwise have been the case. The modelling results found that the direct (positive) impact of export subsidies and import tariffs on producer egg prices and production was 17.2% and 14.6% respectively in the 1990-92 period, 11.8% and 9.7% respectively in the 1995-97 period and 5.9% and 4.3% respectively in the

2000-02 period. As a result, income levels were found to be 40.8%, 29.1 % and 14.2% higher in the three reference periods.

- **Impact of the CMO on the development of producer's income.** Although the FADN analysis found that average incomes in the egg sector were marginally lower over the period compared to the overall agricultural sector, poultry incomes have increased at a greater rate over evaluation period. By the end of the period, egg incomes were more or less in line with average incomes in the agricultural sector.

  The FADN analysis illustrated that much of this development in income over the period was due to an increase in the scale of production from associated economies of scale, rather than the CMO measures *per se*. Moreover, as discussed above, the impact of the contribution of the CMO measures on income in the sector fell significantly from 40.8% in 1990-92 to 14.2% in 2000-02.

  Although the FADN analysis found that incomes in the poultry sector in general were less volatile than in the agricultural sector as a whole, there has been some volatility in the development of egg producers' income over the period. Thus, without intervention the cyclical income lows recorded in 1994 and 1998 would likely have been greater.

However, the extent to which producers have directly (or indirectly) benefited from the CMO measures varies significantly both within and between Member States. As the FADN analysis demonstrated, the level and development in egg producers' income over the evaluation period varied according to, for example, farm size, degree of specialisation, level of vertical integration and geography.

This evidence of the relative lack of significance of the CMO in determining income is reinforced by the interviews with stakeholders across the EU.

- **In terms of export refunds**, the direct effect of the CMO is particularly concentrated on those two countries which have traditionally been the major beneficiaries of the export refunds, namely the Netherlands and Germany, which during most of the period under review absorbed between two thirds and three quarters of export refund expenditure. In this context it is worth noting that the main beneficiaries of the refunds in terms of production systems over the period under review will have been the largest units producing eggs in traditional caged units, since with the notable exception of Switzerland, the market for alternatively produced eggs in third countries (in shell and particularly in processed form) is extremely limited.

For those Member States, such as the Netherlands, which obtain, or at least used to obtain, significant benefit from export refunds, it is acknowledged that this measure has, if not opened, then at least helped sustain the EU presence in export markets notably in Japan. However, it was noted that dried egg white is a non-Annex 1 product, and part of the CMO, but that this part of the agricultural budget is ruled by DG Enterprise (DG ENTR).

- **In terms of import tariffs**, the effect of the CMO is of course reinforced by the import tariffs, but since shell eggs are traded in only limited quantities[170] the effect of maintaining Community preference is more marginal than for the other sectors under review. More generally, the above results suggest that the CMO has a very limited impact on producer incomes in the sector.

Beyond these direct beneficiaries the view of the sector generally is that the CMO has a marginal impact with other factors being considered of far greater significance for income evolution. These other factors range from the decisive role of the salmonella status protection against imports enjoyed by Sweden and Finland and the role of state aid in Finland, to more general market issues such as the growth of retailer concentration.

Looking more specifically at the **impact by type of production system**, it was noted by many stakeholders in the industry that as there is virtually no trade in shell eggs or products from alternative production systems, the CMO acts mainly on the caged egg sector.

No differentiation in terms of CMO impact was ascertainable by **form of vertical integration**. However, analysis by **size of holding** found that the bulk of the indirect income benefit of the CMOs goes to the largest producers in those regions with a high proportion of output in France, Netherlands, Spain, Germany, Italy and the UK which account for the bulk of production.

[170] Due to the need for freshness and traceability as well as the cost of transport.

Box 4.6: Main conclusions on the level and development of income

In conclusion, the evidence presented in this chapter, in association with the findings of Evaluation Questions 2 to 3, would suggest that the measures of the CMO for eggs have had a joint impact on the level and development of producers' incomes over the evaluation period:

- **In terms of the joint impact on the level of income**, the FADN analysis has illustrated that, in general, the level of average income for egg producers (in terms of FNVA/AWU) has been marginally lower over the evaluation period than for the agricultural sector as a whole. Both export refunds and import tariffs were found to have jointly maintained producer prices and production (hence income) at significantly higher levels than would otherwise have been the case. *Thus, the joint impact of the CMO measures on the level of income has been significant*. Consequently, the measures have, to a certain extent, fulfilled the objective of the CMO to *ensure a fair standard of living* for producers.

- **In terms of the joint impact on the development of income**, the FADN analysis found that although there has been a general increase in egg producers' incomes over the period, much of this increased level of income was due to an increase in the scale of production. Evidence presented in Evaluation Question 9 suggests that the CMO measures have only had a minor and indirect impact on the evolution of the number and size of holdings. Thus, much of the development in incomes over the period, in this respect, has been due to other factors. Moreover, the contribution of export refunds and import tariffs in maintaining income at higher levels than would otherwise be the case has fallen significantly over the evaluation period.

  That said, the CMO measures have had a joint impact on the cyclical development of income over the period. While the FADN analysis illustrated the extent of the cyclical income lows recorded in 1994 and 1998, it is generally considered that without intervention the cyclical income lows over the evaluation period would likely have been greater. *Thus, the joint impact of the CMO measures on the development of income has been fairly significant during cyclical lows*. Moreover, the buffering of the extent of the cyclical lows has gone some way to fulfilling the objective of the CMO to *stabilise markets* and help *ensure a fair standard of living* for producers.

4.3.2. Question 8: Analysis of production costs

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.2.2.

The impacts of the different CMO instruments and of other related policies

As discussed in Section 4.1.1, one of the overarching objectives of the CMO for eggs (relevant to this evaluation question) is *to ensure a fair standard of living for farmers*. It can therefore be hypothesised that given that the CMO for eggs is a relatively lightly supported sector, the impact of other related policies will have had a greater effect on the level of production costs over the evaluation period, and hence the level and development of producers' incomes.

This evaluation question was answered based on an analysis of Farm Accountancy Data Network (FADN) data[171] (much of which was based on a specific study carried out by DG Agriculture (Appendix 6)) and other secondary data. The findings of this quantitative analysis were supplemented by interviews with industry stakeholders in the EU egg sector to provide contextual information as to any link between changes in income levels and the role of the egg CMO.

4.3.2.1. General analysis of production costs

Figure 3.18 compares the average cost structure of egg producers in the EU between 1989 and 2003. This comparison shows that the structure of production costs has changed over the evaluation period with the importance of specific costs[172] decreasing, at the expense of external factors[173] and overheads[174].

Analysis of the of the 2003 FADN data (Appendix 6) shows that the cost structure of poultry production in the EU varies significantly according to the size of the farm. For example, on the holdings with less then 50 LU of poultry, specific costs accounted for only 38% of the expenses, while on those in the size category 1000 <5000 LU accounted for 68%. In contrast, depreciation accounts for 21% in the smallest size class compared to only 7% in the largest size class. However, there virtually no little difference in the level of expenditure for external factors by size of the farm.

[171] As discussed in the introduction to Question 7 (Section 4.3.1).
[172] Specific costs include costs such as feed (both farm-grown and purchased) and other livestock specific costs.
[173] External factors include costs such as wages paid, rent paid and interest paid.
[174] Overheads include costs such as electricity and water.

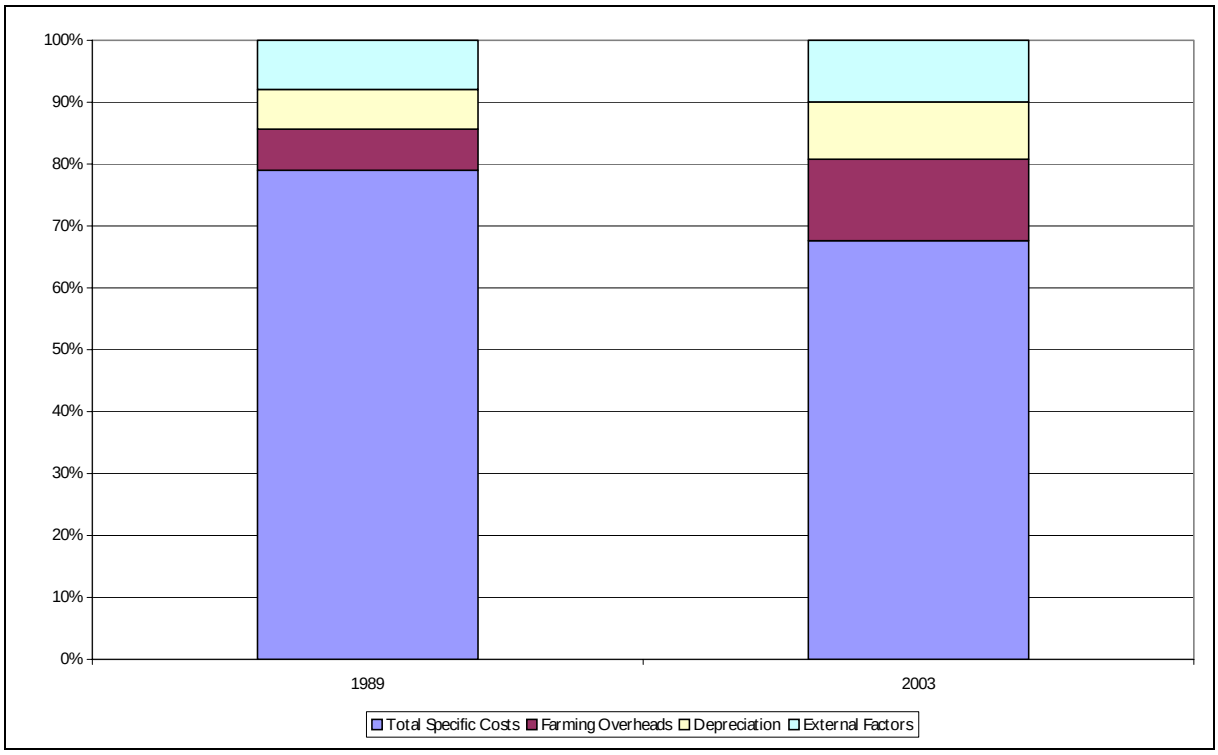

Figure 4.14: Comparison of average cost structure of egg producers (1989 and 2003)

Source: FADN – processing DG AGRICULTURE G3.

4.3.2.2. Analysis of feed costs

Influence of arable sector price levels

« Secondary data analysis »

The EU arable sector has important linkages with other agricultural sectors, particularly the livestock sector. According to the industry interviews, cereals form a significant ingredient of livestock feed rations in the EU livestock sector, accounting for around 60% of the overall feed ration. This is particularly so in the EU egg sector, where animal feed forms the main cost in the production of eggs.

As shown in Figure 4.15, the cost of livestock feed accounts for the vast majority (between 69.0% to 78.0%) of total production costs (i.e. variable costs). Furthermore, expenditure on feed is lower in intensive egg production systems (e.g. caged) than in more extensive systems (e.g. organic). However, feed cost as a proportion of total variable costs does not vary significantly between systems.

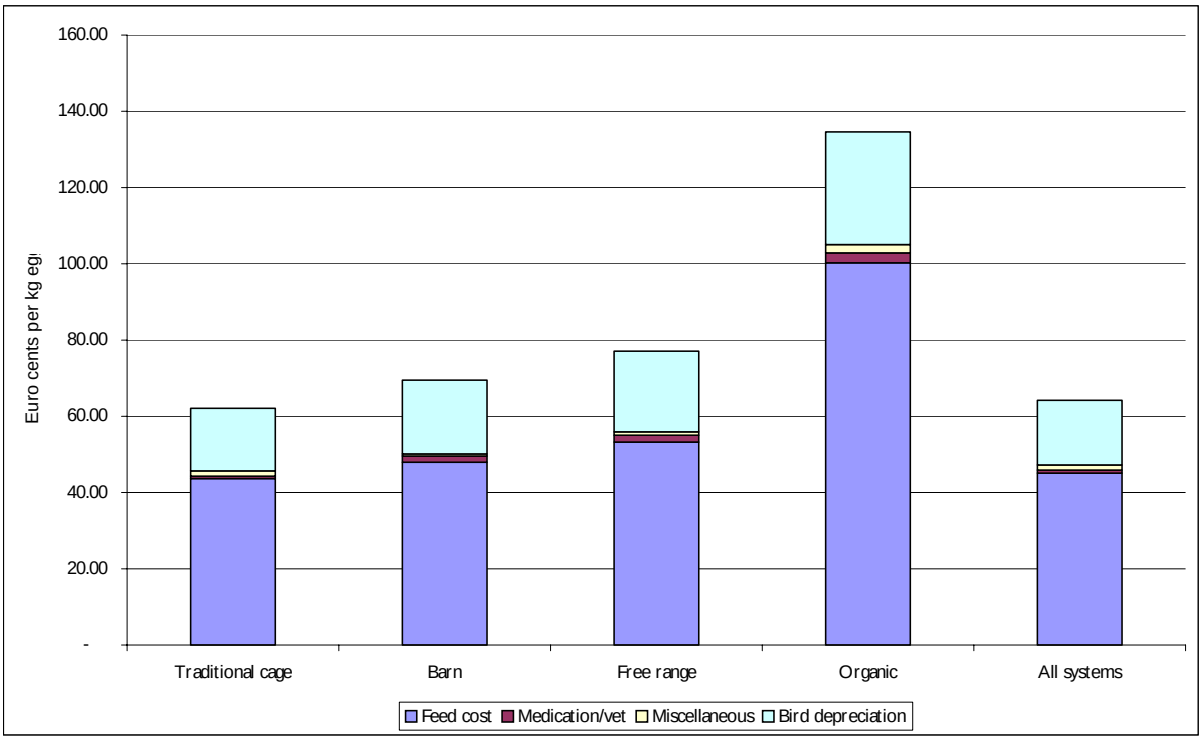

Figure 4.15: Poultry (eggs) variable costs, 2000

Source: Agra CEAS Consulting 2004.

The absolute level of, and developments in, EU cereal prices therefore have important implications for the cost competitiveness of the EU egg sector. Consequently, any change in the CMO for cereals that affect cereal prices would *a priori* be expected to have a considerable impact on the cost competitiveness of egg production.

During the period under examination in this evaluation, there have been two major reforms to the CMO for cereals; the MacSharry 1992 reform and the Agenda 2000 reform. These reforms have progressively reduced the EU intervention price for cereals (with these price reductions being compensated for by direct payments to farmers based on the area under production). As a result of the MacSharry 1992 reform, the intervention price for common wheat was reduced by 34.8% over a three-year period, after which time it remained unchanged (apart from a 7.5% increase as a result of revisions to the agro-monetary rules[175]) until the Agenda 2000 reforms which led to a further 15% reduction in cereal prices over a two year period (Figure 4.16).

[175] In 1995 changes were introduced in the agri-monetary rules and the intervention price was set at 119.19 ECU per tonne, an amount deemed to be equivalent to the proposed 100 ECU per tonne target price under the old rules.

