EUROPEAN SPATIAL PLANNING OBSERVATION NETWORK

ESPON Project 2.1.3

The Territorial Impact of CAP and Rural Development Policy

Second Interim Report
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PART 1

1 Introduction

ESPON Project 2.1.3 commenced in August 2002 with the overall aim of deepening the understanding of territorial impacts of CAP through the provision of a standardised database and an analysis of territorial trends covering all the EU territory. This report updates progress made in the project over the past six months, since the submission of the First Interim Report (FIR) at the end of October 2002. In particular it provides the following:

- an extended description of the CAP and RDP
- a revised presentation of hypotheses on the territorial effects of the CAP and RDP
- a discussion of appropriate territorial typologies for the analysis
- a presentation of the methods for the territorial impact assessment of the policies
- an account of the progress made towards the establishment of a database, indicators and map-making procedures.
- some initial analyses of the agriculture and rural development sector in Europe
- a second revised list of indicators required for the analysis

Since the submission of the FIR, the project team has met on two occasions, first during the ESPON Seminar in Luxembourg, November 21-22, and then at a full coordination meeting at Maynooth, Ireland, February 13- 16. In addition, the project co-ordinators were represented at the Lead Partners meeting in Brussels February 26.

The team has received and commented on a number of documents presented by Project 3.1 and has been fully involved in the development of the Common Platform for the ESPON programme. In particular, the project team commented on database proposals and copied these comments to all TPGs; participated in the SWOT analysis requested; volunteered to co-ordinate the development of the common definition of multifunctionality; and has employed the common concepts developed by TPG 3.1 for the ESPON programme. In addition, the team has benefited from close contact with project 1.1.2 on rural-urban relations (with whom we share a team member). This has ensured that we are fully aware of the rural urban typology being developed by TPG 1.1.2 and its potential use in this project. We have also benefited from the help of Javier Gallego of the Joint Research Centre in dealing with problems of incompatible geographies of environmental and land use data in Corine.

2 Review of Common Agricultural Policy & Rural Development Policy

This report presents an extended description of the EU's Common Agricultural Policy (CAP) and Rural Development Policy (RDP), taking into account comments made on the FIR. While some CAP measures have an explicit territorial focus, others do not. All however can have differentiated impacts across space. The many policy measures that comprise the CAP have been classified into 6 categories for the purpose of this study, each of which it is hypothesised has potentially different territorial effects. Here we begin by summarising the scope, objectives, financing and structure (i.e. types of measures) of the CAP and RDP. These components are then discussed for the purposes of later project analysis and work, i.e. Territorial Impact Assessment (TIAs).

For this project, the scope of the CAP/RDP is taken to be the interventions in farming and farming-related activities via the expenditures from the European Agricultural Guidance and Guarantee Fund (EAGGF), through market price support and/or via relevant EU Regulations and Directives.

CAP Objectives

The original objectives of the CAP were laid down in Article 39 of the 1957 Treaty of Rome and in the conclusions of the 1958 Stresa conference. These objectives are:

- increasing agricultural productivity
- ensuring a fair standard of living for farmers
- stabilising markets
- guaranteeing food security
- ensuring reasonable prices for consumers.

These objectives were not considered immediately and directly from a territorial viewpoint. However, the underlying philosophy of the Common Market as a whole was to exploit comparative economic advantages, which include spatial differences in farming productivity in terms of soil quality, climate, distance from markets, etc.

In pursuing these Treaty of Rome objectives, three "principles" were commonly cited, and are still referred to, though sometimes in different terms:

- common pricing (or market unity)
- community preference
- common funding (or financial solidarity).

None of these principles carries obvious territorial characteristics, and indeed they each imply an increased degree of common rather than differentiated treatment across the entire EU area, e.g. in terms of free flows of goods.

As problems in operating the original CAP emerged – primarily surpluses of certain farm products, and escalating expenditures – additions and modifications were made to the above objectives and principles, via new CAP measures or via formal Treaty commitments. The most relevant of these to the present study was the introduction of Less Favoured Area (LFA) payments. Thus, in 1975, Directive 268 authorised the definition of certain agricultural regions as "mountainous" or "less favoured" areas, entitled to special direct payments to ensure "the continuation of farming". This marked the important departure - especially in the context of the present study - from the common policy treatment of farming in different parts of the Community. Further relevant measures included agri-environmental payments.

In Agenda 2000, a "European Model of Agriculture" was endorsed for the CAP, with objectives including:

- more market orientation and greater competitiveness
- food safety and quality
- stabilised agricultural incomes
- integration of environmental concerns into agricultural policy
- developing the vitality of rural areas, and
- simplification of administration
- strengthened decentralisation.

In its 2002 Mid-Term Review of the CAP, and recently re-stated in the Explanatory Memorandum to its Long-Term Policy Perspective (COM(2003)23), the Commission has argued that the future objectives for EU agriculture should be:

- enhanced competitiveness
- more market orientation
- more sustainability
- a better balance of support, and
- strengthened rural development.

These recent lists of CAP objectives emphasise the multi-purpose nature of policy, but also its general lack of territorial character and focus.

