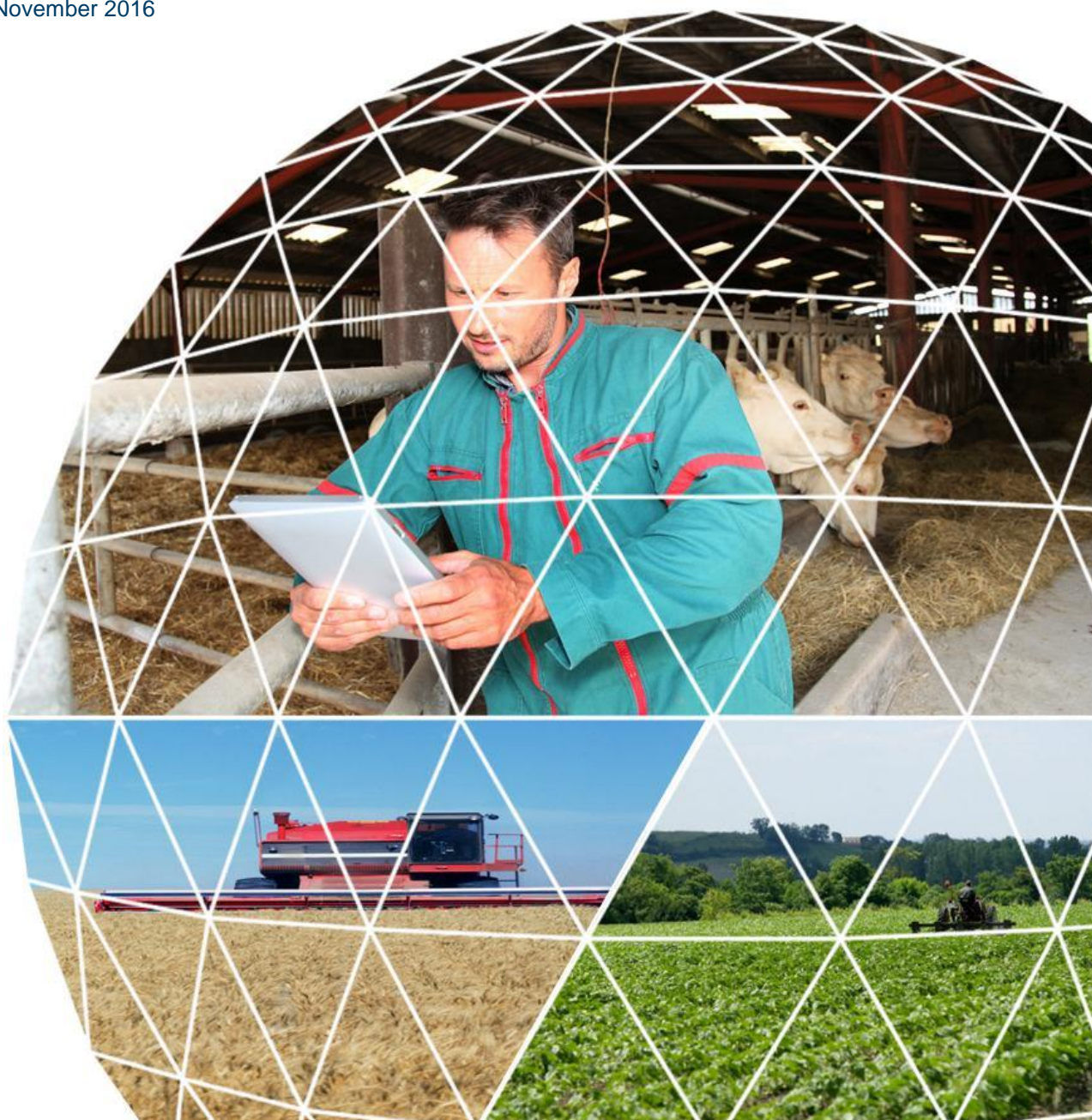


Mapping and analysis of the implementation of the CAP

Annex 4: Methodology for the typology

Client: European Commission – DG Agriculture and Rural Development

Brussels, November 2016



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Foreword

This annex forms part of the study “*Mapping and analysis of the implementation of the CAP*”. This study had three main objectives: (1) to map the implementation of the CAP by the 28 Member States, focusing on their implementation choices, the motivation for these choices and the importance attached to the three CAP general objectives; (2) to develop a typology for grouping Member States according to these choices; and (3) to answer the evaluation questions related to relevance, coherence, conditions for enabling effectiveness, administrative burden and contribution to the EU2020 strategy.

Annex 4 was compiled to support the fulfilment one of the second objective (developing a typology for grouping Member States according to their implementation choices). This annex explains the methodology used and the steps undertaken to arrive to the final five clusters as presented in the main report.

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IV. Annex 4: Statistical analysis on EU Member State First and Second Pillar CAP 2014-2020 Policy Implementation Options

IV.1 Aim and scope

This annex provides details about the procedure followed and the steps taken in the analysis for the development of a typology of EU Member States based upon their implementation choices.

Introduction

The CAP 2014-2020 reform offers Member States greater flexibility relative to previous CAP reforms. For example, it provides different options on:

- which payments to adopt;
- the amount of resources devoted to – and the eligibility criteria for – each payment;
- the distribution of funds between the first and second pillar of the CAP;
- the profile of the beneficiaries.

The Rural Development Policy has been restructured from a system of four axes into a system of six priorities and about 20 main measure categories (with several specific sub-measures being able to be pursued within each of these main categories). Member States have a large flexibility to target Rural Development Policy measures to national and regional priorities and to choose from a wide variety of measures and approaches to achieve these objectives.

This increased room for manoeuvre provides Member States a means of control that goes well beyond the mere management of decisions coming from the EU. It also provides Member States with additional opportunities to influence the distribution of financial resources among farms, sectors and regions and to tailor policy implementation choices to perceived local needs. In addition it allows Member States to achieve a higher degree of coherence between the implementation of policy measures taken within the context of the first and the second pillar of the CAP, which may strengthen the synergy and effectiveness of policies that are implemented.

Aim

The aim of the factor analysis and cluster analysis, described in this annex, is to analyse whether in the myriad of policy implementation options available to Member States, the implementation choices made by the individual Member States show some common patterns. This should allow them to be grouped into certain clusters or types. The resulting typology will be used to arrive at a selection of case studies, thus providing an informative and balanced picture of the implementation of the new CAP reform¹. Given the many flexibilities available to Member States with respect to CAP policy implementation a proper choice of case studies is no longer a trivial exercise. In order to achieve this a so-called guided factor analysis cum cluster analysis procedure has been applied to analyse the Member State policy implementation options. This procedure has been chosen to use an objective approach for developing a typology which satisfies the following criteria:

- the approach should take into account all policy implementation options, without excluding certain options;

¹ This holds for the selection of case studies in this project, but the typology is also aimed to help the selection of case studies in follow-up evaluation studies on specific CAP objectives (e.g. Framework contracts on evaluation of the CAP with respect to Viable Food Production, Sustainable management of resources and climate action, and Balanced territorial development).