As shown in Figure 4.16, these reforms have had a direct impact on the EU market price for cereals. Between 1992 and 2001, the intervention price was cut by 30.6%. As a result, EU cereal market prices fell by similar amounts, with the price for wheat, barley, maize and oats falling by 32.3%, 29.7%, 28.3% and 26.7%, respectively.

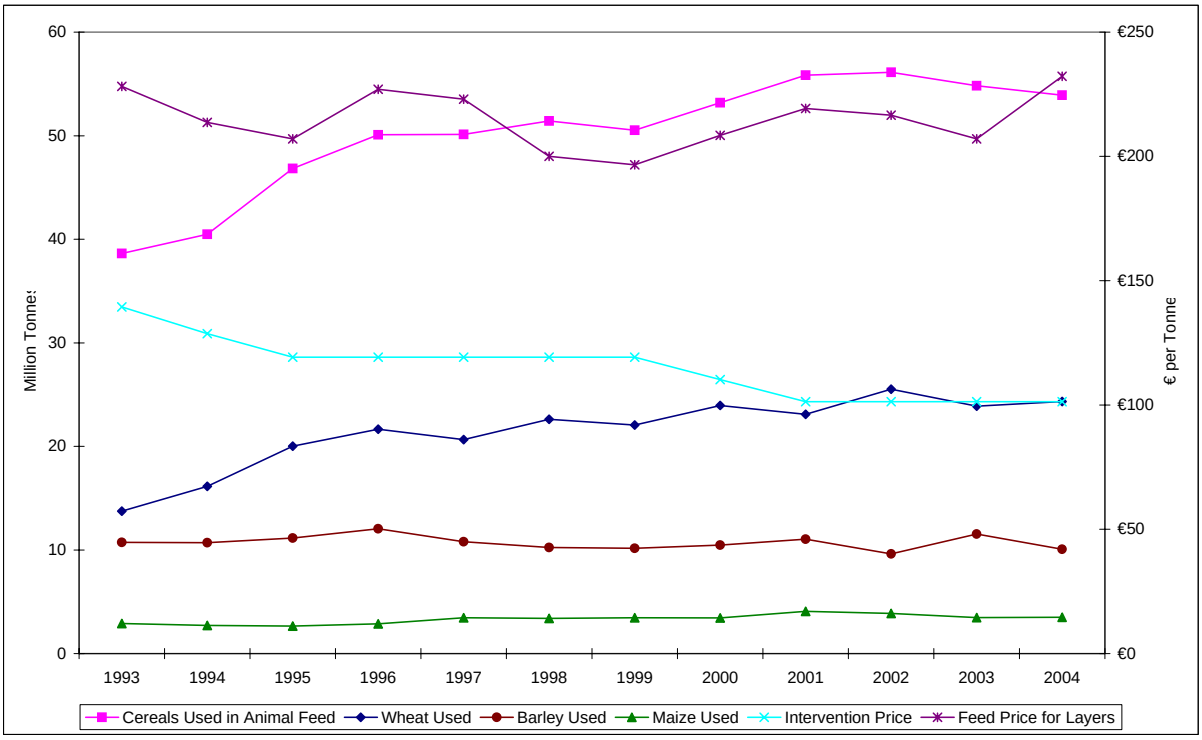

Figure 4.16: Intervention and market price developments for cereals, 1992 to 2004

Source: Toepfer.

These reforms were necessary as the system of price support for cereals was placing an unsustainable financial burden on the EU budget as the system of price support had encouraged excess production and discouraged domestic usage. As a result, particularly of the low duty access for oilseeds granted by the EU during the 1962 Dillon Round of the GATT, imported cereal substitutes had also gained an increasing share of the market for use in the production of livestock feeds, at the expense of domestic cereal production.

However, this trend was reversed following the aforementioned cereal intervention price cuts and subsequent fall in EU cereal market prices, as the cost competitiveness of EU cereal production improved. As shown in Figure 4.17, there is a clear inverse relationship between the EU intervention price and the volume of EU cereal production used in the production of livestock feed in the EU. Between 1992 and 2001, the volume of EU cereal production used in the production of livestock

feed in the EU increased by an average 548,989 tonnes for every €1 per tonne reduction in the intervention price.

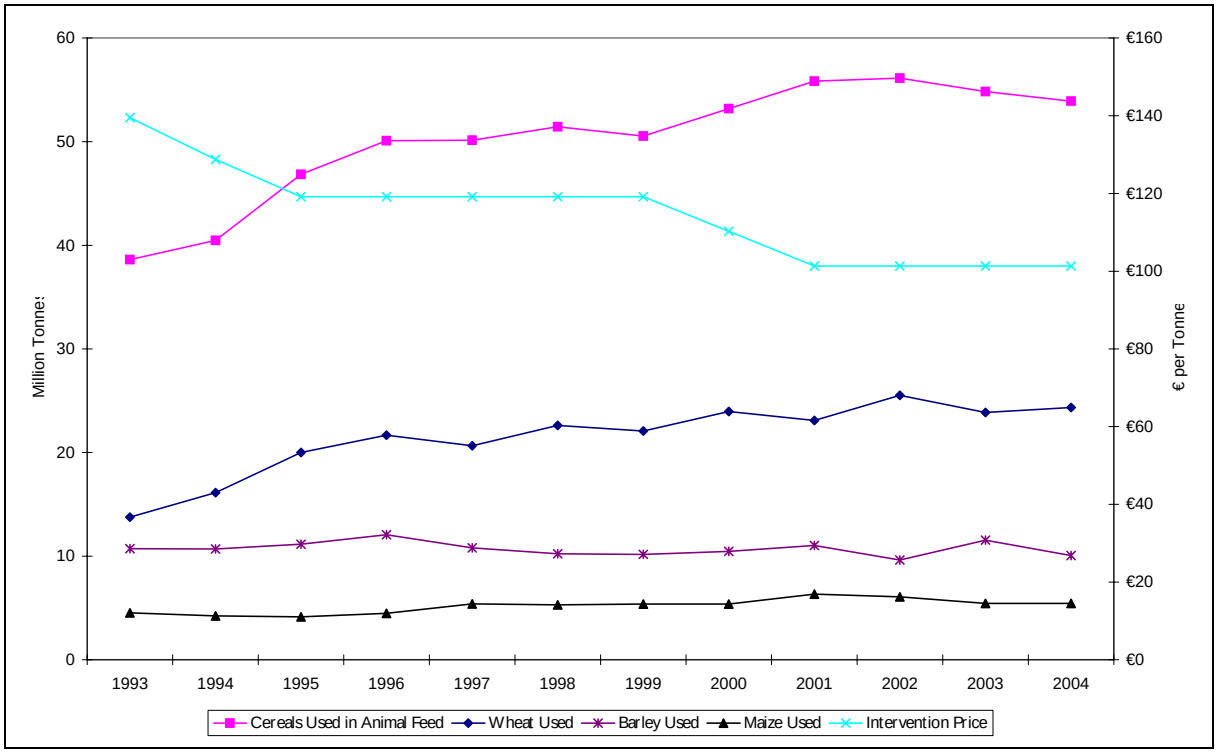

Figure 4.17: EU intervention price and cereals used in animal feed, 1993-2004

Source: European Commission, FEFAC and Toepfer.

Figure 4.16 shows the evolution in the price of poultry feed for egg production in the EU over the evaluation period. As might be expected *a priori*, given the reductions in intervention price and cereal market prices, the price of poultry feed for egg production fell over the period 1993 to 2003 by 9.3%. However, the extent to which the price of poultry feed for egg production has fallen over the period has been considerably less than the reduction in intervention price (27.3%) and cereal market prices (21.6% to 37.2%) over the same period.

There are a number of possible contributory factors that could explain this trend. Firstly, there are other ingredients used in the production of livestock feed rations, such as soya. Soya is an important source of protein used in the production of livestock feed rations. As shown in Figure 4.16, the market price for imported soya has not fallen in line with the intervention price and EU cereal market prices over the period. Although the intervention price and cereals market prices fell by between 26.7% and 32.3% between 1992 and 2001, the price for imported soya actually increased by 11.3%. Secondly, additional costs imposed by changes to the Community's feed legislation have added costs to the production of livestock feed

which have been reflected in the price for poultry feed, particularly at the end of the evaluation period following the introduction of the ban on meat and bonemeal. Thirdly, the increase in fuel costs over the period is likely to have been passed on to producers in terms of a higher feed price.

« FADN analysis »

As noted above, the most important determinant of the costs for the poultry production remains the feed cost. Figure 3.22 provides an evolutionary account of the impact of the aforementioned reduction in feed price on the cost structure of egg production. In 1989 feed costs accounted for 75% of specific costs, compared to 56% in 2003. This share is lower for non-specialist poultry farms given that costs for the other animals are also included.

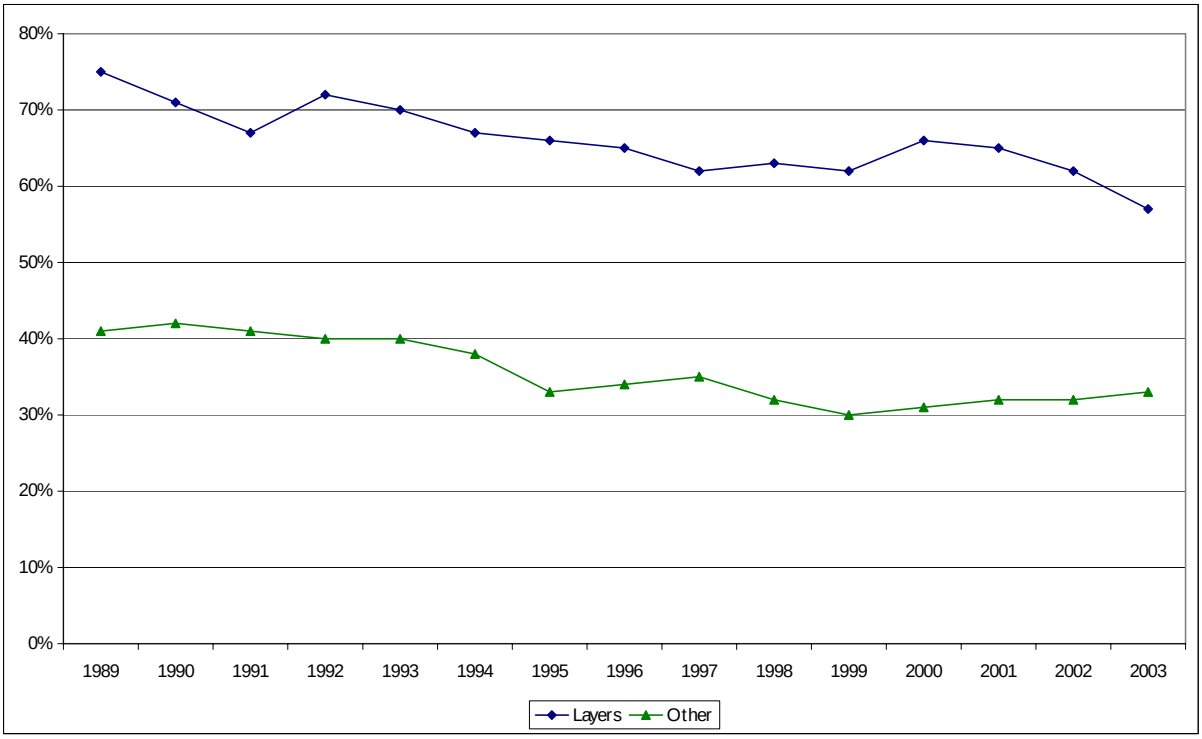

Figure 4.18: Evolution of share of feed for laying hens in total livestock specific costs

Source: FADN – processing DG AGRICULTURE G3.

Influence of community feed legislation

In January 2001, the EU Agriculture Council approved an EU wide ban on feeding processed animal proteins to farm animals. However, for the UK this ban had been in force since 1996. The feeding of processed animal proteins was a cost-effective way to increase the levels of protein and/or minerals in animal diets and complemented protein from grain ingredients to improve dietary protein quality. Accordingly, this

ban has added additional costs to the production of animal feed which may account to some extent for the slight increase in feed prices during 2001 and 2002, as shown in Figure 4.16 above. However, as illustrated above the cost of feed in the EU has fallen in absolute terms over the evaluation period.

« Secondary data analysis »

According to the European Feed Manufacturers' Federation FEFAC (Agra Europe, 2000), the extra cost of replacing meat and bonemeal with soybean meal was estimated to result in a 14% rise in poultry feed prices. However, analysis undertaken by the Agricultural Economics Research Institute in the Netherlands found that poultry feed costs have risen by a much lesser extent by 3% to 4% (Van Horne, 2003).

According to the UK's Food Standards Agency[176], it was estimated that the annual cost to pig and poultry producers in 1998 of using alternative, more costly feed supplements was £14 million (approximately €22 million).

« Interview results »

The results of the interviews found that the industry was unanimous in the view that the feed ban had added costs to the sector. However, limited data is available to quantify the extent of these additional costs on the sector.

4.3.2.3. Analysis of manure disposal and emission reduction costs

EU environmental protection measures have imposed additional costs on EU egg production concerning manure disposal and reductions of emissions. However, it should be noted that these measures do provide environmental and cost benefits to society as a whole.

« Secondary data analysis »

The management of manure in the egg sector differs from pig (and poultry for meat production), as it is typically 'drier', thus facilitating storage and field application. However, comparative costs for manure management for individual Member States are not collected at either an EU or national level. Industry interviews have revealed that one reason for this is that manure is often used either on-farm in other enterprises or used for pelleting. In the latter case, it is the pelleter that incurs the cost of manure removal and the farmer therefore incurs no cost to dispose of the manure.

« FADN analysis »

[176] In its BSE controls final report (20 December 2000).

Although there is no specific cost category in the FADN database for manure disposal and emission reduction, such costs would be included in the 'other specific costs' category (which includes expenditure on medicines, veterinary fees, waste processing etc.). Analysis of the FADN data (Appendix 6) shows that between 1989 and 2000, other specific costs for specialist egg producers remained relatively constant accounting for around 3-4%. However, since 2000 other specific costs for these specialist poultrymeat producers have increased to 9% of the total specific expenses. It is expected that much of this increase is attributable to additional costs associated with manure disposal and emission reduction (Appendix 6). In 2003, specialist egg producers spent an average €28,000 on total specific costs, suggesting that up to €2,520 was spent on manure disposal and emission reduction.

« Interview results »

Where costs are incurred for disposing manure, these differ both between and within Member States due to variations in production systems, location of the farm, size of farm, etc. Thus, while it is difficult to provide actual costs for manure disposal, various indications of what these costs may be were provided by the industry during the stakeholder interviews:

- In **France**, estimates from the ITAVI suggest that a rate of 15% of total building costs is attributed to manure management. This represents approximately 2.3% of production costs per egg.

- In the **Netherlands**, there has been a significant increase in the cost of manure disposal over the evaluation period, with average manure disposal costs totalling around €20,000 per farm (Agra CEAS Consulting, 2004). This typically represents 4% of total production costs (including labour).

While the cost of manure disposal and reductions of emissions has had a negative impact on production costs in the egg sector, it is important to acknowledge that there have been wider benefits to society from these measures.