Financing

The CAP/RDP is financed by the European Agricultural Guidance and Guarantee Fund (EAGGF, or FEOGA), which accounts for about 50% of the total EU budget. The two Sections of the EAGGF are each subject to separate financial guidelines, or upper limits, determined at the Berlin Summit as for the period 2000-2006.

Table 1: Agricultural Expenditure agreed at Berlin European Council, March 1999
(billion Euro, at 1999 prices)

	2000	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*Total*
Markets	36.62	38.48	39.75	39.43	38.41	37.57	37.29	267.37
Rural Devt.	4.30	4.32	4.33	4.34	4.35	4.36	4.37	30.37
Total	40.92	42.80	43.90	43.77	42.76	41.93	41.66	297.74

The Commission breaks down EAGGF expenditure (totalling Euro 40.5 billion in 2000) into the following main categories:

a) **intervention expenditure** (Euro 30.5 billion), mainly direct aid (Euro 25.6 billion).
b) **export refunds** (Euro 5.6 billion), necessary to sell highly priced EU production at the lower prevailing 'world' prices elsewhere.
c) **rural development payments** (Euro 4.2 billion from the Guarantee Section, and a further Euro 2.5 billion from the Guidance Section, including Leader).

It should be noted that such expenditure figures exclude a substantial component (58%) of the subsidies received by EU farmers as a result of the higher prices paid by consumers within the EU. It will be important for any assessment of the territorial impact of the CAP to include this element.

Policy Measures: from Pillar 1 to Pillar 2.

Agenda 2000 defined two "Pillars" of the CAP and envisaged a gradual shift of expenditure from Pillar 1 to Pillar 2. Pillar 1 comprises market support measures, direct payments and supply management tools: this occupies the bulk of the CAP budget. Pillar 2 covers structural and so-called rural development measures (though almost all are for farmers) such as LFA payments, agri-environmental measures and aids for farm investment, modernisation, and diversification. Interestingly for this study, the proposed shift from Pillar 1 to Pillar 2 is also sometimes presented as a shift from a 'sectoral' to a 'territorial' approach to rural policy.

Regulation 1259/1999 gives Member States discretion for 'modulation' to switch funding from commodity support to certain elements of Pillar 2, and obliges Member States to meet 'environmental protection requirements' in market organisation.

For the purposes of this project, it is proposed to group CAP/RDP measures into the following categories on the basis that each has potentially different territorial impacts:

a) market regulation
b) direct income payments
c) LFA payments
d) agri-environmental measures
e) rural development measures
f) other

Territorial Aspects

Of course, any CAP measure may have differential effects over the Community space, depending on the presence and nature of agricultural activity, and such effects will be elaborated in subsequent reports. However, as indicated above, several CAP/RDP measures have strong territorial characteristics, in being applicable, at different rates, or at all, in various parts of the Community. National and regional ("ring-fenced") quotas for milk and sugar have obvious territorial characteristics, being based on historical levels of production in the various areas defined in the regulations.

The first initiative to introduce an explicitly spatial/ territorial dimension into the CAP was the Council Directive 75/268/EEC on Less Favoured Areas. As a complement to the range of sectoral support measures already in place, the LFAs Directive 2328/91 provides a framework for payment of annual compensatory allowances to farmers in designated less favoured areas characterised by one or more of the following:

(1) permanent handicaps (altitude, poor soils, climate, steep slopes),
(2) undergoing depopulation or having very low densities of settlement, and
(3) experiencing poor drainage, having inadequate infrastructures, or needing support for rural tourism, crafts and other supplementary activities.

The objective is "to maintain a viable agricultural community and thus help develop the social fabric of rural areas by ensuring a fair standard of living for farmers and by off-setting the effects of natural handicaps in mountain and less-favoured areas".

Enlargement Aspects

Most accession states have been preparing their agricultural sectors and policies for EU entry and CAP adoption, e.g. by instituting CAP-like support systems, and seeking liberalised trade with the EU-15. The territorial aspects of agricultural and rural development policies in the CEECs are therefore complex, with significant differences between conditions in the early 1990s and now.

SAPARD provides applicant countries with the possibility of funding projects under a wide range of measures. Of these, taking all 10 countries together, investment in processing and marketing is the most popular, with 26% of the total public aid, followed by investment in agricultural holdings and investment in the rural infrastructure, each at just over 20%. Next comes the group of measures of diversification, with around 11%. Of the 9 other measures in the programme, none

averages more than 4% of the total public aid. Although the balance differs from programme to programme, in virtually all of the candidate countries the share of public aid accounted for by the three most used measures is over 60% of the total.

Current and future investment in rural infrastructure such as transport and water facilities part-funded by the ISPA pre-accession scheme may well have additional spatial implications for agricultural and rural areas in the CEECs, through improved communications, and better water supplies.