- the approach should be objective and avoid as much as possible any prior weighting of policy implementation options by the researchers;
- the approach should allow to take into account insights from the political-economy theories about agricultural policy formation;
- the approach should not be based on the policy implementation options in either the first or the second pillar of the CAP, but on the implementation choices made with respect to both pillars of the CAP, thereby allowing to take potential interlinkages between the policy implementation choices in both domains into account.

IV.2 Approach and structuring of the research

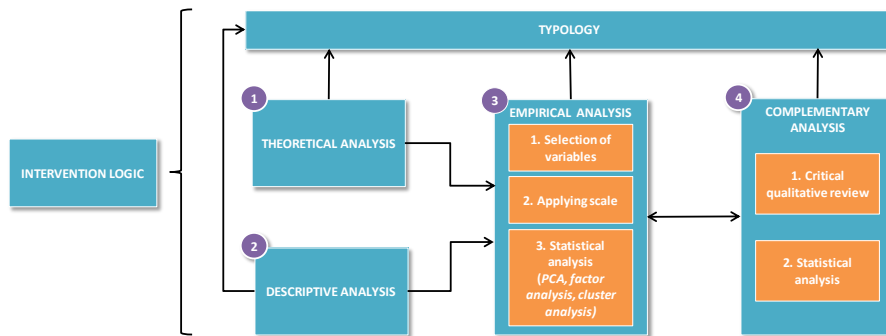
In order to construct this well-grounded typology, an proposed approach consisting of 4 main components has been followed (see also Figure A-5.1):

- **Component 1 – Theoretical Analysis:** A thorough theoretical analysis of the relevant literature on the political economy theory on agricultural policy-making has been made, which forms the basis for the selection of variables (the policy implementations choices as well as a set of confounding variables²), the factor analysis and the final typology;
- **Component 2 – Descriptive analysis:** Using the information in the fiches drafted during the mapping phase, which contains not only the implementation choices but the justifications and motivations underlying these choices as well, some first descriptive statistics (e.g. averages, first order correlations, etc.) are calculated to better understand the structure and general patterns or trends in the data;
- **Component 3 – Empirical Analysis:** The empirical analysis consists of two steps. 1) Based upon the two first components, the scaling exercise assigning each measure a score on a five-point scale (scales can include zero, scales can be discrete or continuous depending on the type of variable) has been carried out. Once all measures have received a (discrete or continuous) score, ‘guided’ factor analysis (principal components-approach) and cluster analysis techniques have been exploited, to taking into account findings from previous steps is performed³;
- **Component 4 – Complementary Analysis:** After the factor analysis and/or cluster analysis a complementary analysis is done, in which results are further interpreted and described (including a labelling of the types). Checks are done with respect to “outliers” and where necessary, the results from the statistical analysis are further adjusted, to arrive at the final typology. This final component thus aims at clustering individual Member States into different types (or typology) resulting from the analysis in step 3. A secondary aim is to cross-validate the clustering of Member States by applying some causal-explanatory analysis and further context data, that could not be included in the statistical analysis.

² For a full explanation of what these are see section “Component 1: Theoretical analysis”.

³ The word factor analysis is used in a loose sense, since in the analysis both a standard factor analysis as well as a principal component analysis is done. Both methods are of the same family and usually produce similar results, even though the statistical properties of both methods are slightly different. In the following only the results of the principal component analysis will be presented. Also the subsequent complementary statistical analysis (the cluster analysis) will be based on these results.

Figure A-5.1 Visual overview of proposed approach for the development of a typology



Source: updated from the First Interim report, Chapter 3

The final typology is based upon the refined and updated intervention logic and the results of the empirical and complementary statistical analysis and cross-checked with the main conclusions from the theoretical and descriptive analysis. In the following paragraphs, a detailed explanation is provided for every component.

IV.3 Component 1 – Theoretical Analysis

There exists a large body of literature (see De Gorter and Swinnen, 2002 for an overview and the references cited therein) attempting to provide explanations on governments' choices with respect to agricultural policy. This literature is known as the political economy of agricultural policy. Within this literature several approaches can be found (see the annex 2 for a more detailed overview). Based on an assessment of these theories, which differ in various respects, a number of insights have been identified that are relevant to consider when creating a typology of Member States policy implementation choices. Selected insights obtained from this literature are the following:

1. Agricultural policy formation is understood as a **bargaining process** between the government and its stakeholders, where both governments and stakeholders have their own objectives. The government is in need for a certain level of political support for its policies thus policies emerge being a compromise between various interests. Bargaining may imply **strategic behaviour** of the parties involved. As a result of this there can be a distance with respect to rhetoric about what parties want and strive for and what they actually want to achieve;
2. An important aspect to explain (agricultural) policies it to recognize their importance in providing **income transfers** to agriculture or specific groups within agriculture. According to some theories this is particularly urgent in agriculture due to the so-called **farm problem**, which causes a decline in relative farm income if no preventive actions are taken;
3. Another important aspect to explain agricultural policies is **market failure**. Agricultural policies fill the gaps left by the market and are crucial to secure an adequate provision of (green) public goods and proper treatment of positive and negative externalities. With respect to agriculture this is relevant for green (e.g. agri-environmental services, biodiversity) and blue services (e.g. water storage, water management) and landscape preservation;
4. Several approaches confirm an anti-trade bias in agricultural policy formation, or equivalently a bias towards **protection or favouring of domestic production**;
5. The **political decision-making structure and institutions** play a significant role in agricultural policy formation. The EU is a specific case in this regard because of having a common policy for a union of 28 Member States, spanning a wide diversity of agronomic

conditions (growing season, climate), wealth, development, political and economic history, population density, etc.⁴;

6. Although the political economy literature on redistribution is much more developed than the literature on the choice of policy instruments, an interesting result is that governments can use **inefficient policy instruments** to achieve their objectives, including farm income goals. An example are price support policies (or voluntary coupled payments) which might be chosen over direct income support (direct payments) as improving “self-sufficiency” appeals more to nationalistic sentiments of voters, and because farmers fear a “welfare”-stigma. Other examples are related to the phenomenon of asymmetric information by voters, interest groups and competing politicians;
7. In contrast with the previous bullet, there is also literature arguing **efficient choices for policy instruments**. However, then it has to be assured that the total costs (i.e. transaction and administrative costs as well as the social costs of public funds) of policy measures are taken into account when studying the trade-offs between policy measures. Moreover, it is argued that when multiple instruments are used, combinations can arise leading to relative low distortions (and associated welfare losses) and relative efficient transfers (especially when price or income support measures are combined with a production control measure);
8. With regard to **policy dynamics**, several studies point to the inertia in the political system with respect to agricultural policy reforms, with changes made often only incrementally and over long periods of time (status quo bias). This may relate to the role of vested interests that strive to protect their rents from the system. **Rent-seeking behaviour** combined with the subsequent defence of earlier obtained rents creates a type of farm dependency in the formation of agricultural policies.