4.3.2.4. Analysis of costs due to animal welfare standards and animal health provisions

« Secondary data analysis »

Directive 1999/74/EC on the welfare of laying hens required, *inter alia*, that the minimum cage size for traditionally battery cages be increased from 450 cm^2 to 550 cm^2 from 1 January 2003[177]. This legislation has had the following theoretical impact on the cost of egg production. The calculation made here is based on the

[177] Earlier bans on traditional battery cages were also introduced in Sweden and parts of Austria.

assumption that in order to comply with the legislation in effect producers will have had to reduce the number of birds within a fixed unit of production by 20%. Thus while variable costs per bird remain stable, the fixed costs associated with any given unit can be spread over a lower number of birds. Clearly this calculation assumes that a unit was operating at 100% capacity prior to the change.

Based on an extensive survey of average costs of production across the EU undertaken by Agra CEAS to assess the socio-economic implications of the 2012 ban on traditional battery cages an EU wide average for fixed costs was established. This is set out in column 2 of Table 4.14 below while the post implementation position from January 2003 onwards is set out in column 3. The effect of the change is to add an extra 25% to the fixed costs of producers, or €5.65 per kg of eggs.

Table 4.14: Fixed cost[1] comparison between pre- and post January 2003 implementation of Directive 99/74/EC on laying hen welfare (€ per kg of eggs)

	Position up to 1.1.2003	Position post 1.1. 2003
Labour	4.68	5.85
Buildings	3.42	4.27
Equipment	4.62	5.78
Other	9.89	12.36
Total fixed costs	**22.61**	**28.26**

Note[1]: Costs in 2003 terms. Costs are EU average costs for traditional caged laying systems and therefore naturally represent a very wide variety of conditions across the EU and even more so between producers.
Source: Agra CEAS Consulting.

In essence, the cost of this animal welfare measure has had a negative impact on production costs in the egg sector, although it should be noted that some production benefits may accrue from such measures.

4.3.2.5. Synthesis of results from the tools used and conclusion

Drawing on the results of the above analysis as well as the findings of the Evaluation Questions 2 and 3, the following conclusions can be drawn in relation to this specific Evaluation Questions which required:

An analysis of production costs in the egg sector to identify the impacts of the different measures of the CMO as well as other policies related to them (namely manure disposal and emission reduction, animal welfare and animal health).

Analysis of the impact of the different measures of the CMO on production costs

Based on the modelling results presented in Evaluation Questions 2 and 3, it was found that the use of export subsidies and import tariffs over the evaluation period had a positive effect on production of eggs in the EU. Accordingly, production was 14.6%, 9.7% and 4.3% higher in the three reference periods (1990-92 period, 1995-97 period and 2000-02 period, respectively) than it otherwise would have been. The modelling results presented also calculated that the increased feed cost associated with this increased production amounted to 15.6%, 9.9% and 4.3% in the three reference periods. However, on a per animal basis there is no impact on feed cost from the CMO measures.

Analysis of the impact of other policies relating to the CMO on production costs

The above analysis quantified the impacts of the other CMO instruments and other related policies on production costs. The following General conclusions were identified, with respect to their impact on production:

- The main cost element in the production of eggs is the **feed cost** and this has primarily been affected over the evaluation period by the CAP reform induced reduction in cereal intervention price. Moreover, the fall in the cost of feed for laying hens over the evaluation period as a result of the reduction in intervention prices has more than offset increases in feed costs as a result of community feed legislation.

- Compared to the positive impact of the CAP reform induced reduction in cereal intervention prices on the cost of laying hen feed, the individual impact of changes in policies on **manure disposal and emission reduction**, **animal welfare** and **animal health**, although resulting in costs[178] to farmers, have *in general* been relatively small. That said, evidence from the case studies would suggest that the impact of these policies on costs differed *considerably* both between and within Member States, particularly with respect to the additional costs associated with manure disposal and emission reduction because of the wide ranging implementation standards and environmental conditions within the EU.

[178] While this Evaluation Question only concerns an analysis of the impact of different measures of the CMO as well as other policies related to them on production costs, it should be noted that such measures *may* accrue additional production benefits to producers as well as society as a whole.

Table 4.15: Summary of the impact of different CMO instruments and of other related policies on production costs

	Impact on production costs
Influence of arable sector price levels	+++
Community feed legislation	-
Manure disposal and emission reduction	-
Animal welfare standards	-
Animal health provisions	-

Note: - negative impact, + positive impact

Box 4.7: Main conclusions on production costs

In conclusion, with respect to the **CMO measures for eggs** themselves the evidence suggests that they have not had a significant impact on production costs on a per animal basis.

With respect to **other CMO measures and other related policies**, the evidence does not suggest that the overall impact the other CMO measures and other related policies on the sector has been negative with respect to production costs. This is because the above analysis suggests that *in general* the increased costs associated with the Community feed legislation, manure disposal and emission reduction, animal welfare and animal health are likely to be offset by the impact of the CAP reform induced reduction in cereal intervention price on animal feed prices, given the extent of this reduction and the relative importance of feed in total production costs. However, it has not been possible to quantify whether the overall impact on the sector has actually been positive.

Nevertheless, it would seem unlikely that overall these other CMO measures and other related policies will have added significant cost to the production of eggs during the evaluation period, thereby maintaining the objective of the CMO to *contribute to a fair standard of living for farmers*.

4.4. Theme 3: Rural development and the environment

For information on the methodology used and the results of the structuring work, please see Appendix 1 section A1.3.1.

4.4.1. Question 9: Impacts on rural development and the environment

This question has been addressed through an analysis of available secondary data in conjunction with interviews conducted in the case study regions (see Appendix 7 section A7.3). The primary limitation in answering the evaluation questions and sub-questions is the lack of adequate secondary data, particularly at regional level. Similarly, given the 'light' nature of the CMO regime, it is understandable that interviewees place greater emphasis on more tangible direct impact on the sector arising from other factors. However, the CMO regime is likely to have influenced production decisions, thereby influencing the process of regional concentration and distribution of production, the evolution of the size and number of holdings, the specialisation of holdings and also the relationships between upstream and downstream industries, even though there may be little or no direct evidence to quantify their direct or indirect impacts on rural development and the environment. Therefore it is important for the reader to note the scale of the simulated impacts of the CMO measures set out previously when reading the analysis, in order to put the evidence presented into context.

4.4.1.1. Regional distribution of production and concentration of production in certain regions

Community situation and development

EU-15 laying hen numbers increased by 22% between 1990 and 2003 according to data from Eurostat. The five Member States with the largest share of total laying hen numbers (Germany, Spain, France, the Netherlands and the UK, from which the case study regions in this analysis have been selected) together account for a combined share of EU-15 laying hen numbers of three-quarters. The fastest rate of growth over the period was in Spain (see Figure 4.19 and Table 4.16).

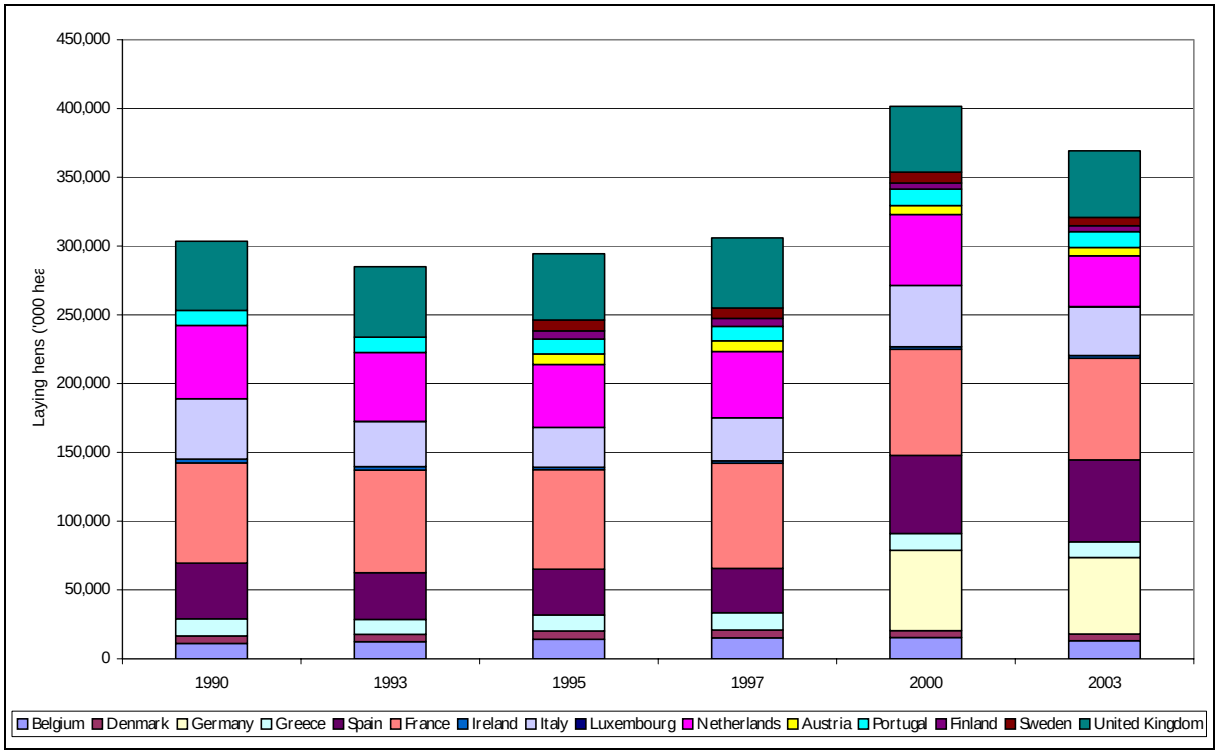

Figure 4.19: Evolution of EU-15 laying hen numbers, 1990-2003 ('000 head)

Source: Eurostat.

Table 4.16: EU-15 laying hen numbers and share, 1990-2003 (million head; %)

	1990		1993		1995		1997		2000		2003	
	'000	% share	'000	% share	'000	% share	'000	% share	'000	% share	'000	% share
Belgium	11.0	3.6%	12.3	4.3%	14.1	4.8%	15.3	5.0%	15.4	3.8%	13.1	3.5%
Denmark	5.5	1.8%	5.4	1.9%	6.0	2.0%	5.6	1.8%	5.0	1.2%	4.9	1.3%
Germany									**58.3**	**14.5%**	**55.7**	**15.1%**
Greece	12.5	4.1%	10.9	3.8%	11.6	4.0%	12.6	4.1%	12.2	3.0%	11.4	3.1%
Spain	**40.4**	**13.3%**	**33.9**	**11.9%**	**33.4**	**11.3%**	**32.2**	**10.5%**	**56.9**	**14.2%**	**59.5**	**16.1%**
France	**72.9**	**24.0%**	**74.6**	**26.2%**	**72.4**	**24.6%**	**76.4**	**25.0%**	**77.1**	**19.2%**	**73.9**	**20.0%**
Ireland	2.8	0.9%	2.5	0.9%	1.8	0.6%	1.7	0.6%	1.9	0.5%	2.1	0.6%
Italy	43.8	14.4%	32.8	11.5%	28.8	9.8%	31.4	10.3%	44.5	11.1%	35.4	9.6%
Luxembourg	0.1	0.0%	0.1	0.0%	0.1	0.0%	0.1	0.0%	0.1	0.0%	0.1	0.0%
Netherlands	**53.4**	**17.6%**	**50.1**	**17.6%**	**45.7**	**15.5%**	**48.1**	**15.7%**	**51.5**	**12.8%**	**37.0**	**10.0%**
Austria					7.7	2.6%	7.7	2.5%	6.6	1.7%	6.1	1.6%
Portugal	10.9	3.6%	11.2	3.9%	10.9	3.7%	10.6	3.4%	12.0	3.0%	11.5	3.1%
Finland					5.8	2.0%	5.8	1.9%	4.4	1.1%	4.3	1.2%
Sweden					7.9	2.7%	7.6	2.5%	7.9	2.0%	6.0	1.6%
UK	**50.1**	**16.5%**	**51.3**	**18.0%**	**48.2**	**16.4%**	**50.9**	**16.6%**	**47.8**	**11.9%**	**48.3**	**13.1%**
EU-15	**303.4**	**100.0%**	**285.1**	**100.0%**	**294.4**	**100.0%**	**305.9**	**100.0%**	**401.6**	**100.0%**	**369.1**	**100.0%**

Note: Germany 2000-2003; Finland and Sweden 1995-2003.

Source: Eurostat.

Case study regions

Information on the regional distribution[179] and concentration[180] of production in the case study regions can be found in Appendix 7 section A7.3. The case study regions selected (see Appendix 1 Table A.1) are:

- France – Brittany
- Germany – Weser Ems
- Netherlands - Noord-Brabant and Limburg
- Spain – Castilla-La Mancha (Guadalajara, Toledo)
- UK – Midlands

The secondary data gathered and the evidence from the interviews conducted with industry experts in each of the case study regions show that the current patterns of regional distribution and concentration of production are the result of the interplay of a number of economic, geographical and historical factors and it would be impossible to precisely determine the impact of any of these factors in isolation (see Appendix 7 section A7.3.1.1).

The development of regional concentrations of pigmeat production in **Spain (Guadalajara, Toledo), the Netherlands (Noord Brabant, Limburg)** and **UK (Midlands)** is historically due to a combination of physical and economic factors, in particular, the suitability of the regions for feed production.

- **Guadalajara, Toledo** – the concentration of egg production is primarily due to the proximity of raw materials for feed, the availability of land with low livestock densities and few environmental problems and the proximity to cereal growing areas for the diposal of manure. It should be noted that the development of the sector in Spain and the process of structural change and adaptation to market conditions had already started prior to Spain's accession to the EU in 1986. Therefore, while the CMO is likely to have influenced the sector since accession, it was not a factor underlying trends prior to this time.

- **Noord Brabant, Limburg** – unfertile sandy soil that is unsuitable for arable production, but suited to intensive livestock production. Furthermore, proximity to the maritime port of Rotterdam enabling relatively inexpensive imports of feed stuffs and in particular, imports of lower cost cereal substitutes prior to the 1992 McSharry reforms of the CAP.

[179] The number of laying hen farms by specific geographic region.
[180] The spatial distribution of laying hen farms within a specific geographic region.

- **Midlands (UK)** – the open flat terrain favours the production of cereals and consequently provided a ready source of poultry feedstuffs. Also easy access to the port of Hull for trade with the port of Rotterdam, allowed for the easy import of cereal substitutes for the animal feed industry in the region prior to the 1992 McSharry reforms of the CAP.

The development of regional concentrations of egg production in **Germany (Weser-Ems)** and **France (Brittany)** (also a factor in the **Netherlands (Noord Brabant, Limburg)** and the **UK (midlands)**) is primarily due to geographical and economic factors, particularly the proximity to maritime ports.