Based on these considerations, it is suggested that when making a typology of a Member State's policy implementation choices, alongside the implementation choices a number of confounding variables should be taken into account, which are able to capture aspects such as:

- The potential path-dependency of policy formation and thus the implemented policies (e.g. status quo-bias);
- The identified needs (or priorities) with respect to policy objectives and implementation;
- Experienced changes in the policy (e.g. budget reduction or increase relative to the pre-reform period) and the implications this may have for the current policy implementation;
- Issues of market failure (e.g. preservation of biodiversity, negative environmental externalities) and the measures available and chosen to address these needs;
- The occurrence of policy interdependencies or potential interaction between different policy measures and how this may impact policy implementation.

The political economy literature shows that policies usually change in an incremental way. Policy implementation outcomes, including its details, usually reflect a close interaction of the policy maker at Member State level with local stakeholder/interest groups. As such policy implementation choices are often complex “co-productions”, reflecting national political-institutional “equilibria” involving different and diverse stakeholder groups. Policy reforms can be interpreted as being motivated by the strive to improve, not only to cope better with new challenges, but also to avoid mistakes and address weaknesses in the existing policies, and to rebalance the policy in the context of the new political context, including the constellation and impact of interest groups. In order to understand and appreciate a policy reform it is therefore relevant to assess what the criticisms were with respect to the old policy and also to evaluate them within their broad political

⁴ There are not many studies that discuss the specific institutional structure of EU policy making and its impact on the policy outcomes (examples are Runge and Von Witzke (1987), Moyer and Josling (2002), Petit (2003), Swinnen (2008), Naylor (2014)).

context (including the role of stakeholder organisations and alliances and their efforts to influence the policy implementation).

Based on the previous steps and taking into account that only a limited number of additional variables could be dealt with in the statistical analysis (due to limited degrees of freedom), the following set of confounding variables has been selected as potential candidates to include in the analysis (see Table A-5.1).

Table A-IV.1. Confounding variables used in the factor analysis of the CAP 2014-2020 policy implementation

Variable	Comments
Share of Pillar I funds in total CAP 2007-2013 envelope	Takes into account the history w.r.t. the distribution of the budget over the two pillars of the CAP
Change in Pillar I envelope for CAP 2014-2020 relative to the Pillar I envelope of the CAP 2007-2013	Characterizes the change in the Pillar 1 budget (reduction/increase) of the current reform relative the previous CAP implementation ⁵ .
Change in Pillar II envelope for CAP 2014-2020 relative to the Pillar II envelope of the CAP 2007-2013	Characterizes the change in the Pillar 2 budget (reduction/increase) of the current reform relative the previous CAP implementation
Change in total (annualized) budget of the CAP 2014-2020 relative to the total (annualized) budget of the CAP 2007-2013	Characterizes the change in the CAP (total) budget (reduction/increase) of the current reform relative the previous CAP implementation
Old or new Member State indicator	Characterizes the year of entry to EU of a Member State, which has a link to the implementation of the direct payments policy in the past (e.g. single area payment or SAPS, and single farm payment or SFP) and potentially for the current policy implementation

IV.4 Component 2 – Descriptive Analysis

The fiches established and drafted for the descriptive chapter contained a number of findings that were relevant for the typology analysis. See for further details the mapping report. The findings from the descriptive analysis in general confirmed the results obtained from the review of the political economy literature. More specifically it was found that:

- Member States have a tendency to resist change. As change might distort the initial political equilibrium, remedying actions or implementation choices can be made, counteracting or ‘neutralizing’ the change. Examples of this are the move of funds between the First and Second Pillar of the CAP and the way in which internal convergence, degressivity and the redistributive payments are implemented.
- Income support (and remedying the impacts of negative income impacts from policy changes) is often considered important, and could be a factor behind specific CAP measure implementation options.
- Member States could follow a strategy that aims to allow farmers at a maximum extend to benefit from the use and expenditure of EU public means. This could be a reason to make more measures available than the most simple possible selection, in order to allow for a maximum absorption rate.

⁵ Budgets in real terms are used for 2013 and 2019 as indicated in the Regulations have been used to calculate in order to also have data for Croatia.

- Furthermore, in most Member States coordination between the decision-making procedure for implementing Pillar I and Pillar II remains limited. For the majority of Member States, it was recorded that the process is coordinated yet no overarching strategy is defined integrating choices under Pillar I and Pillar II.

In order to gain a first insight into the structure, patterns and general trends in Member States' implementation choices some descriptive statistics (using averages, first order correlations, classifications) have been performed and analysed using the dataset resulting from the mapping phase.

IV.5 Component 3 – Empirical Analysis

The empirical analysis will be conducted following 3 distinct steps:

- Step 1: Selecting variables and developing a unified scale;
- Step 2: Applying the scale;
- Step 3: Conducting the factor analysis and/or cluster analysis.

IV.5.1 Step 1 and 2: Selecting variables and developing a unified scale and assigning scores

After the Excel database containing all implementation choices was compiled and a first descriptive analysis has been made, a set of variables has been selected, characterizing the implementation options Member States made with respect to the implementation of both Pillar I and Pillar II of the CAP, as well as the set of confounding variables (see discussion in previous section). This resulted in a large number of variables (about 45)⁶. After a meeting with a technical group (formed out of the steering group) it was decided to reduce the number of variables to a more limited set, which “summarized” the policy implementation options and better discriminated main directions chosen from more specific details, that were judged to be less relevant to base a typology on.

The selected ten summary-variables capturing the main directions of the policy implementation choices were:

1. Direct payments and equality
2. The role of (voluntary) coupling
3. The small farmers scheme
4. The implementation of the greening
5. The extent to which it was decided to rebalance support by shift budget to different pillars
6. The role of AECS/biodiversity/environment
7. The role of structural support
8. The strengthening of the position of farmers in the supply chain
9. Viability of rural areas
10. The role of information and knowledge sharing

See Table A-5-2 for more detailed information about the variables that are used to measure these ten aspects. Note that sometimes one aspect is measured by more than one proxy variable (e.g. direct payments and equality is measured using one indicator about convergence and another one on the degree of targeting). In order to facilitate the interpretation and the relative focus of each

⁶ In a first effort a factor analysis was run on this large set of variables and subsequently a cluster analysis was done to select a number of types. However, the large number of characterizing variables in combination with a limited set of observations created problems. The lack of degrees of freedom lead to unreliable results. As an intermediate step it was then tried to do two separate analyses, one focusing on the pillar one policy implementation options and one focusing on the pillar two policy implementation options. In this intermediate step also some interaction effects between the pillars were accounted for. In a subsequent step the pillar 1 and pillar 2 results were integrated into one combined typology (using a so-called cross-tab approach)

group, the link of each variable to the three general CAP objectives has been assessed. A distinction has been made between the direct contribution of a measure to a CAP objective (indicated by a "X") and more indirect or ambiguous effects (indicated by a "?").

Table A-IV.2. Variables used in the factor analysis, their scaling and their links to the general CAP objectives

Implementation choices	Indicator used	Viable food production	Sustainable management of natural resources and climate action	Balanced territorial development	Reason for inclusion and link to general objectives
Direct payments and equality	<p>Full or partial convergence</p> <p><i>This indicator measures the ambition in terms of internal convergence, i.e. are there still SAPS in place? Will there be a flat rate in 2015 or in 2019/2020? Will it be implemented at national or at regional level?</i></p>	X		?	This indicator was included as Member States have made a wide variety of choices based on their specific circumstances. Aim of these choices is mainly related to income support
	<p>Degree of (re)targeting of DPs (rate; share of BPS/SAPS in Pillar 1 envelope)</p> <p><i>This indicator shows the amount of budget spent on the non-targeted approach of the BPS/SAPS and whether MS have decided to use the voluntary schemes available to them or the Young Farmer Scheme to make the Direct Payments more targeted.</i></p>	X	?	?	The indicator has been included as it measures the degree MS have made use of the increased flexibility in Pillar 1 to make Direct Payments more targeted. However, except for the greening the primary aim is income support, implying a linkage with viable food production
Coupling	<p>Expenditure on voluntary coupled support (rate; share in Pillar 1 envelope)</p> <p><i>The indicator measures the percentage of Pillar 1 budget spent on VCS and whether this support is given with a targeted or selective approach.</i></p>	X	?	?	The support is mainly related to viable food production, but can also contribute to balanced territorial development (as supported farms might be concentrated in certain (marginal) regions) and sustainable management of natural resources (in case coupled support contributes to avoid land abandonment and/or a type of land management that contributes to biodiversity)

Implementation choices	Indicator used	Viable food production	Sustainable management of natural resources and climate action	Balanced territorial development	Reason for inclusion and link to general objectives
Small Farmers Scheme	<p>Qualitative indicator based on the implementation modalities of the Small Farmers Scheme</p> <p><i>The indicator measures whether MS have decided to implement the SFS and to what extent they have used the flexibility to target it.</i></p>	X		?	The scheme is mainly related to viable food production, but can also contribute to balanced territorial development (as small farms might be concentrated in certain regions)
Greening	<p>Environmental indicator of Greening decisions</p> <p><i>This indicator shows the environmental focus of the implementation choices made within the Greening Payment. It is based upon the no. of EFAs implemented, the use of pesticides and fertilisers, the percentage of ESPG in the total of designated PG and whether there has been ESPG designated outside of Natura 2000 areas</i></p>	?	X		Indicator measures the extent to which the payment has been implemented at the largest or the smallest level of flexibility. Depending on score the orientation of greening is less/more ambitious with regard to improving sustainable management of natural resources, or will have an income support component (which is then linked to viable food production)
Rebalancing of support	Shift from P1 to P2 and/or P2 to P1	?	?	?	Indicator measures shifts of budget over the pillars (in both directions). There is no direct link to a specific CAP objectives. This link will become visible when the budget is used to finance specific measures.

Implementation choices	Indicator used	Viable food production	Sustainable management of natural resources and climate action	Balanced territorial development	Reason for inclusion and link to general objectives
AECS/biodiversity/environment	<p>AECS and organic farming budget as share in RDP envelope (share in Pillar 2 envelope) and organic farming</p> <p><i>The indicator measures the extent to which the focus of the RDP lies on more environmental issues.</i></p>		X		The importance governments attach to addressing market failure (negative and positive externalities of agriculture on the environment). The measure is strongly linked to the objective of sustainable management of natural resources.
Structural support	<p>Planned expenditure in productive investments (share in Pillar 2 envelope);</p> <p><i>This indicator should show the budgetary importance attached to investments (M04, M05, M06, M08) related to structural support</i></p>	X			Productive investments (e.g. measure M4.1, M4.2) are related to viable food production
	<p>Non-productive (market failure) orientation of investments</p> <p><i>This is a dummy variable indicating whether MS have implemented the option to provide non-productive investments (M4.4)</i></p>		X		This binomial variable indicates whether or not measure M4.4 is implemented. These non-productive investments are linked to improving the sustainable management of natural resources.
Strengthening of farmers in the supply chain	<p>Planned expenditure on the organisation of the food supply chain (share in Pillar 2 envelope)</p> <p><i>The indicator measures the planned expenditure on measures that strengthen the position of farmers in the supply chain. It</i></p>	X		?	This variable measures the importance attached to the functioning of the food supply chain in terms of producer cooperation, establishing countervailing power and introducing quality schemes. It is closely connected to the objectives of viable food production and, depending on its implementation, also to balanced territorial development.

Implementation choices	Indicator used	Viable food production	Sustainable management of natural resources and climate action	Balanced territorial development	Reason for inclusion and link to general objectives
	<i>includes M03, M09 and M17.</i>				
Viability of rural areas	<p>Planned expenditure on the further development of multifunctional rural areas (share in Pillar 2 envelope)</p> <p><i>Indicator measuring the expenditure on multifunctional rural areas and includes planned expenditure on M07 and M19.</i></p>			X	The variable should indicate the level of support for the provision of basic services and village renewal in rural areas and community-led local development. This includes M07 and M19. It can be linked to the objective of balanced territorial development.
Information improvement and knowledge sharing	<p>Planned expenditure on horizontal activities and innovation (share in Pillar 2 envelope)</p> <p><i>This indicator show the level of focus in terms of planned budget, the RDP of a Member State or region on horizontal and knowledge sharing activities. It includes the planned expenditure for M01, M02 and M16</i></p>	X	X	?	Horizontal measures on knowledge sharing and innovation with the government as facilitator. These measures can, depending on their orientation, contribute to viable food production (increase productivity) and sustainable management (increase farmer awareness and knowledge to use resources more efficiently and avoid harmful impacts on the environment).
Total		7X + 1?	4X + 2?	1X + 7?	
Legend	X : measures strongly targets to this objective				
	?: measure can target or co-target this objective, depending on its precise implementation				

The variable of the Greening Payment, is based upon how the greening measure has been technically implemented, i.e. based upon the implementation choices regarding the technicalities on whether it will be with an individual or a collective payment. The variable Greening is based upon the flexibility used to implement the environmental aspects of the greening payment. It is a composite score of different factors which indicate how much flexibility is offered to farmers by the MS in implementing the greening practices. The minimum score indicates an environmentally conscious manner of implementing the greening payment is chosen, which implies a targeted approach to the number of EFAs which can be implemented⁷, fertiliser and pesticides are not allowed, more than 50% of PG is designated as ESPG and there is ESPG designated outside N2000. See further details about the composition of this variable below in Table A-1-3.

Table A-IV.3. The environmental greening indicator

	Min		Max
EFA (no. implemented)	2		18
Rescaled as 2 was the real minimum	0		16
Fertiliser and pesticide	0	1	2
	not allowed	with conditions or not specified	allowed
% ESPG in N2000/total PG	0		1
	>50%		<50%
ESPG out N2000	0		1
	yes		no
FINAL SCALE	0		20
The final scale has been rescaled to a continuous 0-5 scale in order to remain consistent with the other variables	min flexibility: environmentally conscious implementation of greening		max flexibility, trying to keep status quo as much as possible

IV.5.2 Step 3 Empirical analysis

⁷ This is an assumption based upon interviews with key informants. In many cases, MSs offering many EFAs have no targeted approach and want to allow farmers maximum flexibility for the implementation of EFAs. While some MS which offer a lower amount of EFAs often have a more targeted approach to ensure the environmental benefits. However, this cannot be generalized, this assumption was taken for the sake of the ease of interpretation of the analysis.