- **Weser-Ems** is characterised by the proximity of maritime ports (e.g. Germany - Wilhelmshaven, Bremerhaven, Bremen) and navigable rivers, enabling relatively inexpensive imports of feed stuffs and in particular, imports of lower cost cereal substitutes prior to the 1992 MacSharry reforms of the CAP. However, when cereal prices fell as a result of CAP reforms in 1992, this competitive advantage ceased, although the competitiveness of poultrymeat production in the regions continued to increase, due to the agglomeration advantages and economies of scale that had already been established.

- **Brittany** developed its poultrymeat production industry also as a result of the proximity of maritime ports (e.g. Brest and Lorient), for the same reasons outlined above. However, it can be argued that an export oriented industry serving Middle-East markets has effectively been opened and maintained by the CMO, since the region has been the major beneficiary of export refunds in the sector over the evaluation period.

Another major factor in the development of regional production concentrations is proximity to main markets, particularly in the case of **Guadalajara, Toledo** (proximity to Madrid) and **Weser-Ems** (proximity to a number of industrial centres with large populations).

Conclusion

The evidence suggests that the development of the egg sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of protection for the EU market and consequently have provided an incentive for to increase egg production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

The simulations and analysis undertaken for the previous evaluation questions indicate that the direct impact of the CMO on both price and production were relatively large, particularly in the earlier part of the evaluation period, resulting in prices that were around 11.6% higher and production that was around 9.5% higher as a result of the CMO measures (see section 4.2.3.2).

However, the impact of the CMO on the patterns of regional distribution and concentration of production was both minor and indirect.

4.4.1.2. Evolution of the number, size and specialisation of holdings or enterprises

Community situation and development

There has been an ongoing process of rapid structural change in the EU egg sector, which has resulted in an increase in laying hen numbers, a decrease in overall holding numbers and a corresponding increase in the number of birds per holding. Figure 4.20 illustrates this trend in holding numbers for the EU as a whole between 1990 and 2003.

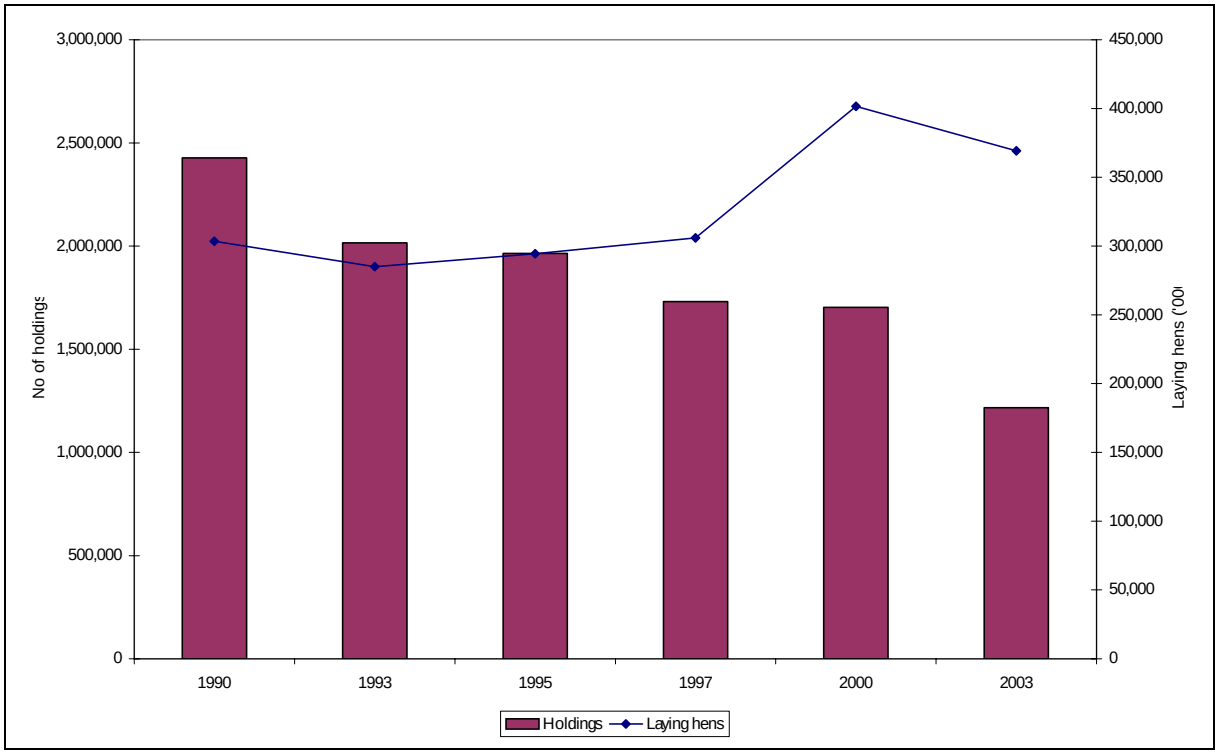

Figure 4.20: Evolution of EU-15 laying hens and holding numbers, 1990-2003

Source: Eurostat.

Table 4.17 shows the increase in the number of laying hens per farm holding in the EU. The trend can be seen in all Member States, but is most noticeable in those Member States with the highest overall laying hen numbers.

Table 4.17: Average number of laying hens per holding, 1990-2003

	1990	1993	1995	1997	2000	2003	% CAGR
Belgium	852.8	1,390.5	1,931.3	2,381.6	2,824.2	2,603.6	8.3%
Denmark	421.3	521.6	650.8	719.4	786.5	1,286.1	8.3%
Germany					506.7	630.4	1.6%
Greece	33.2	27.2	28.7	34.9	39.3	35.2	0.4%
Spain	104.3	104.9	113.1	120.9	247.0	322.2	8.4%
France	154.1	210.3	234.3	286.7	332.5	453.9	8.0%
Ireland	116.6	143.2	119.9	128.5	214.7	282.1	6.5%
Italy	61.6	58.1	56.9	71.6	101.2	275.0	11.3%
Luxembourg	43.2	52.6	51.5	57.5	66.7	90.9	5.5%
Netherlands	11,454.9	12,661.6	13,691.6	15,276.2	17,405.4	21,994.0	4.8%
Austria			80.5	87.5	83.2	93.6	1.1%
Portugal	28.4	37.7	40.8	44.5	50.9	56.3	5.0%
Finland			765.9	1,268.7	2,013.7	2,275.1	8.1%
Sweden			799.6	883.9	1,191.2	1,086.8	2.2%
UK	1,276.2	1,431.4	1,479.6	1,746.9	1,765.5	1,446.1	0.9%
EU-15	**125.0**	**141.4**	**149.8**	**176.7**	**235.9**	**303.3**	**6.5%**

Note: Germany 2000-2003; Finland and Sweden 1995-2003.
Source: Eurostat.

In addition to an overall increase in the number of birds per holding, Figure 4.21 shows the change in laying hen numbers and holding numbers by size class. The general trend is that the smaller size classes of holdings in the EU have decreased in number, while the number of larger sized holdings have increased in number. The only exceptions are the 100-999 and 1000-2999 head size classes, which both increased slightly. The fastest rates of growth has been in the >30000 head size class. Overall, the total number of holdings has decreased over time (Figure 4.20), so while the number of holdings has decreased, the size of holdings in terms of laying hen numbers has increased, indicating an increase in production intensity.

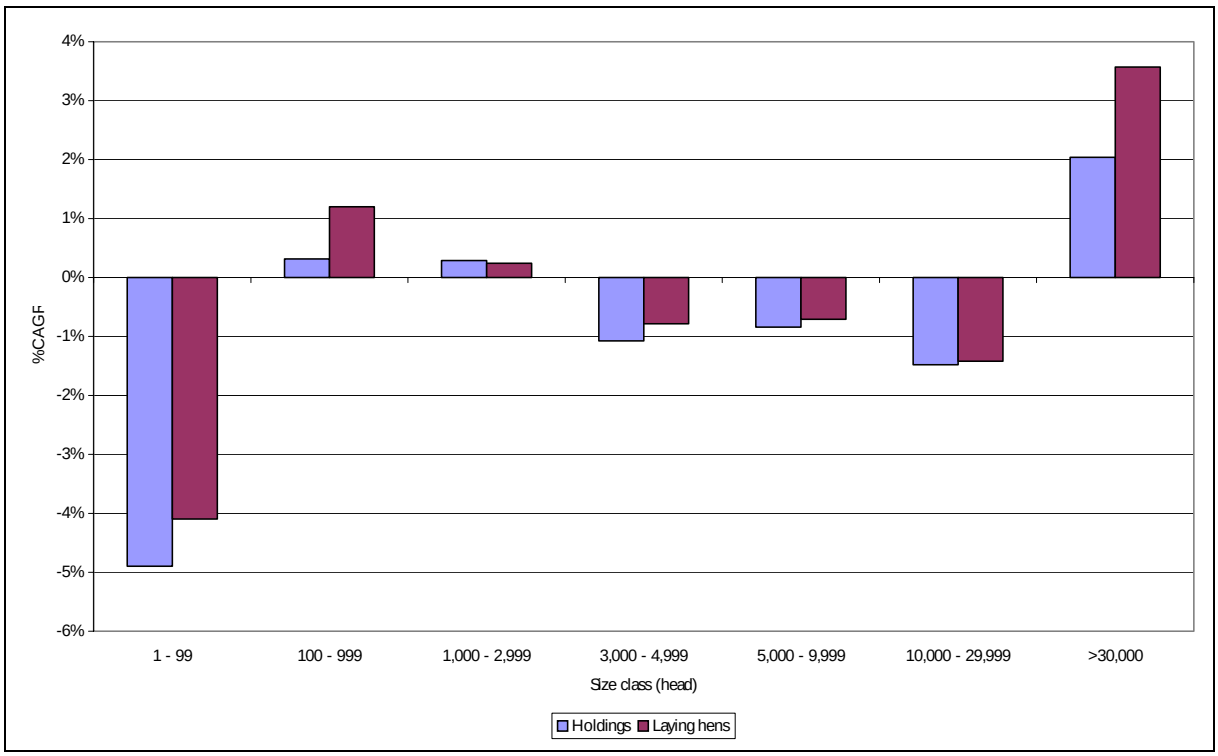

Figure 4.21: Evolution of EU-15 laying hens and holdings by holding size, 1990-2003 (% CAGR)

Source: Eurostat.

The number of laying hens per unit of land area has increased substantially over the period, although it should be noted that there is no satisfactory data available to us that measures the ratio of livestock units to land area. This is largely because the available data (such as Eurostat data) generally focuses on grazing livestock (i.e. including sheep, cattle and goats) rather than poultry. As an indicator, Figure 4.22 shows that the numbers of laying hens in the larger sized holdings by area has increased substantially over the period, with a significant increase also in laying hen numbers on holdings classified as zero hectares in size.

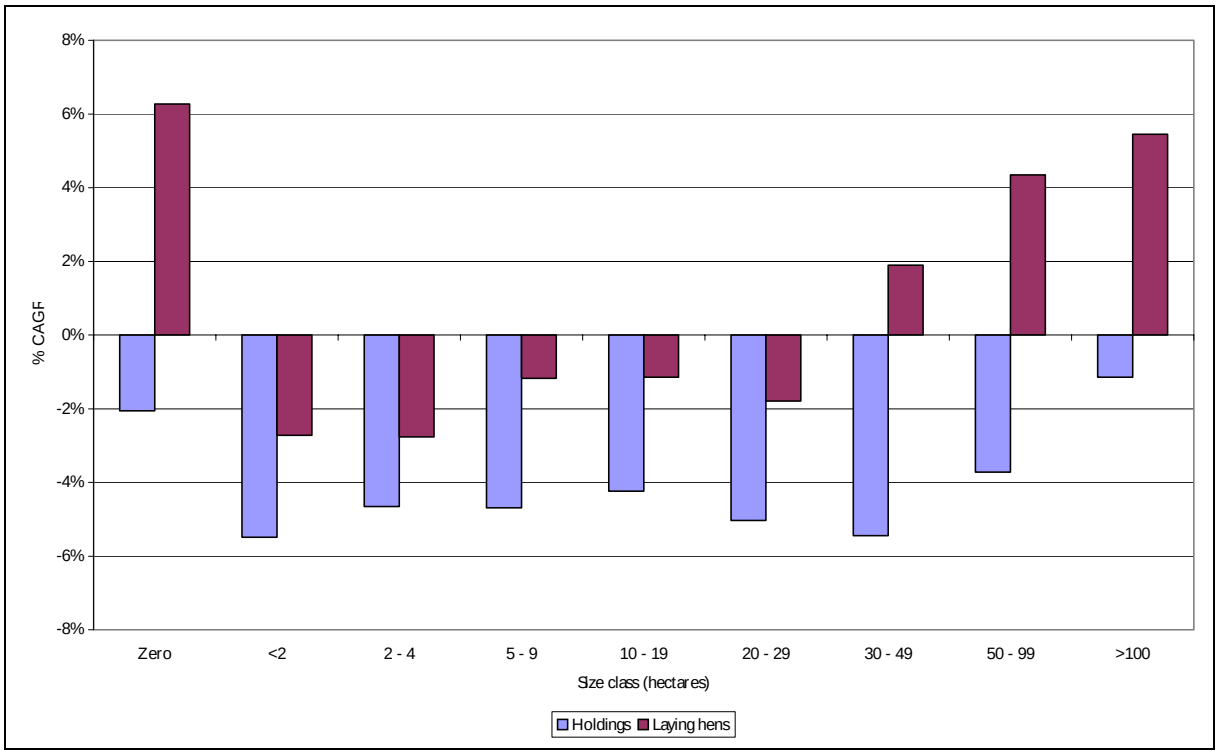

Figure 4.22: Evolution of EU-15 laying hens by area, 1990-2003 (% CAGR)

Source: Eurostat

FADN analysis indicates that the production share of specialist laying hen farms has decreased over the evaluation period, from 20.2% in 1989 to 15.7% in 2003 (see Table 4.12 in section 4.3.1.1). While around half of all EU-15 poultry production takes place on specialised holdings, this varies significantly by Member State. In most Mediterranean countries, almost all poultry production takes place on specialised farms. In contrast, production in the Nordic countries generally takes place on mixed farms[181]. For egg production, the main specialist laying hen holdings are located in the Netherlands, Italy, France and UK (see section 4.3.1.1).

Case study regions

The main factor influencing the evolution of the number and size of holdings in the case study regions is the drive towards achieving adequate economies of scale both in production and related activities (see Appendix 7 section A7.3.1.2). High levels of concentration and specialisation allow egg producers to achieve a better competitive position in a market characterised by increased international competition and also a better bargaining position relative to a concentrated retail

[181] In Sweden, for example, there are no specialised farms found in the FADN database.

sector. In many national sectors, historically high production costs relative to other EU and extra-EU countries are a key driver for efforts to increase economies of scale.

However, although there is no direct evidence, it is likely that the CMO regime has indirectly influenced the process of structural change taking place in the pig sector (see conclusions below), since scale-economies, market trends and competitiveness are indirectly influenced by the advantageous conditions created by the CMO.

It should be noted that the development of the sector in **Spain (Guadalajara, Toledo)** the process of structural change and adaptation to market conditions had already started prior to Spain's accession to the EU in 1986. Therefore, while the CMO is likely to have influenced the sector since accession, it was not a factor underlying trends prior to this time.