The third step of the procedure to develop the typology is to apply different statistical analyses to the data developed in the previous step. In order to test for the sensitivity of the results various approaches have been applied:

- i. Apply a factor analysis on the full set of implementation choices of P1 and P II together, with a special focus to detect interaction effects between both Pillars of the CAP (e.g. greening via Pillar 1 and AEC-measures via P II).
- ii. Apply a factor analysis to the full set of Pillar I implementation choices and a set of relevant confounding variables, where the set of confounding variables also takes into account the interlinkage of Pillar 1 implementation choices with those of Pillar II, using some summary variables on Pillar II implementation. This step is integrated with the next step to develop a common typology by combining two separate cluster analyses.
- iii. Apply the factor analysis to the full set of Pillar II implementation choices and a set of relevant confounding variables, where the set of confounding variables also takes into account the interlinkage of Pillar II implementation choices with those of Pillar 1, using some relevant variables on P I implementation (e.g. GREENING_ENV variable)⁸. This step is integrated with the previous step to develop a common typology by combining two separate cluster analyses
- iv. Apply a cluster analysis to a dataset which summarizes the main aspects of the policy implementation options and base the typology on this analysis.

The basic aim of the factor analysis is to detect patterns (similarities, dissimilarities) in Member State's implementation choices with respect to the first and the second pillar of the CAP. The natural choice then is to focus on these implementation choices and the measures that are adopted. The aim of the cluster analysis is to group the Member States according to their characteristics on a set of variables describing the implementation options (either in a detailed way or in terms of a more limited set of summary variables).

Step i), implying an integrated analysis of the implementation measures taken with respect to both Pillar I and Pillar II of the CAP, was not successful. The number of variables considered appeared too large compared to the number of observations which resulted in a poor performing analysis. It was no option to analyse this at the aggregated Member State level (31 observations) due to issues with the degrees of freedom⁹.

Because of the constraint of the factor analysis with respect to the number of variables that can be included from the analysis done in this step it was concluded that a direct combined approach is not feasible. While the aim of the analysis is to make an integrated analysis of the implementation options of both Pillars (see Section 1.1 of this annex), it was decided to first make an analysis Pillar by Pillar (both factor analysis and cluster analysis), and then integrate the results of these two steps (see steps ii and iii). The results of this step and the derived typology have been discussed with the steering group. A weakness of this approach was found to be that, although it took some interactions between both pillars on board, it could not claim to be a full integral analysis.

In order to make sure an integral analysis of the implementation options made in both pillars, step iv was proposed. It included the creation of a set of summary-variables describing main implementation choices made with regard to the policy measures of both pillars (see previous section for details) and applying a factor cum cluster analysis (or a direct cluster analysis) on this

⁸ The mapping exercise has shown that in reality the decisions on P I and P II implementation choices have been taken by different government departments and that the decision-making strategy is in most cases very distinct. However, for some key choices P I and P II implementation choices have been coordinated such as for example the greening payments, the shift of budget from P I to P II or vice versa.

⁹ A Heywood case occurred indicating that the iterative maximum likelihood estimation method converges to unique (specific) variances values that are less than a prefixed lower bound value . This indicates that there are insufficient data to provide stable estimates (degenerate case).

set (step iv). Since the final typology is mainly based on this latter step, the results from this step are described in more detail below.

IV.5.3 Results from the statistical analysis

In this section a summary of the results of the typology analysis associated with step iv is provided (the results from the other steps are available from the authors upon request.¹⁰ The aim of the annex is to provide helpful background information that help to interpret and understand the outcomes. The details and interpretation is provided in the main text. Table A-5-3 provides the outcome of the cluster analysis, with the clustering of the Member States into 5 groups. Some sensitivity analysis was done with selecting the number of clusters. Both this analysis and the scree plot suggested that 5 clusters is an adequate amount. When increasing the number of clusters very soon clusters will result that correspond with a single (large) Member State.

Because the variables taken into account in the analysis included both continuous, discrete and binary variables, a cluster method has been used that could handle this variation in the variables. Here the so-called Gower measures has been used to measure the “distance” (or dis-likeness or likeness) between the different observations (Member States).

As can be seen from Table A-5-4 the Member States are divided in 5 groups, making up 5 to 8 Member States.

¹⁰ The statistical analyses have been done with the STATA statistical software package. Some programming has been done to implement the various statistical analyses (including both the factor analysis, the principal component analysis and the complementary cluster analysis based on the outcomes of the previous analysis). Also this programming code is available from the authors.

Table A-IV.4. The clustering of Member States

Country/type	1	2	3	4	5
AT	1	0	0	0	0
BG	0	0	0	0	1
B_Fl	0	0	1	0	0
B_Wa	0	0	1	0	0
CY	0	0	0	0	1
CZ	0	0	0	0	1
DE_NAT1	1	0	0	0	0
DK	0	0	0	1	0
EE	0	0	0	0	1
ES_NAT1	0	0	1	0	0
FI_NAT1	0	1	0	0	0
FR_NAT1	0	0	1	0	0
GR	0	0	1	0	0
HR	0	0	0	0	1
HU	0	0	0	0	1
IE	0	0	0	1	0
IT_NAT1	0	0	1	0	0
LT	0	1	0	0	0
LU	0	0	0	1	0
LV	1	0	0	0	0
MT	1	0	0	0	0
NL	0	0	0	1	0
PL	1	0	0	0	0
PT_NAT1	0	0	1	0	0
RO	1	0	0	0	0
SE	0	1	0	0	0
SK	0	1	0	0	0
SL	0	0	1	0	0
UK_Engl	0	0	0	1	0
UK_Nirl	0	0	0	1	0
UK_Scotl	0	1	0	0	0
UK_Wales	0	0	0	1	0
Total	6	5	8	7	6

Source: cluster analysis (step iv)

Each type or cluster is characterized by certain characteristics or loading on the set of explanatory variables (describing the scores of the Member States related to the different implementation choices they made). Table A-5-5 describes the so-called cluster scores. These scores represent the average score of the group of countries selected to be in a specific cluster on a variable (note that the variables names in state are shortcuts that are different from the extended label as described in Table A-5-1, but they can easily be recognized¹¹). Variable Share(P1) describes the share of expenditure on Pillar 1 measures as part of the total CAP budget as it was associated with the pre-2015 reform (this is a so-called path-dependency variable, one that is selected from the candidates provided in Table A-5-1).

¹¹ Note that also their sequence is different from that provided in Table A-1-1.

Table A-IV.5. The cluster scores on the explanatory variables

Cluster scores/var	REBALAN	CONVERG	COUPLED	DP(SH BP)	GREEN	SFS	STR(PRD)	STR(ENV)	KNOWL	POSITION	AECS	VIABILITY	SHR (P1)
1	0.15	0.67	2.33	2.40	2.92	3.33	1.78	0.50	0.27	0.11	1.01	0.77	0.09
2	0.18	1.40	1.60	2.74	1.35	0.00	1.67	0.80	0.21	0.02	1.00	0.59	0.04
3	-0.38	4.38	1.63	2.48	2.75	2.00	1.91	0.75	0.25	0.50	1.28	0.54	0.67
4	-0.91	3.00	4.57	3.37	2.07	0.00	1.47	1.00	0.31	0.02	1.98	0.43	0.14
5	0.38	0.67	2.00	2.73	2.79	2.33	1.92	0.83	0.15	0.10	1.23	0.64	5.00
Total average	-0.17	2.22	2.47	2.75	2.42	1.56	1.75	0.78	0.24	0.17	1.33	0.59	1.16

Source: cluster analysis (step iv)

The cluster score table (Table A-1-5) plays an important role in interpreting the clusters that have been selected. The cluster analysis method is a technique that groups a set of objects in such a way that objects in the same group (called a cluster) are more similar (in some sense or another) to each other than to those in other groups (clusters). Popular notions of clusters include groups with small distances among the cluster members, dense areas of the data space, intervals or particular statistical distributions. In order to assess the scores provided in Table A-1-5 in Table A-1-6 the general properties (mean, standard deviation minimum and maximum) are provided (where the mean column in Table A-1-6 corresponds to the total average of Table A-1-5).

Table A-IV.6. The statistical properties of the explanatory variables

Variable	Mean	Std. Dev.	Min	Max
DP and equality (convergence)	2.22	1.88	0.00	5.00
DP and equality (share BP)	2.75	0.64	0.56	3.40
Coupling	2.47	1.59	1.00	5.00
Small Farmers Scheme	1.56	1.76	0.00	4.00
Greening	2.42	1.21	0.75	4.50
Rebalancing of support	-0.17	1.29	-2.50	2.50
AECS/biodiversity/ environment	1.31	0.65	0.28	3.57
Structural support (prod)	1.81	0.71	0.54	3.11
Structural support (env)	0.78	0.42	0.00	1.00
Strengthening of farmers in the supply chain	0.21	0.86	0.00	4.91
Viability of rural areas	0.56	0.29	0.15	1.38
Information improvement and knowledge sharing	0.30	0.86	0.00	4.97
Share P1 expenditure in total CAP budget pre 2015 CAP	1.16	1.93	0	5

Source: own calculations

Table A-1-5 provides the basic information about the specific characteristics of the different types or clusters (i.e. the cluster group average scores). As a brief description of the typical characteristics per cluster, see the interpretation of Table A-1-5 in Table A-1-7 below. For further details see also the main text.

Table A-IV.7. Overview of selected characteristics of clusters and member State grouping

cluster	Member States	typical characteristics of Member State policy measure implementation choices
1	AT, DE, LV, MT, PL, RO	strong convergence, flexible greening, active small farmers support, viability of rural areas important
2	FI, LT, SE, SK, UK_Scot	convergence in 2015, realative strict greening, coupled support, no small farm support, positioning in supply chain not important
3	B_FI, B_Wa, ES, FR, GR, IT, PT, SL	partial convergence, small farmer support is of importance, productive investments are supported, positioning in supply chain important
4	DK, IE, NL, UK_Engl, UK_N.Irl	convergence in 2019, low use of coupled support, low targeting of direct payments, no small farmer support, support for environmental investments, high use of AECS
5	BG, CY, CZ, EE, HR, HU	use of SAPS, coupled support important, small farmers support important, productive investments important, viability of rural areas important

Source: own analysis

IV.6 Component 4 – Complementary Analysis

The complementary analyses included several steps. The first is to further assess the details about the Member States that are classified in a specific group. For this individual Member State scores have been calculated¹². Tables A-5-8 to A-5-12 provide these details for respectively cluster 1, 2, 3, 4 and 5. For each variable the cluster group average as well as the total average has been added (see rows at lower end of each table). As becomes clear when analysing the individual Member States within a cluster their similarities can imply that at individual variable scores they differ quite a lot. The “similarity”-measure used by the clustering algorithm is not based on a single variable, but rather on the whole set of variables. As an example, in cluster 1, Germany applies no voluntary coupled support, while Latvia, Malta and Poland do this in an extreme way (see Table A-5-7). So there are large deviations between Member States with respect to voluntary coupling implementation “accepted” in cluster 1, because the similarities are there for other variables, which according to the algorithm applied makes them a homogeneous group relative to other groups. Sometimes, the homogeneity even at a single variable can be high (see as an example Table A-5-8, where none of the countries in cluster 2 are applying the small farmer scheme). Tables A-5-8 to A-5-12 have been used to create a more refined description of the clusters, while it also pays attention to the position of (selected) individual Member States.

¹² This is not a standard step in the cluster analysis, but has been programmed as an add-on to the standard cluster analysis as provided in the STATA package.

Table A-IV.8. The cluster scores of cluster 1 on the explanatory variables

c1	REBALAN	CONVERG	COUPLED	DP(SH BP)	GREEN	SFS	STR(PRD)	STR(ENV)	KNOWL	POSITION	AECs	VIABILITY	SHR (P1)
AT	0.00	2.00	4.00	3.29	2.25	4.00	0.75	1.00	0.14	0.09	1.96	0.63	0.16
DE_NAT1	-0.75	1.00	5.00	3.10	4.00	3.00	1.12	1.00	0.16	0.00	1.59	1.38	0.39
LV	-1.25	0.00	1.00	2.68	2.00	2.00	2.05	0.00	0.14	0.04	0.86	0.67	0.00
MT	0.63	1.00	1.00	0.56	1.75	4.00	2.55	1.00	0.99	0.27	0.28	0.25	0.00
PL	2.50	0.00	1.00	2.28	4.00	4.00	2.32	0.00	0.07	0.16	0.70	0.67	0.00
RO	-0.22	0.00	2.00	2.49	3.50	3.00	1.93	0.00	0.09	0.12	0.68	1.03	0.00
group av.	0.15	0.67	2.33	2.40	2.92	3.33	1.78	0.50	0.27	0.11	1.01	0.77	0.09
total av.	-0.17	2.22	2.47	2.75	2.42	1.56	1.75	0.78	0.24	0.17	1.33	0.59	1.16

Source: cluster analysis (step iv)

Table A-IV.9. The cluster scores of cluster 2 on the explanatory variables

c2	REBALAN	CONVERG	COUPLED	DP(SH BP)	GREEN	SFS	STR(PRD)	STR(ENV)	KNOWL	POSITION	AECs	VIABILITY	SHR (P1)
FI_NAT1	0.00	3.00	1.00	2.80	1.00	0.00	1.60	1.00	0.15	0.01	1.00	0.70	0.21
LT	0.00	0.00	1.00	1.93	0.75	0.00	2.44	1.00	0.13	0.06	0.74	0.48	0.00
SE	0.00	2.00	2.00	2.75	1.50	0.00	0.54	1.00	0.43	0.00	1.69	0.88	0.00
SK	2.50	0.00	2.00	2.83	2.25	0.00	2.09	0.00	0.16	0.00	0.56	0.54	0.00
UK_Scotl	-1.58	2.00	2.00	3.40	1.25	0.00	1.67	1.00	0.19	0.00	0.99	0.37	0.00
group av.	0.18	1.40	1.60	2.74	1.35	0.00	1.67	0.80	0.21	0.02	1.00	0.59	0.04
total av.	-0.17	2.22	2.47	2.75	2.42	1.56	1.75	0.78	0.24	0.17	1.33	0.59	1.16