Conclusion

The evidence suggests that the development of the egg sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of protection for the EU market and consequently have provided an incentive for to increase egg production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

The simulations and analysis undertaken for the previous evaluation questions indicate that the direct impact of the CMO on both price and production were relatively large, particularly in the earlier part of the evaluation period, resulting in prices that were around 11.6% higher and production that was around 9.5% higher as a result of the CMO measures (see section 4.2.3.2).

However, the impact of the CMO on the number and size of holdings was both minor and indirect.

4.4.1.3. Relationships with the upstream and downstream industries, with particular attention to the development of integration of primary production with the compound feed and/or processing industry

Community situation and development

For the purposes of the answer to this question and to facilitate the ease of use for the reader in the analysis below we reproduce elements of the analysis on this issue in our Inception Report (Page 72).

As for the pig and poultry sector in the egg production sector the view generally is that, apart from the border protection provided which has provided a more secure investment environment, the CMOs have not had a significant direct impact on the integration in the sector. In other words this is a process which has been taking place at differing speeds in the various Member States over the last thirty years in response to a range of other market and regulatory factors. The fact that this process has not been uniform across the EU is evidenced by the fact that the general structure of the industry varies greatly between Member States and is partially reflected by the varying concentration and integration levels at different points in the marketing chain. In some countries substantial portions of this chain are integrated meaning that pullet rearing, feed supply, production, processing and marketing to the retailer are all in the hands of a single company or co-operative. Prime examples of this would be Deutsche Frühstücksei in Germany[182], Eurovo in Italy, Deans Foods in the UK and Danœg A/S in Denmark, all of which own a significant proportion of national production, packing and processing, as well as generally having their own pullet rearing and feed compounding capacity. Where integration has occurred it has generally been driven by the need to:

- optimise returns by achieving economies of scale;
- improve the competitive position of the sector vis-à-vis downstream operators, notably retailers;
- guarantee market outlets for suppliers of feed and other inputs;
- improve production planning and logistics;
- ensure traceability and uniform product quality.

The 2003 four- and eight-firm concentration ratios (CR) in the egg packing sector are presented in Figure 4.23. The most concentrated packing sectors are in France and Denmark where the CR-4 is 99.0% and 97.6% respectively. The sectors in Finland, Ireland, Sweden, the UK and Italy are all more concentrated than the EU-15 average, with least concentration evident in Greece, Spain and Portugal. Thus in Spain in the case study regions of Guadalajara and Toledo while over half the egg producers appear to have an integrated feed and packing plant, day-old chicks are provided from independent companies outside the region and processing and distribution are handled independently.

[182] **Deutsche Frühstücksei GmbH** is the largest producer and packer in Germany with a market share of some 25% of production (12 mn laying hens in 2003) and 30% of packing. The bulk of the company's production is in battery cages and it is a fully integrated operation with its own feed compounding, pullet rearing and processing capacity. **Deans** is the largest egg packer in the UK accounting for around 40% of all eggs packed for just under half of domestic supply of processed products (equivalent to around 0.9 billion shell eggs). The Danish egg packing industry is also very concentrated with just 38 registered packers, of which two, Danœg and Hedegaard Foods dominate with more than 90% market share between them. Danœg is also a major egg processor.

In the vast majority of cases the packing sectors are more concentrated now than they were a decade ago, as larger companies have acquired smaller ones and mergers have taken place. Finland is an example where concentration has decreased, as some (now significant) players were established after accession to the EU.

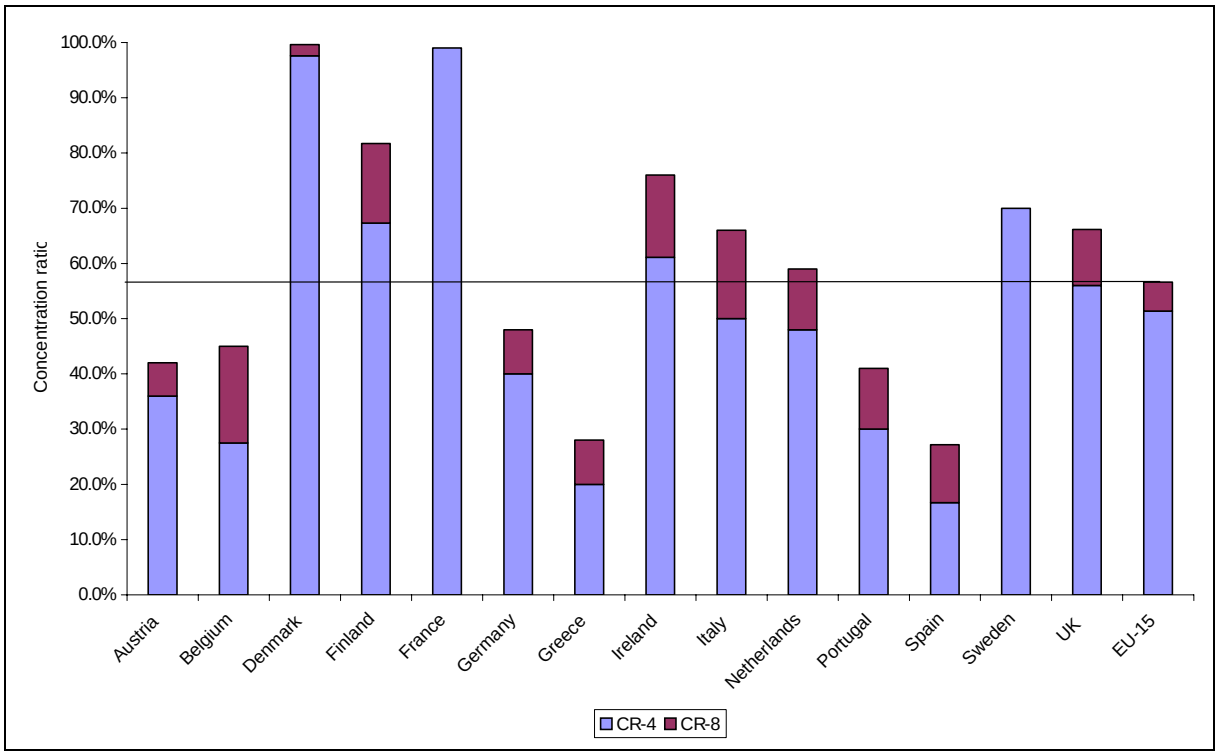

Figure 4.23: Four- and eight-firm packer concentration ratios by Member State, 2003, (% share of market held by respectively top 4 (CR-4) and top 8 (CR-8) companies)

Notes:

1. Data for top four companies concentration ratio (CR-4) in France refers the top 3 companies only as data for top 4 and top 8 (CR-8) in France is not available.
2. Data for CR-4 in Sweden refers to top five companies, CR-8 in Sweden is not available.

Source: Industry estimates and Agra CEAS Consulting calculations.

Figure 4.23 presents processor concentration ratios for four- and eight-firms. The processing sector is much more concentrated than the packing sector with many Member States (Sweden, Finland, Denmark, Portugal, Greece, Austria, Belgium and Ireland) having fewer than four processors. All EU-15 Member States do, however, have at least one processing facility. Where processors are limited in number they tend to focus on breaking second quality eggs, mainly for the domestic market, and usually liquid products only. Often these liquid products include blends and mixes in order to capture greater added value. The drying sector is being increasingly

concentrated and many smaller scale processors have stopped this activity in the face of competition. For example, even in the UK, which has a reasonably large sector, there are no longer any drying facilities.

Case study regions

The picture of integration presented as a result of data analysis and the case studies is reasonably uniform from Member State to Member State, with a high degree of integration observed in all the case study countries except the Netherlands (see Appendix 7 section A7.3.1.3). The CMO is likely to have influenced relationships with the upstream and downstream industries (see conclusions below) since scale-economies, market trends and competitiveness are indirectly influenced by the advantageous market conditions created by the CMO.

- **Brittany (France)** – integration mainly comes from co-operative involvement in the supply of feed and other inputs as well as production planning. At the national level, it is understood that 80% of egg production is marketed under three brands.

- **Weser Ems (Germany)** – the whole value chain is in general integrated, starting from brooding, hatching, rearing, battery hen keeping, egg packaging and marketing whole or processed eggs. Furthermore, the feed industry is also sometimes involved. Key drivers of integration are the need for a standardised product quality and to ensure traceability.

- **Noord-Brabant and Limburg (Netherlands)** – there is no strong integration of supply, livestock farming and processing chains. In certain parts of the chain, there is some integration through the links between slaughterhouses, cutting plants and further processing units.

- **Guadalajara, Toledo (Castilla-La Mancha, Spain)** – approximately 80% of egg-laying farms have classification and storehouse centres. Approximately 50% of farms have their own feed plant available. The majority of companies are independent and have distribution agreements.

- **Midlands (UK)** – at the national scale, it is estimated that 66% of egg producers are integrated which means that they control all stages of production from birth to slaughter of layers including breeding, egg production and the production of animal feed for their livestock.

Conclusion

The evidence suggests that the development of the egg sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of protection for the EU market and consequently have provided an incentive for to increase egg production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

The simulations and analysis undertaken for the previous evaluation questions indicate that the direct impact of the CMO on both price and production were relatively large, particularly in the earlier part of the evaluation period, resulting in prices that were around 11.6% higher and production that was around 9.5% higher as a result of the CMO measures (see section 3.2.3.2).

The process of vertical integration has been driven by factors such as increasing retailer concentration and the need to increase economies of scale along the production chain (see Appendix 7 section A7.3.1.3). Therefore, it is likely that the CMO has had an indirect impact on the process of vertical integration and expansion of production to take advantage of scale-economies, since these are influenced by market trends and competitiveness and thus influenced by the advantageous conditions created by the CMO.

4.4.1.4. Economic importance (in terms of employment and gross value added) including the upstream and downstream industries in the production regions, in particular in those with a high concentration of production

Community situation and development

The assessment of the impact of the main instruments of the CMO on the economic importance of the sector in terms of gross value added has been assessed through the answers to Evaluation Questions 2 and 3. This has shown that in aggregate the contribution of these CMO instruments to the value added of the sector has been relatively limited.

While clearly the employment impacts across the sector are not precisely quantifiable, to the extent there are impacts, there is no doubt that the greatest direct impact of the CMO measures will be in those regions, which account for the highest proportion of EU and national production and particularly exportable production. In other regions, which do not have production focused particularly on exports, the employment impacts are more indirect and result from the combination of border protection and the fact that the EU internal market will not be absorbing

the quantities exported with refund i.e. prices will tend to be higher than they otherwise might be. Given the relatively light weight of the CMO support provided in the egg sector no regionally specific impact of the CMO has been identified by the case studies. To the extent data on the employment in the case study regions is only available for eggs and poultry combined it has been presented together with the poultry data in the poultry section of this report. Where separate data is available it is presented below.

Case study regions

The value added and employment generated by the sector in regions with high concentration of production is considerably greater than that generated by the primary sector alone (see Appendix 7 section A7.3.1.4). The evidence suggests that the CMO has had an indirect impact on the development of the sector, since scale-economies, market trends and competitiveness are indirectly influenced by the advantageous market conditions created by the CMO (see conclusions below). Some of the notable findings of the case studies are presented below:

- **Brittany (France)** – the egg/poultry sector in Brittany takes a major place in the economic life of the region, employing more than 18,000 persons in production sectors and upstream and downstream industries, 12,500 of which in the slaughtering and processing industry (DRAF 2004[183])

- **Weser Ems (Niedersachsen, Germany)** –the share of egg sector output in total regional agricultural output in the case study region of Niedersachsen has increased from some 4.2% to almost 5% between 1991 and 2003. In the Weser-Ems case study region which accounts for 85% of egg sector output within Niedersachsen the value of the sector's output is estimated at 8% of total agricultural sector output. No data is available on output or employment for the downstream sectors in this region.

- **Guadalajara, Toledo (Castilla-La Mancha, Spain)** – it is estimated that the country as a whole employs some 10,000 persons in production and up-/downstream sectors. No separate data is available for the case study region of Castilla-La Mancha

Conclusion

The evidence suggests that the development of the egg sector has been influenced by the advantageous market conditions created by the CMO and that the primary border protection measures (import tariffs and export refunds) provide a measure of

[183] Revue de l'Observatoire des IAA de Bretagne" Avril 2003 and "Tableaux de l'Agriculture Bretonne" DRAF 2004

protection for the EU market and consequently have provided an incentive for to increase egg production. Thus the CMO has had an indirect impact on the development of the sector through the creation of advantageous market conditions.

The simulations and analysis undertaken for the previous evaluation questions indicate that the direct impact of the CMO on both price and production were relatively large, particularly in the earlier part of the evaluation period, resulting in prices that were around 11.6% higher and production that was around 9.5% higher as a result of the CMO measures (see section 3.2.3.2).

Therefore, it is likely that the CMO has had an indirect impact on employment and gross value added, particularly in Brittany.

4.4.1.5. Synthesis of results from the tools used and conclusion

Regional distribution of production and concentration of production in certain regions

There is little evidence from the data analysis and case studies to support a conclusion that the direct impact of the CMO measures has resulted in a concentration of production in certain regions. The secondary data gathered and the evidence from the interviews conducted with industry experts in each of the case study regions show that the current patterns of concentration are the result of the interplay of a number of economic, geographical and historical factors and it would be impossible to precisely determine the impact of any of these factors in isolation. What is clear is that the primary CMO measures of border protection (import tariffs and export refunds) and the wider agricultural policy environment have helped to create favourable economic environment that created an incentive for production and that indirectly, other sector CMOs and agricultural policies served to create advantageous market conditions generally. These conditions are likely to have contributed to the process of increasing egg production and to have resulted in the continuation of the pre-existing trend towards regional production concentrations, although it equally plausible that indirectly, the CMO measures actually reduced the pace of this structural trend by providing a beneficial economic environment for producers to remain in production which would not have otherwise existed.

Evolution of the number, size and specialisation of holdings or enterprises

There is little evidence from the data analysis and case studies to indicate a direct link between the CMO and the evolution of the number and size of holdings or

enterprises. The main factor influencing the evolution of such production trends is the drive towards achieving adequate economies of scale both in production and related activities. High levels of concentration and specialisation allow egg producers to achieve a better competitive position in a market characterised by increased international competition and also a better bargaining position relative to a concentrated retail sector. In many national sectors, historically high production costs relative to other EU and extra-EU countries are a key driver for efforts to increase economies of scale.

It is clear that border protection measures (import tariffs and export refunds) have resulted in an economic environment that created an incentive for production and that indirectly, other sector CMOs and agricultural policies served to create advantageous market conditions generally. These conditions, whether directly attributable to the CMO for laying hens or not, are likely to have contributed to the process of structural change in the sector, although it equally plausible that indirectly, the CMO measures actually reduced the pace of this structural trend by providing a beneficial economic environment for producers to remain in production which would not have otherwise existed.