Source: cluster analysis (step iv)

Table A-IV.10. The cluster scores of cluster 3 on the explanatory variables

c3	REBALAN	CONVERG	COUPLED	DP(SH BP)	GREEN	SFS	STR(PRD)	STR(ENV)	KNOWL	POSITION	AECs	VIABILITY	SHR (P1)
B_Fi	-1.67	4.00	2.00	2.85	3.75	0.00	3.11	1.00	0.32	0.05	0.98	0.48	0.36
B_Wa	0.00	4.00	1.00	1.49	3.75	0.00	1.64	0.00	0.13	0.00	1.89	0.48	1.00
ES_NAT1	0.00	5.00	2.00	3.01	1.25	4.00	0.64	1.00	0.24	0.00	1.70	0.34	0.39
FR_NAT1	-0.55	5.00	1.00	2.50	4.50	0.00	2.31	1.00	0.54	3.77	1.13	0.59	0.53
GR	-0.83	5.00	3.00	1.95	1.75	4.00	1.95	1.00	0.31	0.07	1.06	0.50	0.36
IT_NAT1	0.00	4.00	2.00	2.90	4.50	3.00	2.67	1.00	0.13	0.08	0.71	0.27	0.33
PT_NAT1	0.00	4.00	1.00	2.40	1.50	3.00	1.12	1.00	0.16	0.00	1.59	1.38	2.40
SL	0.00	4.00	1.00	2.70	1.00	2.00	1.86	0.00	0.20	0.02	1.19	0.28	0.00
group av.	-0.38	4.38	1.63	2.48	2.75	2.00	1.91	0.75	0.25	0.50	1.28	0.54	0.67
total av.	-0.17	2.22	2.47	2.75	2.42	1.56	1.75	0.78	0.24	0.17	1.33	0.59	1.16

Source: cluster analysis (step iv)

Table A-IV.11. The cluster scores of cluster 4 on the explanatory variables

c4	REBALAN	CONVERG	COUPLED	DP(SH BP)	GREEN	SFS	STR(PRD)	STR(ENV)	KNOWL	POSITION	AECs	VIABILITY	SHR (P1)
DK	-1.17	4.00	5.00	3.24	1.75	0.00	2.19	1.00	0.38	0.00	1.66	0.40	0.64
IE	0.00	4.00	4.00	3.39	3.00	0.00	0.54	1.00	0.18	0.00	2.09	0.33	0.35
LU	0.00	4.00	4.00	3.40	3.75	0.00	1.59	1.00	0.00	0.00	1.59	0.15	0.00
NL	-0.72	2.00	4.00	3.38	1.00	0.00	2.50	1.00	0.27	0.14	1.50	0.38	0.00
UK_Engl	-2.00	1.00	5.00	3.40	1.50	0.00	0.80	1.00	0.22	0.00	3.57	0.33	0.00
UK_Nirl	0.00	4.00	5.00	3.40	2.25	0.00	0.72	1.00	0.44	0.00	1.81	0.88	0.00
UK_Wales	-2.50	2.00	5.00	3.40	1.25	0.00	1.93	1.00	0.70	0.00	1.61	0.56	0.00
group av.	-0.91	3.00	4.57	3.37	2.07	0.00	1.47	1.00	0.31	0.02	1.98	0.43	0.14
total av.	-0.17	2.22	2.47	2.75	2.42	1.56	1.75	0.78	0.24	0.17	1.33	0.59	1.16

Source: cluster analysis (step iv)

Table A-IV.12. The cluster scores of cluster 5 on the explanatory variables

c5	REBALAN	CONVERG	COUPLED	DP(SH BP)	GREEN	SFS	STR(PRD)	STR(ENV)	KNOWL	POSITION	AECs	VIABILITY	SHR (P1)
BG	0.00	0.00	1.00	2.37	3.50	4.00	2.01	1.00	0.13	0.01	0.64	1.30	5.00
CY	0.00	0.00	3.00	3.06	1.25	0.00	1.38	0.00	0.10	0.12	1.52	0.57	5.00
CZ	-0.22	0.00	1.00	2.74	2.25	0.00	1.24	1.00	0.19	0.00	2.01	0.25	5.00
EE	-2.50	0.00	5.00	3.32	2.00	3.00	2.12	1.00	0.20	0.04	1.64	0.46	5.00
HR	2.50	4.00	1.00	2.15	3.25	3.00	2.39	1.00	0.09	0.15	0.56	0.70	5.00
HU	2.50	0.00	1.00	2.74	4.50	4.00	2.38	1.00	0.18	0.26	1.01	0.56	5.00
group av.	0.38	0.67	2.00	2.73	2.79	2.33	1.92	0.83	0.15	0.10	1.23	0.64	5.00
total av.	-0.17	2.22	2.47	2.75	2.42	1.56	1.75	0.78	0.24	0.17	1.33	0.59	1.16

Source: cluster analysis (step iv)

IV.7 Concluding remarks

This annex summarizes the procedure that has been followed and the different steps that have been taken in the typology analysis. Also a summary of the main outcomes are provided, while the general discussion of the obtained typology is left to be discussed and elaborated on in the main text. This annex provides background information to that. From the analysis as reported in the annex (with a focus on the technical-statistical aspects of the analysis) some further specific conclusions follow below.

The typology developed above has been based on a cluster analysis on a limited set of data, which “summarize” the policy implementation options chosen by Member States, taking into account both pillars of the CAP in an integral way. Cluster analysis as such is not an automatic task, but is usually an iterative process of knowledge discovery or interactive multi-objective optimization that involves trial and failure. In the typology analysis provided, many different approaches (with or without including a factor analysis) have been used (including analyses on subsets of the data and separate analyses of implementation choices by pillars). Most of these results are not reported here in the form of detailed tables. However, as much as possible lessons learned from intermediate steps have been taken into account. More specifically:

- As regards the stability of the grouping it was found that some countries always tend to go together where others could switch groups under changing side conditions (e.g. varying total number of clusters). This might partly signal that the implementation choices of selected Member States have similarities, but at the same time each Member State has its own particularities. As already became clear from the political economy literature assessment, making policy choices is normally not a clear cut and directed optimization process in which policy measures are optimally matched to needs, as defined according to objective criteria. The role of Member States particularities, its history, the role and power structure of various stakeholder groups and the political “colour” of the government all count to create the end result.
- To the extent this (see previous bullet) is the case, the attempt to create robust typologies or Member State groupings will be difficult since in the real world the “particularities” may dominate the “commonalities”. This is also confirmed by the factor analysis done, where it turned out to be difficult to identify clear patterns in the implementation choices over Member States as well as RDP regions, an/or where the patterns that were found were difficult to interpret in terms of their plausibility when seen in the context of other information that is known (e.g. information from the Member State fiches).
- The cluster analysis has been done not only at Member State level, but also at RDP-level (details not reported in this annex, but all available upon request). The main finding from that was that the RDP regions in a Member State were in nearly all cases clustered to that Member State, with large Member States often making up one cluster on their own. This suggests that the similarities within Member States are so large that they “dominate” the clustering of the RDP regions, at least for the set of variables we used.