Relationships with the upstream and downstream industries, with particular attention to the development of integration of primary production with the compound feed and/or processing industry

The results of the data analysis, interviews and case studies do not suggest that there has been a significant direct impact of the CMO on the level of integration within the egg sector as this has been driven by factors such as increasing retailer concentration and the need to increase economies of scale along the production chain.

Economic importance (in terms of employment and gross value added) including the upstream and downstream industries in the production regions, in particular in those with a high concentration of production

In summary the results of the data analysis, interviews and case studies indicate that:

- As is set out by this detailed review the value added and employment generated by the sector in regions with high concentration of production is considerably greater than that generated by the primary sector alone;
- For the egg sector the impact of the CMO specifically on the case study regions does not suggest that the CMO has a more significant impact than that already established by the answers to Questions 2 and 3.

Quality of water and air, land use and landscape

The issue of the CMO impact on water and air, land use and landscape is fully addressed in chapter 5 on the joint environmental impact of the three sectors (see section 5.1.1.6).

4.5. Theme 4: Overall impacts

4.5.1. General judgement of the CMO

Internal and external competitiveness of Community production

The data analysis has shown that TRQs are of limited significance in the context of the overall market. The stakeholder interviews indicate that export refunds in the non-Annex 1 processed products sub-sector are important for maintaining the competitive position of the EU in the major export market in Japan.

The results of the CAPSIM modelling of the counterfactual for Evaluation Question 2 illustrates that export refunds have significantly improved the competitive position of EU egg sector on the world market in terms of total exports although the significance of export refunds in maintaining the competitiveness of EU exports to third countries has decreased over the period. The high deadweight effect[184] attached to the achievement of this result in terms of export volumes, particularly towards the end of the evaluation period does however suggest this result might have been partially achieved without the measure having been used.

Further CAPSIM analysis measured the impacts of the counterfactual (i.e. removal of import tariffs and export refunds) on the competitive position of the EU egg sector on the internal market using the self-sufficiency ratio as an indicator of competitiveness. The analysis suggests that export refunds and import tariffs in aggregate have substantially increased the self-sufficiency ratio over the period although this impact has declined over time. This is as would be expected from the historical data which indicates that the weight of this measure has decreased substantially over the evaluation period.

Finally the overall impact of the CMO on competitiveness on the world market was estimated by modelling the counterfactual (i.e. removal of refunds and import tariffs) on the Community's share of world trade. The modelling results suggest that the combined effect of the two instruments (import tariffs and export refunds) is to substantially alter the net EU trade position from a net exporting position (99,000t/year on average in 1990-92; 82,000 t/year in 1995-97; and 87,000 t/year in 2000-02) to an estimated net import position (735,000 t/year on average in 1990-92; 461,000 t/year in 1995-97; and 167,000 t/year in 2000-02). This estimate of the significance of import duties is confirmed by the views of stakeholders although it is

[184] See Footnote 2 and Box A1 in Appendix 4.

noted that exchange rates, transport costs and the export policies of competing countries will also significantly affect the EU competitive position.

In conclusion it is clear that the CMO measures have significantly improved the competitive position of the EU egg sector on the internal market and in third countries.

Satisfaction of consumer demand in terms of price and quality

In terms of satisfying consumer demand with respect to price the impact of the CMO is at best indirect since the effects of changes at consumer level will ultimately depend on transmissibility down the food chain. No direct evidence on this issue has emerged during the course of this evaluation but as has been shown by the modelling analysis in this sector the effect of the two key support measures, export refunds and import tariffs has been to raise EU prices significantly above the levels they would have been in the absence of the measure. They thus have a potentially adverse effect on consumer 'welfare' (see below) although this cost must be set against potentially greater security of supply.

In terms of satisfying consumer demand with respect to quality the evaluation has not been able to obtain evidence of the proportion of output produced in accordance with EU egg marketing standards but a priori they should play a significant role in ensuring basic requirements with respect to labelling and quality are adhered to. More generally, it is noted that the sector's own efforts to meet internal and external consumers' demands in terms of price and quality are probably equally or more significant than the role of the CMO in this regard.

Transfers from consumers to producers via high price levels in the Community

The impact of impact of the export refunds and import tariffs on total welfare has been estimated via the CAPSIM model using: producer gross value added at basic prices to measure income effects; EU expenditure on export refunds; revenues from variable levies and duties and the impact on consumer welfare via price. Taken together these estimates produce aggregate measures of the distribution of impact and allow a commentary on efficiency.

Looking at these results indicates that in the first 1990-1992 period overall producer gains come to €1 billion. To this must be added estimated revenue of some €22 million from import levies. These two elements are, however, offset by EAGGF expenditure of €61 million and consumer welfare losses (through higher prices) of some €1.1 billion. Thus the net result suggests that while the expenditure incurred to

achieve a relatively significant amount of producer income was relatively low the cost of the transfers made from taxpayers and consumers was in excess of the gains to producers suggesting the measure was lacking in efficiency. This overall picture is repeated for the simulation for the 1995-1997 and the 2000-2002 periods. As with all such estimates it must always be borne in mind that the absolute estimates must be treated with caution since they reflect a broad range of statistical inputs and assumptions.

Economic cost of income support through prices

The modelling results in answer to Evaluation Questions 2 and 3 quantified the extent to which the CMO measures (export subsidies and import tariffs) have had a significant joint impact on the income of egg production in the EU through producer prices. The results suggest that the CMO instruments have raised producer prices above what they would otherwise have been in the absence of the use of the instruments in all three periods considered. The direct (positive) impact of export subsidies and import tariffs on producer egg prices and production was 2.6% and 2.6% respectively in the 1990-92 period, 2.3% and 1.8% respectively in the 1995-97 period and 2.3% and 1.4% respectively in the 2000-02 period. As a result, income levels were found to be 6.9%, 6.0% and 5.9% higher in the three reference periods, which will have helped to maintain production and employment above what it would otherwise have been, particularly amongst the more marginal egg producers, in the absence of such instruments.

This would represent a significant economic cost of the income support through prices to consumers to the extent that in the absence of the use of the instruments the expected reduction in producer prices would be passed back to consumers. This assumes that a competitive supply chain exists and that there is perfect price transmission between producers and consumers.

4.5.2. Coherence with other relevant Community policies

Animal health and welfare

Animal health and welfare has been particularly adversely affected by the concentration and intensification of production in a number of regions across Europe. The evidence collected in this evaluation suggests that, the measures of the egg CMO have not been the major drivers for this intensification and concentration which has been part of a longer term trend driven *inter alia* by a range of other economic, historical and geographic factors.

Trade

As has been shown by the historical data analysis over the period under review the operation of the CMO with respect to trade has been liberalised as a consequence of the URAA (via increased market access under TRQs, lower import tariffs and a reduction in the use of refunds). This is consistent with the aims of the EU agricultural trade policy.

Environment

Adverse environmental impacts have particularly resulted from the intensification and concentration of production in particular regions. The evidence collected in this evaluation suggests that the measures of the egg CMO have not been the major drivers for this intensification and concentration since this has been part of a longer term trend driven *inter alia* by the interplay of a number of economic, geographical and historical factors. However, as a component of the wider EU agricultural policy environment, the CMO has created a favourable economic environment for the continued growth and development of the sector and can thus be said to have had an indirect adverse impact and therefore a lack of coherence with environmental policy objectives.

Regional cohesion

This evaluation has not found any evidence on the issue of whether the CMO contributes to the Community objective of achieving greater regional cohesion by reducing economic imbalances between the regions. A priori it can, however, be stated that CAP Pillar 1 market support policies which operate horizontally across all regions will tend not to be in harmony with Pillar 2 and other Structural Fund measures which may be seeking to focus support on particular regions. Thus in the case of the egg sector the bulk of support will tend to be directed towards regions with the highest concentration of production which will not necessarily coincide with those in greatest need of regional support measures.

4.5.3. Impacts of national measures on production

Regional and local planning permissions

No particular evidence was forthcoming from the stakeholder interviews or the case studies with respect to the impact of regional and local planning requirements on egg production but based on previous Agra CEAS work, a comment can be made that large scale egg producers in the western Länder of Germany indicated that due to the large number of likely objectors it was increasingly difficult to locate new production units, particularly for free range laying hens in these more densely populated and prosperous regions. It was therefore increasingly the case that such

production units were being located in the eastern Länder or in the new Member States. While the particular point relating to new installations was made with specific reference to Germany, it was also noted in the case studies for a number of regions that there was increasing public concern with adverse environmental impacts, particularly emissions to air, of intensive laying hen units. This suggests that the need to comply with such rules may in some instances be leading to a relocation of production as the number of objections to any new unit/expansion of existing units may be high. In the long term this could result in a 'de-intensification' in areas which currently have relatively high livestock densities, although as stated above no evidence was forthcoming to suggest that these additional costs have affected production.

National restrictions on production due to environmental measures

No specific evidence of the impact on egg production of national measures designed to safeguard the environment was gathered from the case studies or stakeholder interviews, but as has been noted in the review of the data from the case studies in response to Evaluation Question 9, all regions with intensive production of livestock have introduced measures to limit the adverse impacts of such production on air, soil and water quality in particular. The effects of these measures on egg output have not been specifically measured but some indication of costs incurred is available from FADN data.

Although there is no specific cost category in the FADN database for manure disposal and emission reduction, such costs would be included in the 'other specific costs' category (which includes expenditure on medicines, veterinary fees, waste processing, etc.). Analysis of the FADN data (Appendix 6) shows that between 1989 and 2000, other specific costs for specialist egg producers remained relatively constant accounting for around 3-4%. However since 2000, other specific costs for these specialist producers have increased to 9% of the total specific expenses. It is expected that much of this increase is attributable to additional costs associated with manure disposal and emission reduction (Appendix 6). In 2003, specialist egg producers spent an average €28,000 on total specific costs, suggesting that up to €2,520 was spent on manure disposal and emission reduction.

As has been indicated by the stakeholder interviews, where costs are incurred for disposing manure, these differ both between and within Member States due to variations in production systems, location of the farm, size of farm, etc. Thus, while it is difficult to provide actual costs for manure disposal, various indications of what these costs may be were provided by the industry. In France, estimates from ITAVI suggest that 15% of total building costs is attributed to manure management. This represents

approximately 2.3% of production costs per egg. In the Netherlands, there has been a significant increase in the cost of manure disposal over the evaluation period, with average manure disposal costs totalling around €20,000 per farm (Agra CEAS Consulting, 2004). This typically represents 4% of total production costs (including labour).

Measures for improving animal welfare standards

EC Directive 1999/74/EC on the welfare of laying hens required *inter alia*, that the minimum cage size for traditionally battery cages be increased from 450 cm^2 to 550 cm^2 from 1 January 2003. Using secondary data it is possible to estimate the following theoretical impact on the cost of egg production. The calculation made here is based on the assumption that in order to comply with the legislation, in effect producers will have had to reduce the number of birds within a fixed unit of production by 20%. Thus while variable costs per bird remain stable, the fixed costs associated with any given unit can be spread over a lower number of birds. Clearly this calculation assumes that a unit was operating at 100% capacity prior to the change. Based on an extensive survey of average costs of production across the EU undertaken by Agra CEAS to assess the socio-economic implications of the 2012 ban on traditional battery cages, an EU wide average for fixed costs was established. Using this data, the estimated effect of the change in legislation is to add an extra 25% to the fixed costs of producers, or €5.65 per kg of eggs.

In the period under review here (to end 2002), beyond the EU legislation indicated above specific national/regional measures concerning laying hen welfare over the evaluation period have been introduced in Sweden (ban on traditional battery cages from 2002 onwards) and Austria (ban on traditional battery cages in some regions). The Austrian measures appear to have had a limited impact on production in the period under review since the regions concerned were largely focused on alternative production systems prior to the introduction of the bans and thus only very limited restructuring was required.

National restructuring measures

There appear to have been no national restructuring schemes relating to this sector.

Co-financed and national investment aid

There appear to have been no particular co-financed or national measures for this sector apart from those coming under the heading of Rural Development Programmes for which no data on impact is available.

4.5.4. Is the scope and coverage of the instruments adequate to achieve the objectives of the CMO and to what extent is the CMO adapted to current market developments?

The above analysis suggests that the instruments of the CMO have been successful in the sense of contributing to ensuring a fair income for producers. The analysis also indicates, however, that the instruments used to support the markets (export refunds and import tariffs) may not be the economically most efficient way of achieving the desired results in that there may be a high cost in terms of transfers from taxpayers and consumers to achieve the aim of stabilising and securing farm incomes.

At the same time the EU faces increased potential competition from third country exports while seeking to maintain higher welfare, health and environmental standards. The current scope and coverage of the CMO has helped the sector to meet the latter challenges by raising incomes above what they would otherwise have been and this could be said to perhaps represent a new rationale for the policy although this potential benefit must be balanced against the consumer and taxpayer welfare costs of maintaining producer incomes.

4.5.5. Conclusions and recommendations

Price reporting system

While the price reporting system was considered to be generating the results required in terms of monitoring and managing the markets it is recommended that:

- In light of the changing structure of the sector and the increasing use of contracts in the sector it is important to ensure that the market representativeness of the data collected is maintained;
- Greater efforts need to be made to ensure comparability of price data between Member States.

Export refunds

The evidence from the historical analysis of the application of this instrument indicated that it was effective in counteracting market imbalances by acting countercyclically and thus stabilising the market in line with the objectives of the CMO. It was noted that for non-Annex 1 egg containing products the refund was

used to maintain a third country market presence for a product that is in surplus in the EU. It was concluded that the deadweight effect[185] associated with this measure was relatively high.

Import tariffs

The evidence from all the tools used in this evaluation suggests that the maintenance of import protection is critical to the maintenance of a significant proportion of shell egg and egg product production in the EU.

Income level and development

The evidence suggests that the CMO measures and in particular import tariffs have had a significant impact on producer incomes in the sector thus contributing to achieving the objective of contributing to ensuring a fair standard of living for farmers as well as stabilising markets. The modelling results indicate that the border protection measures in place have maintained prices and production and thus income at levels higher than would otherwise have been the case.

Production costs

The impacts of the CMO instruments on egg production costs has proved difficult to quantify, given the lack of both primary and secondary data relating to the laying hen sector, partly due to the commercial sensitivity of such information in Member States with a high degree of vertical integration in the sector. The primary component of egg production costs is the feed. Over the evaluation period, the cost of feed has fallen, primarily due to the CAP reform induced reduction in cereal intervention prices, rather than the CMO for eggs itself. Nevertheless, the cost of laying hen feed as a proportion of total egg production costs has decreased. Moreover, this decrease in the cost of laying hen feed as a result of the reduction in intervention prices has more than offset observed increases in the cost of feed as a result of developments in Community feed legislation.

Compared to the positive impact of the CAP reform induced reduction in cereal intervention prices on the cost of laying hen feed, the individual impact of changes in policies on manure disposal and emission reduction, animal welfare and animal health, although resulting in costs[186] to farmers, have *in general* been relatively small.

[185] See Footnote 2 and Box A1 in Appendix 4.

[186] While this Evaluation Question only concerns an analysis of the impact of different measures of the CMO as well as other policies related to them on production costs, it should be noted that such measures *may* accrue additional production benefits to producers as well as society as a whole.

That said, evidence from the case studies would suggest that the impact of these policies on costs differed *considerably* both between and within Member States.

Therefore on balance, the evidence does not suggest that the overall impact of the CMO and wider agricultural policy on the sector has been negative with respect to production costs, although it has not been possible to conclude that the overall impact has actually been positive. However, as has been noted above the income benefits derived from the CMO instruments have helped the sector to absorb these costs.

Rural development and the environment

As shown in the other sectors, there is little evidence to support a conclusion that the CMO measures has had a direct impact on the concentration and intensity of egg production in certain regions, as the patterns have largely been observed since prior to the introduction of the CMO and are the result of the interplay of a number of economic, geographical and historical factors. However, as a component of the wider EU agricultural policy environment, the CMO has created a favourable economic environment for the continued growth and development of the sector and therefore can be said to have had an indirect impact. Similarly, although the impacts of intensive laying hen production on the quality of water, air, land use and landscape may have intensified over the period, the impact of the CMO can be said to be largely indirect also.

5. Joint environmental impacts of the three sectors

5.1. Theme 3: Rural development and environment

5.1.1. Question 9(v): Quality of water and air, land use and landscape

5.1.1.1. Introduction

Environmental issues have only been on the agricultural agenda for a relatively short period of time. It was not until the 1980s that the environmental impact of intensive livestock farming really became an issue, although there was already an awareness of the contamination of soil and water due to excess manure application and of odour increasingly becoming an issue due to increasing non-agricultural population in rural areas. These environmental problems are now widely recognised and increasingly stringent measures are being taken in order to tackle them.

The analysis below presents data collected from secondary literature and via the case studies assessing the impact of intensive livestock (pig, poultry and egg) production on the environment. It also briefly presents the response of the public authorities to these environmental issues. The hypothesis being examined is that these impacts are primarily the result of the intensification[187] and concentration[188] of production rather than the measures taken under the CMO, although it is likely that the CMO regime has, directly or indirectly, influenced the intensification of production as farmers seek to take advantage of scale-economies, since these are influenced by market trends and competitiveness and thus indirectly influenced by the advantageous conditions created by the CMO. In other words, with the notable exception of the poultry sector in Brittany, by and large, the evolution of the sectors has historically been driven directly by market developments and therefore indirectly affected by the CMO, since the CMO measures have resulted in an economic environment that created an incentive for production and that indirectly, other sector CMOs and agricultural policies served to create advantageous market conditions generally.

As the pig, poultry and egg-related environmental issues, and the natural mechanisms that generate them, are identical, and since it is difficult to accurately differentiate the sources of water and air pollution, the environmental impacts of pig, poultry and egg production are usually considered together. This will therefore also be the case in this study.

[187] Process by which the level of input use per production factor (especially land) has increased over time.
[188] The spatial distribution of livestock production.

5.1.1.2. General background

As is described in a report on intensive rearing of poultry and pigs made by the IPPC in 2003[189], agricultural activities on intensive poultry and pig farms can potentially contribute to a number of environmental impacts including:

- ground water and surface water pollution, eutrophication;
- air pollution;
- local disturbance (odour, noise).

The key environmental aspect of intensive livestock production is related to the fact that the animals metabolise feed and excrete nearly all the nutrients via manure. The efficiency with which pigs convert feed for maintenance, growth speed and breeding is important. The pigs' requirement will vary during the different stages of their life. To be sure that their nutritional requirements are always met, it has become customary to feed nutrients at levels in excess of the animals' requirements. At the same time, emissions of Nitrogen (N) into the environment can be observed which are partly due to this imbalance. These emissions can take the form of ammonia (NH_3) in the air and nitrates (NO_3^-) or other nitrous oxides (NO_x) in manure spread on the soil. The process of N consumption, utilisation and losses in the production of slaughter pigs is illustrated in, where it can be seen that approximately 67% of the N that is contained in the feed is excreted in the form of manure. Similarly, Dourmad *et al*. (1999a) have measured that 66% of P consumed by pigs in France is excreted in faeces and urine. Backus *et al*. (1998) have calculated that, on average, annual N excretion per sow and per fattening pig amounted to 30.8 and 13.1 kg per year respectively. Average P_2O_5 excretion per sow and per fattening pig amounted to 14.0 and 5.0 kg per pig. It has been noted that improvements in feeding techniques, such as multiphase feeding, could reduce N and P excretion by the animals by 20 to 30% as well as ammonia losses in the atmosphere (Dourmad *et al*., 1999b; Poulsen *et al*., 1999; van der Peet-Schwering, 1999b). An Improved feeding can also improve the quality of manure. Finally, the way manure is stored and handled is also a key factor determining the emission levels of intensive livestock production.

5.1.1.3. Emissions to soil, groundwater and surface water

Agricultural emissions polluting soil, surface water and groundwater can have several origins including:

- Emissions from slurry storage facilities that contaminate soil and ground or surface water occur because of inadequate facilities or operational failures and should

[189] Integrated Pollution Prevention and Control (IPPC) (2003) Reference document on Best Available Techniques for Intensive Rearing of Poultry and Pigs. July 2003.

be considered accidental rather than structural. Adequate equipment, frequent monitoring and proper operation can prevent leakage and spillage from slurry storage facilities.

- Emissions to both surface water and groundwater can occur from a direct discharge of wastewater arising on a farm. Little quantified information is available in relation to these emissions to surface water. Waste water arising from household and agricultural activities might also be mixed with slurry to be applied onto land, although mixing is not allowed in many Member States.

- Waste water discharged directly into surface water can come from various sources, but normally only direct emissions from slurry treatment systems such as the lagoon are permitted. Emissions to surface water from these sources contain N and P, but increased levels of Biological Oxygen Demand (BOD) may also occur; in particular in dirty water collected from the farmyard and from manure collection areas.

- However, of all the sources, landspreading is the key activity responsible for the emissions of a number of components to soil, groundwater and surface water (and air, see above) as is illustrated in Table 5.1. Although manure treatment techniques are available, the application of manure onto land is still the most favoured technique. Manure can be a good fertiliser, but where it is applied inappropriately or/and in excess of soil capacity and crop requirements it is a major agricultural source of emissions.

Table 5.1: Main sources of emissions to soil and groundwater from intensive livestock production systems.

Soil and groundwater	Production system
Nitrogenous compounds	Housing, land-spreading and manure storage
Phosphorus	
K and Na	
Heavy metals	
Antibiotics	

Source: IPPC.

Most attention has been given to the emission of nitrogen and phosphorus, but other elements such as potassium, microorganisms, heavy metals, pharmaceuticals (e.g. antibiotics), and various metabolites may end up in manure and their emissions may have deleterious effects in the long-run.

Contamination of waters due to nitrates, phosphates, pathogens (particularly faecal coliforms and *Salmonella*) or heavy metals are also of concern.

Nitrogen

For nitrogen, studies have shown that 25% to 30% of nitrogen excreted in pig slurry is lost via the various emission routes. Depending on the weather and soil conditions, as well as spreading conditions, this can be between 20% and 100% of the ammoniac nitrogen if slurry is surface spread.

Pollution from agriculture, and in particular nitrogen pollution, has been identified through research evidence as posing a risk to the quality of European soil, surface water, groundwater and marine waters. The risks relate to the high level of nitrates found in drinking water, eutrophication of surface water (in synergy with phosphorus) and coastal waters and acidification of soil and waters.

Fewer problems arise from landspreading in areas where sufficient land appropriate for correct application is available for the amount of manure that is produced. Intensive livestock production and related nitrogen pollution are concentrated in different Member States and in various regions in the EU. Nitrogen surpluses are observed to be most critical on pig and poultry farms, as has been described above.

Phosphorus

Phosphorus is an essential element in agriculture and plays an important role in all forms of life. In natural (i.e. non-agricultural) systems, P is recycled to soil in litter and natural and vegetative residues, where it remains. In such ecosystems P is fairly efficiently recycled. However, in agricultural systems P is removed from the soil in the crop or the animal product and further P has to be imported to sustain productivity through the application of mineral fertilisers as well as manure. As only part of the P is taken up by the soil (typically between 5% and 10%) large amounts are applied in excess of what is needed.

The importance of manure as a source of phosphorus has increased to the point at which it is estimated that 50% of the input to EU surface waters from leaching and penetration into soil can be attributed to the application of animal manure (IPPC, 2003).

Eutrophication

High N and P concentrations in lakes or slow rivers can cause water eutrophication, with danger of a growth of toxic blue algae (cyanophytes) in fresh water, which is normally N and P limited. The impact of eutrophication can be observed at different levels:

- on the ecosystem;
- on health (eutrophication contributes to the increase of the microbiological contamination of bathing waters and shellfishes);
- on the coastal economy (sea activities, tourism, etc.); and,
- on the public opinion (residents and visitors).

5.1.1.4. Emissions to air

The key emissions into the air originating from livestock production are presented in Table 5.2 below.

Table 5.2: Emissions to air from intensive livestock production systems

Emission	Production system
Ammonia (NH_3)	Animal housing, storage of manure and landspreading of manure
Methane (CH_4)	Animal housing, storage of manure and manure treatment
Nitrous oxide (N_2O)	Animal housing, manure storage and landspreading
NO_x	Heaters in buildings and small combustion installations
Carbon dioxide (CO_2)	Animal housing, energy used for heating and transport on farm, burning of waste
Odour (e.g. H_2S)	Animal housing, storage of manure, landspreading of manure
Dust	Milling and grinding of feed, feed storage, housing of animals, solid manure storage and application
Dark smoke/CO	Burning of waste

Source: IPPC.

Environmental impact of N-related emissions

An increasingly high concentration of animals in intensive production systems has led to a greater focus on the problem of air pollution (IPPC, 2003). In Europe, the share of agricultural ammonia emissions (NH_3) in total ammonia emissions currently amounts to as much as 95% (IPPC, 2003). Pig and poultry production accounts for the bulk of these emissions. After landspreading has taken place the rate o ammonia emission tends to be high in the first few hours after application and decreases rapidly during the day of application. In enclosed areas (such as animal housing) ammonia slowly rises from the manure and spreads through the building and is eventually removed by the ventilation system. Factors such as the temperature, ventilation rate, humidity, stocking density, litter quality and feed

composition (crude protein) can all affect ammonia levels (van der Peet-Schwering, 1999b). Dourmad *et al*. (1999a) report that ammonia losses in the air from buildings were about 25% of total N excretion and that volatilisation of ammonia during storage outside varies from 5-10%. It is important to note that the ammonia release is not only an unwanted air emission, but also signifies a reduction of the fertilising quality of the applied manure.

The impact of ammonia is twofold:

- On animal and human health: ammonia gas (NH_3) has a sharp and pungent odour and in higher concentrations can irritate the eyes, throat and mucous membranes in humans and farm animals. Therefore, it constitutes a risk to the respiratory system of farmers, and when animals are exposed to high levels of ammonia, a decrease in their performance can be observed.

- On the environment: depending on the weather conditions, ammonia can be deposited on the ground (50% of the ammonia deposits tend to fall within a radius of 1 km from the source of emission (Defra, 2002[190])), or be transported into the atmosphere. It is then transformed into ammonium (NH_4^+) within water drops and can be transported for long distances, before being deposited on the ground in the form of rain or fog. The ammonia can be deposited on agricultural areas, woods or the natural environment. It creates an excess of nitrogen that contributes to soil acidification, eutrophication of surface and ground water and a decrease in flora sensitive to high N levels. Ammonia can react in the atmosphere to form fine particles containing ammonium (NH4+), which can be carried over long distances before they are removed by rain. Together ammonia and ammonium are often called 'reduced nitrogen' (NHx). Gases and particles can be removed from the atmosphere by being absorbed by land and water surfaces (dry deposition). Most of the ammonia is removed from the atmosphere in this way. Ammonium and ammonia can also be removed from the atmosphere by rain or snow (known as wet deposition) (Defra, 2002).

Environmental impact of other gases

Much less is known about the emissions of other gases. Increased levels of nitrous oxide can be expected from aerated liquid manure treatment processes, as well as with solid manure methods. Carbon dioxide can also accumulate in broiler houses if these are not properly ventilated.

[190] Defra, "Ammonia in the UK", Defra, London, 2002.

Soil microbial processes (denitrification) produce nitrous oxide (N_2O), a potent greenhouse gas[191], and nitrogen gas (N_2). Both can be produced from the breakdown of nitrate in the soil, whether derived from manure, inorganic fertilisers or the soil itself, but the presence of manure encourages this process. Odour and dust are also potential issues.

5.1.1.5. Land use and landscape

The impact of pig, poultry and egg production specifically on land use and landscape has not yet been formally studied and therefore no secondary literature could be found. The elements of answers to this question are therefore derived from the case studies.

The situation of the environmental pressure in the main pig, poultry and egg producing regions is described below.

5.1.1.6. Synthesis of results and conclusion

Adverse environmental consequences of EU pig, poultry and egg production characteristics[192]

The greater the stocking density of animals, the higher the production of manure that will have to be disposed of in some way. There are three possibilities regarding the problem of manure: spreading it on the soil, exporting it or treating it. While improved design and management can lead to the elimination of potential pollution sources on site, the existing spatial density of pig production in the EU raises particular concern with regard to the availability and suitability of land for spreading pig slurry.

From the case studies, it appears that intensive pig, poultry and egg industries as they emerged in the EU over the last few decades have had a highly negative impact on water quality. Indeed, an excessive and/or inappropriate application of manure spread on a limited soil surface leads to run-off, and this has been favoured by the important regionalisation of pig, poultry and egg production. In this context, the EU, Member States and regional authorities are increasingly taking measures in order to reduce manure production in critical regions. However, these measures have not as yet solved the problems, but have gradually reduced the scale.

Emissions to the air (mainly NH_3), in which intensive livestock production plays an important role, have also been tackled by means of regulation, but, as is the case for

[191] Nitrous oxide has a global warming potential 310 times that of carbon dioxide over a 100-year time horizon (Defra, Climate Change
UK Programme, February 2001).

[192] By characteristics, we mean intensive and regionally concentrated.

water pollution, air pollution is still problematic. This is reflected in the increasing occurrence of public concern on this matter. However, it is expected that technological innovations, the adoption of which being promoted by most Member States, will increasingly address this problem.

The impact on land use and landscape appears limited to highly concentrated regions where the installations of the sector form part of the characteristic landscape of the zone. The impact on land use is marginal and also only noticeable in these most highly concentrated production areas, where it mainly is in conflict with urban development needs and in some places with rural tourism. In regions with less concentrated pig, poultry and egg sectors the impact on the environment seems limited. For the egg sector it should be noted that in Member States where consumer demand or animal welfare legislation (or a combination of both) are leading to greater use of free range laying systems, this form of land use is becoming increasingly difficult to locate in some of the more heavily populated rural areas, mainly as a result of planning regulations[193]. Thus in Germany large-scale free-range units are increasingly being located in Eastern regions of Germany or in the NMS.