Table A-IV.13. Overview of priorities for RDPs

Priority	Description
1	Knowledge transfer and innovation
2	Competitiveness of all types of agriculture and farm viability
3	Food chain organisation and risk management
4	Restoring, preserving and enhancing ecosystems
5	Resource efficiency and shift towards a low carbon and climate resilient economy
6	Social inclusion, poverty reduction, and economic development in rural areas

Table A-IV.14. Overview of measures for RDPs

Description of measures	
M1 Knowledge transfer and information actions	
	M1.1: Support for vocational training and skills acquisition actions;
	M1.2: Support for demonstration activities and information actions;
	M1.3: Support for short-term farm and forest management exchange as well as farm and forest visits.
M2 Advisory services, farm management and farm relief services	
	M2.1 support to help benefiting from the use of advisory services
	M2.2 support for the setting up of farm management, farm relief and farm advisory services as well as forestry advisory services
	M2.3 support for training of advisors
M3 Quality schemes for agricultural products, and foodstuffs	
	M3.1 support for new participation in quality schemes
	M3.2 support for information and promotion activities implemented by groups of producers in the internal market
M4 Investments in physical assets	
	M4.1: support for investments in agricultural holdings;
	M4.2: support for investments in processing/marketing and/or development of agricultural products;
	M4.3: support for investments in infrastructure related to development, modernisation or adaptation of agriculture and forestry;
	M4.4: support for non-productive investments linked to the achievement of agri-environment-climate objectives.
M5 Restoring agricultural production potential damaged by natural disasters and catastrophic events and introduction of appropriate preventive actions	
	M5.1: support for investments in preventive actions aimed at reducing the consequences of probable natural disasters, adverse climatic events and catastrophic events;
	M5.2: support for investments for the restoration of agricultural land and production potential damaged by natural disasters, adverse climatic events and catastrophic events.
M6 farm and business development	
	M6.1: business start-up aid for young farmers;
	M6.2: business start-up aid for non-agricultural activities in rural areas;
	M6.3: business start-up aid for the development of small farms;
	M6.4: support for investments in creation and development of non-agricultural activities;
	M6.5: payments for farmers eligible for the small farmers scheme who permanently transfer their holding to another farmer.
M7 basic services and village renewal in rural areas	
	M7.1: support for drawing up and updating of plans for the development of municipalities and villages in rural areas and their basic services and of protection and management plans relating to Natura 2000 sites and other areas of high nature value;
	M7.2: support for investments in the creation, improvement or expansion of all types of small scale infrastructure, including investments in renewable energy and energy saving;

	M7.3: support for broadband infrastructure, including its creation, improvement and expansion, passive broadband infrastructure and provision of access to broadband and public e-government;
	M7.4: support for investments in the setting-up, improvement or expansion of local basic services for the rural population including leisure and culture, and the related infrastructure;
	M7.5: support for investments for public use in recreational infrastructure, tourist information and small scale tourism infrastructure;
	M7.6: support for studies/investments associated with the maintenance, restoration and upgrading of the cultural and natural heritage of villages, rural landscapes and high nature value sites including related socioeconomic aspects, as well as environmental awareness actions;
	M7.7: support for investments targeting the relocation of activities and conversion of buildings or other facilities located inside or close to rural settlements, with a view to improving the quality of life or increasing the environmental performance of the settlement;
	M7.8 others.
	M8 Investments in forest area development and improvement of the viability of forests
	M8.1: support for afforestation/creation of woodland (Article 21);
	M8.2: support of establishment and maintenance of agro-forestry systems (Article 22);
	M8.3: support for prevention of damage to forests from forest fires and natural disasters and catastrophic events (Article 23);
	M8.4: support for restoration of damage to forests from forest fires and natural disasters and catastrophic events (Article 24);
	M8.5: support for investments improving the resilience and environmental value of forest ecosystems (Article 25);
	M8.6: support for investments in forestry technologies and in processing, mobilising and marketing of forest products (Article 26).
	M9 Setting up of producer groups and organisations
	M10 Agri-environment-climate
	M10.1: payment for agri-environment-climate commitments
	M10.2: support for conservation and sustainable use and development of genetic resources in agriculture
	M11 Organic farming
	M11.1 payment to convert to organic farming practices and methods
	M11.2 payment to maintain organic farming practices and methods
	M12 Natura 2000 and Water Framework Directive payments
	M12.1 compensation payment for Natura 2000 agricultural areas
	M12.2 compensation payment for Natura 2000 forest areas
	M12.3 compensation payment for agricultural areas included in river basin management plans
	M13 Payments to areas facing natural or other specific constraints
	M13.1: compensation payment in mountain areas
	M13.2: compensation payment for other areas facing significant natural constraints
	M13.3: compensation payment to other areas affected by specific constraints
	M14 Animal Welfare
	M15 Forest environmental and climate services and forest conservation
	15.1 payment for forest-environmental and climate commitments
	15.2 support for the conservation and promotion of forest genetic resources
	M16 Cooperation
	M16.1 Support for the establishment and operation of operational groups of the EIP for agricultural productivity and sustainability
	M16.2 Support for pilot projects and for the development of new products, practices, processes and technologies

	M16.3 Cooperation among small operators in organising joint work processes and sharing facilities and resources, and for developing and marketing tourism
	M16.4 Support for horizontal and vertical cooperation among supply chain actors for the establishment and development of short supply chains and local markets and for promotion activities in a local context relating to the development of short supply chains and local markets
	M16.5 Support for joint action undertaken with a view to mitigating or adapting to climate change and for joint approaches to environmental projects and ongoing environmental practices. (Article 35 (2) (f) and (g))
	M16.6 Support for cooperation among supply chain actors for sustainable provision of biomass for use in food and energy production and industrial processes
	M16.7 Support for non-CLLD strategies (non-Community-led Local Development)
	M16.8 Support for drawing up of forest management plans or equivalent instruments
	M16.9 Support for diversification of farming activities into activities concerning health care, social integration, community-supported agriculture and education about the environment and food
	M17 Risk management
	M17.1 crop, animal and plant insurance premium
	M17.2 mutual funds for adverse climatic events, animal and plant diseases, pest infestations and environmental incidents
	M17.3 income stabilisation tool
	M18 Financing of complementary national direct payments for Croatia
	M19 LEADER and CLLD
	M19.1 preparatory support
	M19.2 support for implementation of operations under the CLLD strategy
	M19.3 preparation and implementation of cooperation activities of the local action group
	M19.4 support for running costs and animation
	M20 Technical assistance to Member States



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