Specific impacts of the pig, poultry and egg CMOs on the environment appear limited and indirect

From the above, it can be concluded that over the last 40 years adverse environmental impacts (and related public concerns) have become increasingly important in regions with concentrated pig, poultry and egg sectors and have resulted in a broad range of measures designed to reduce these impacts. However, as has been demonstrated by the analysis in response to the previous Evaluation Questions and confirmed by the case study interviews, with the exception of the indirect impact of the border protection provided by import tariffs[194] which has helped to provide a more secure investment climate, marginally higher prices and hence somewhat higher production levels than would otherwise have been the case across the three livestock sectors being reviewed the direct impact of the CMOs on the evolution of production has in general been limited. The exception to this overall picture would appear to be the special case of poultry production in Brittany, where it can be argued that a market (of whole frozen chickens for export) has been specifically created and maintained by the CMO. Therefore, as was the working hypothesis developed at the outset of this evaluation, the impacts of the CMOs on the environment have been found to be limited and mainly indirect. Most of the impacts on the environment in turn have resulted from the internal market

[193] It is somewhat ironic that increased demand for free range eggs goes often hand in hand with increased demands for planning restrictions.

[194] And to a lesser degree other support instruments including export refunds.

driven dynamic of regional concentration, intensification and specialisation of production described in earlier sections of the response to this Evaluation Question. These processes, while being indirectly influenced by the CMOs, have largely been occurring since before the introduction of the CMOs.

This concentration process and the correlated increase in scientific knowledge and public awareness concerning environmental issues such as air and water pollution have lead to increasingly stringent environmental legislation in order to limit the sectoral impact on the environment. This often involves an economic cost to the holders, mainly due to the requirement for structural changes but also higher lease prices due to the higher demand for land. In Weser-Ems for example, the approval procedure for expansion plans may require the construction of large stables or hen houses; the cost of these amounts to between €20,000 and €70,000, whilst in France, it has been estimated that the cost of compliance to the environmental legislation amounts approximately 0.07 € per 100 kg of dead weight (ITP, 2004). In some cases, the requirements act as a deterrent to expansion and may compromise economic viability. On the other hand, the disposal of manure can also lead to additional income, as in Lérida where the mushroom growers of Navarre and the citrus fruit growers of Valencia are buyers of poultry manure at 3€/tonne. It has to be noted here that differing national or even regional environmental legislation may have a consequent impact on competitiveness.

Existing environmental policy instruments intended to deal with adverse environmental problems identified

It appears from the case studies that environmental issues are mainly regulated through the instruments of environmental policy such as the Nitrates Directive, National emission ceiling Directive, Integrated Pollution, Prevention and Control Directive (IPPC), Environmental Impact Assessment. Therefore, apart from the creation of a more stable EU internal environment for production (via the maintenance of Community preference) and the special case of poultry in Brittany, the CMOs themselves have not had a discernible direct influence on the environmental impacts of intensive animal production.

Finally, we would note that environmental issues arising from intensive livestock production are having an important structural and economic impact on the sectors under review, which is expected to increase with the growing concern for the protection of the environment reflected in actions such as Natura 2000. Thus environmental requirements are important factors driving the rate of structural development and are also encouraging innovative activity in fields such as technology, management systems, IT, and so on.

6. Comparison of results across the three sectors

6.1. Theme 1 Market equilibrium and price stability

6.1.1. Question 1: Price reporting system

In all three sectors the prices reported to the Commission were considered to be suited to the market management purpose they are used for in that they satisfactorily reflect the main trends in the markets being covered. This was the case even where the prices were not considered to be fully representative of the markets in that there was concordance between the prices reported and those obtained by pig producers, poultry slaughterhouses and egg packers.

It was, however, noted that for all three sectors the direct comparability of prices between Member States may be more limited due to, for example, differing Member State methods of defining the quality of pig prices to which reported prices refer, variations in production costs resulting from differing consumer preferences (e.g. larger birds in Italy) and variations in the treatment of bonus payments in the egg sector. This having been said, it was generally agreed that ***the prices reported for all three sectors were comparable between Member States in terms of reflecting the trends occurring*** in the Member States.

6.1.2. Question 2: Export refunds

The historical analysis of data with respect to the use of the export refund instrument indicates clearly that ***for all three sectors the implementation of the URAA has resulted in a more 'prudent' use of export refunds*** in the sense that generally both the range of products receiving support as well as the expenditure on such support has been reduced over the evaluation period:

- in the **pig sector** post 1995 the refunds have primarily been used for more highly processed added value products i.e. no longer cuts and carcasses;
- in the **poultrymeat sector** refunds have been focused on frozen whole birds; and,
- in the *egg sector* refunds fell from an average of some €36 million in 1991/92-1993/94[195] to some €6 million in 1999/00-2002/03 although expenditure on non-Annex 1 goods has tended to increase.

More generally in this context we would note that the expenditure and volume constraints agreed under the URAA appear not to have been constraining in these sectors in the sense that with the exception of the volume constraint on poultrymeat

[195] EU-12

exports (and the period of crisis in the pigmeat sector in 1997-1999) the ceilings available have generally not been fully used.

It should, however, be noted that the use of export refunds:

- in the **pigmeat sector** has primarily served to ***counterbalance cyclical volatility*** resulting from the pig production cycle i.e. stabilising the market;
- in the **poultrymeat sector** the aim has been to ***maintain a market presence*** for a particular type of products (frozen whole birds) in an established third country market; and,
- in the **egg sector**, refunds for ***shell eggs*** have primarily been used ***countercyclically to stabilise the market*** while exports of ***non-Annex 1 products*** (mainly surplus processed egg in the form of egg albumen) have focused on ***maintaining established third country outlets*** (i.e. in Japan).

As would be expected a priori the modelling of the counterfactual i.e. what would have happened in the absence of the refunds suggests that in all three sectors exports would have been lower in the absence of this instrument. In addition it is to be noted that in line with the declining expenditure on refunds again ***in all three sectors both the effect and the proportion of exports receiving refunds has fallen sharply over time***. While in all three sectors therefore the refunds have improved the aggregate competitive position of the EU on the world market it is significant that the modelling results suggest that there was a ***significant deadweight effect***[196] ***involved*** indicating that a substantial volume of such exports might have occurred even in the absence of the refunds. While this result applies for the aggregate of the pigmeat and shell egg sectors it does not allow for any differentiation of the products involved and it is clear that for specific sub-sectors notably frozen whole birds and a processed product such as egg albumen[197] it seems quite possible/likely that the market presence could not be maintained without the refund.

In aggregate, as would be expected given the weight of the intervention (i.e. expenditure on refunds) in the context of the overall scale of these markets, the modelling results suggest that ***refunds have only a limited impact on aggregate production, demand and prices in the EU***. Again this result ignores the fact that without the refund production in the poultrymeat sub-sector producing frozen whole birds, notably in Brittany in France, would probably cease to exist or would need to be substantially restructured as there appears to be limited internal EU demand for this particular product.

[196] See Footnote 2 and Box A1 in Appendix 4.

[197] This product was in any case not covered by the modelling analysis

Stakeholders in the pigmeat and egg sectors noted that while the significance of the refunds had gone down they did help to compensate for higher production costs arising from higher regulatory standards in the EU.

Generally the economic analysis on the issue of the overall efficiency of the measure ***for all three sectors suggested that the cost of providing a welfare benefit to producers in terms of higher income comes at a relatively high aggregate cost in terms of taxpayer expenditure and consumer loss*** in terms of higher prices.

6.1.3. Question 3: Import tariffs

As a consequence of the 'tariffication' process adopted under the URAA in all three sectors the system of import protection over the evaluation period has changed from one using variable import levies to one using fixed tariffs. As agreed under the URAA these fixed tariffs were reduced by 36% from a predetermined baseline (generally 1986-1990 average tariffs) between 1 July 1995 and 30 June 2001. In addition EU market access was improved by the introduction of reduced duty tariff rate quotas (TRQs).

The historical analysis indicates that:

- In the **pigmeat sector**, imports have remained limited during the evaluation period accounting for less than 1% of EU production since 1995. Given the presence of sanitary restrictions on imports it is not possible to determine with certainty what the impact of tariffs has been/would have been although the modelling results indicates that ***in the absence of tariffs, imports would have been significantly higher***.

- In the **poultrymeat and egg sectors**, the tariffs clearly have a substantial effect in protecting the EU market, as indicated by the modelling of the counterfactual, i.e. the removal of import tariffs; although the historical evidence shows that this protection has decreased over time as imports of frozen, boneless chicken cuts with a salt content of between 1.2% and 3% under the CN heading (0210 9939), mostly from Thailand and Brazil, increased dramatically over the evaluation period within the framework of existing tariff lines. Nevertheless, the modelling indicates that the **removal of import protection (and export refunds) would have resulted in the EU moving from being a net exporter to being a substantial net importer** of poultrymeat (of up to some 1.5 million tonnes in the early 1990s). The same result was found for the egg sector although in the case of shell eggs it should be noted that trade is any case very limited due to their perishability and limited transportability.

Generally the economic analysis on the issue of the overall efficiency of the measure ***for all three sectors suggested that the cost of providing a welfare benefit to producers in terms of higher income comes at a relatively high aggregate cost in terms of taxpayer expenditure and consumer loss*** in terms of higher prices**.**

6.2. Theme 2 Producer income

6.2.1. Question 7: Income level and development

The modelling results presented in Theme I quantified the extent to which the CMO measures have been effective in maintaining incomes at levels higher than would otherwise have been the case. ***In the middle of the evaluation period (1995-97), incomes were 6.0% higher in the pigmeat sector, 20.4% higher in the poultrymeat sector and 29.1% higher in the egg sector than they would otherwise have been in the absence of export refunds and import tariffs***. These 'higher' income levels have helped in *ensuring a fair standard of living for farmers*. Analysis of FADN data found that the standard of living (measured in terms of the absolute ***income level (FNVA/AWU)) was generally higher for pig producers but marginally lower for poultrymeat and egg producers, compared to the agricultural sector as a whole***. However, poultrymeat and egg producer incomes have increased by a greater rate over the evaluation period than incomes in the agricultural sector as a whole.

Analysis of the FADN data also revealed that ***incomes are more volatile in the pig sector than in the poultry sectors***, although there has been some volatility in the egg sector over the period. In terms of the objective of *stabilising markets*, thereby stabilising incomes, the evidence suggests that ***without intervention the cyclical income lows would have been greater***.

The FADN analysis found that ***for all three sectors there has been a general increase in incomes over the period, although much of this increased level of income has been due to an increase in the scale of production, rather than the CMOs themselves***. Thus, much of the development in incomes over the period, in this respect, has been due to other factors. Moreover, the contribution of export refunds and import tariffs in maintaining income at higher levels than would otherwise be the case has fallen significantly over the evaluation period.

6.2.2. Question 8: Production costs

In all three sectors, the primary component of production costs is feed. Analysis of FADN and other secondary data found that the cost of feed over the evaluation period fell by 18% for pigs, 12% for poultrymeat and 9% for eggs. ***Evidence suggests that feed cost reductions over the period were primarily due to the CAP reform induced reduction in cereal intervention price, rather than the CMO measures for pigs, poultrymeat and eggs themselves.***

Moreover, for all three sectors the aforementioned decrease in the cost of feed over the evaluation period has more than offset increases in feed costs over the period as

a result of community feed legislation. For all three sectors, evidence suggests that this legislation has increased the cost of feed by around 3-4%. Other policies implemented over the period on manure disposal and emission reduction, animal welfare and animal health have also had, individually, a relatively small negative impact on production costs. That said, evidence from the case studies found that the impact of these policies differed considerably both between and within Member States, particularly with respect to the additional costs associated with manure disposal and emission reduction because of the wide ranging implementation standards and environmental conditions within the EU.

On balance, the evidence does not suggest that ***the overall impact of the CMO measures and other related policies on the three sectors has been negative with respect to production costs***, given the relative importance of feed in total production costs. However, it has not been possible to quantify whether the overall impact on all three sectors has actually been positive.

6.2.3. Question 9: Impacts on rural development and the environment

In all three sectors, the CMO regimes are likely to have influenced production decisions, thereby influencing the process of intensification of production, regional concentration and distribution of production, the evolution of the size and number of holdings, the specialisation of holdings and also the relationships between upstream and downstream industries, although no specific evidence of a direct impact of the CMO was found.

- The influence of the CMOs on the ***intensification of production*** is likely to have been largely indirect, with the possible exception of poultrymeat production in Brittany, where the majority of CMO expenditure in the sector has been used to support an export industry based upon the supply of whole birds to the Middle-East that would likely not have otherwise existed. Under the advantageous conditions created by the CMOs and the wider CAP, farmers sought to take advantage of scale-economies and establish competitive advantages. This has resulted in a steady increase in EU pigmeat, poultrymeat and egg production.

- However, the evidence suggests that that the impact of the CMOs on the ***regional distribution and concentration of production*** is likely to have been minor in all the case-study regions (again with the possible exception of the poultry sector in Brittany), relative to the other wider historical, geographical and economic factors discussed. In fact, given that regional patterns of production concentrations have existed and grown since before the introduction of the CMOs, it is possible that the CMO measures may actually have slowed down this

process by providing a favourable economic environment for producers to remain in production that would not have otherwise existed.

- The process of structural change in the three sectors has seen a trend whereby the ***number of holdings*** with pigs, poultry and laying hens has gradually decreased over time and the ***size of holdings*** has increased. Thus, the number of medium to large sized holdings has increased (both in terms of land area and numbers of livestock) at the expense of the number of smaller sized holdings. The evidence suggests that this is largely due to the existence of scale economies and therefore the likelihood that that this process has been indirectly influenced by the CMO measures (since scale-economies, market trends and competitiveness are indirectly influenced by the advantageous conditions created by the CMO) cannot be discounted. Similarly, it is also likely that the CMOs have had an indirect impact on the process of ***vertical integration*** and expansion of production to take advantage of scale-economies for the same reasons.

Evidence also suggests that the ***impact of the CMOs on the economic importance of the sectors has also been relatively limited and largely indirect***. By extension this suggests that the ***impact in terms of employment has also been limited***. While clearly the employment impacts across the sector are not precisely quantifiable, to the extent there are impacts, there is no doubt that the greatest direct impact of the CMO measures will be in those regions, notably Denmark and France (poultrymeat), which account for the highest proportion of EU and national production and particularly exportable production. In other regions, which do not have production focused particularly on exports, the employment impacts are more indirect and result from the combination of border protection and the fact that the EU internal market will not be absorbing the quantities exported with refund i.e. prices will tend to be higher than they otherwise might be.

The ***impact of the CMOs on the quality of water and air, land use and landscape may also be regarded as largely indirect***, resulting from the process of intensification of livestock production and regional concentration of production. There is no doubt that the CMO measures did create favourable economic conditions for the expansion of output from the three sectors, however, the greatest environmental problems from intensive livestock production occur in those regions with the greatest concentrations of livestock. Since the impact of the CMOs on the patterns of production concentration and regional distribution have been shown to be limited and largely indirect, it follows that the contribution of the CMOs to these environmental impacts in the three sectors is also limited and largely indirect.