Territorial Aspects of further CAP/RDP proposals and Response to FIR Comments

A number of proposals for further reform of the EU's CAP and RDP have been made, notably arising from the WTO, the Mid-Term Review, the Long-Term Perspective on Sustainable Agriculture, and from enlargement, and these are set out in Part 2. A number of points raised in Response to our FIR related to these proposals. In particular, we were asked how to improve the viability of rural communities and to reduce disparities between rural areas? How to ensure the best balance between CAP, territorial and cohesion objectives? And how to improve some CAP measures so that this policy contributes to a more balanced territorial development?

From the perspective of the ESPON project and programme, the following questions arise:

- To what extent will CAP reform address the cohesion objectives of the EU?

- Given a certain tension between different EU objectives, do these CAP/RDP reforms represent a better balance?

- What relationship will and should there be between the implementation (including delivery mechanisms and assessment) of CAP/RDP and cohesion policy at territorial level(s)?

- What is the relationship between the CAP/RDP and the rural aspects of the ESDP, i.e. the promotion of polycentric development?

Comparing the direction of CAP reform proposals and cohesion objectives, there may be two distinct consequences of further CAP reform for cohesion:
- Direct payments will maintain the incomes of certain farmers at a level comparable with urban and other rural citizens;
- Adjustment of other farmers will be necessary, either by expansion, intensification and farm amalgamation; leaving farming; diversification; or other means.

The impact of these trends on the viability of rural communities will be small, except in those areas where a large proportion of the workforce is dependent on agriculture. Even with retention of numbers of farms and farmers, the "new CAP" is unlikely to form the foundation of viable rural communities if the farm occupants so retained are generally old and averse to change. Two alternative scenarios may be envisaged. One is the development of farming enterprises which are substantial in terms of land use and/or business scale, and able to survive more adverse and more variable cost-price ratios. Such businesses are likely to use modern technologies, to develop their human

resources, and be fully integrated into national and international food supply chains, thus providing their managers and employees with lifestyles fully comparable with other professional occupations. The alternative pathway is through the development of pluriactive farm households, supplementing their farm incomes from other sources. From a territorial point of view, the relative level of these developments is likely to vary by distance from major urban centres and tourist attractions, by the characteristics of off-farm labour markets (Bryden et al, 1992), and by the quality and variability of agronomic resources such as soils, water and processing facilities.

In relation to the balance between conflicting EU objectives, increasing emphasis is likely to be placed on the objectives of environmental sustainability and food safety. At the same time the EU can pursue competitiveness through a combination of quality and distinctiveness, in the agriculture and food industries as elsewhere. However, the main issues surrounding the future competitiveness of rural territories will relate less to agriculture and food production and more to other factors identified in the DORA project (Bryden et al 2002) as "less tangible resources" such as entrepreneurship, social capital, and governance. These will be difficult to measure statistically or to map in this project, but will be taken into account in the second year's case studies and in the recommendations. This project will suggest ways in which CAP and RDP can contribute to a better balance towards territorial and cohesion objectives.

Regarding balanced territorial development, the CAP provides support for economic activities much more geographically dispersed than those located mainly in the core area (the "blue banana") of the EU. Even so, the CAP tends to impact more on several countries overlapping this core (western Germany, southern UK, northern France, Benelux), and less on others which do not (Greece, Spain and Portugal, southern Italy). Exceptions include Ireland and Denmark, which are major CAP beneficiaries, and Sweden and Finland which have substantial national supports as well as CAP measures. Meanwhile, the CAP is operated separately from cohesion policy, with which it fits only "accidentally". This project will continue to explore and elaborate the territorial impact of the CAP and RDP in ways which will suggest amendments to policies which would contribute to a better balanced territorial development.

3. Hypotheses on the territorial effects of the CAP and RDP

3.1 Introduction

An initial set of hypotheses on the territorial impact of the CAP and RDP was presented in Project 2.1.3's FIR. The hypotheses were grouped into categories based on our classification of CAP and RDP measures. Much of the project meeting in Maynooth in February was spent re-considering the hypotheses and possible new hypotheses in the light of feedback from the FIR. As a result, some have been reformulated and all have been categorised as either high or low priority bearing in mind the aims of the ESPON programme, the aims of this particular project, time and data constraints. This section summarises the outcome of these discussions.

Before presenting the hypotheses, it should be noted that, within the context of this study, there is more than one level of policy standards against which the territorial impact of the CAP and RDP can be assessed. In particular, the CAP/RDP may be shown to be either consistent or inconsistent with the "high-level" or strategic EU objectives of social and economic cohesion and environmental sustainability in the regions. There are also other possible high-level EU objectives, e.g. competitiveness.

Below these high-level/strategic EU objectives, one may identify CAP objectives, outlined in the previous chapter. However, these may or may not be completely consistent with the high-level/strategic EU objectives. Thus it is possible, in principle, to examine the CAP and RDP for consistency (and possibly economic significance) with both high-level and agricultural EU policy, as measured by appropriate variables. It should also be noted that the hypotheses encompass both **static** and **dynamic** aspects of the CAP and RDP, the dynamic analyses focusing on the policy development process over time, especially the change in regional effects associated with the 1992 Mac Sharry reforms of the Common Agricultural Policy (CAP).

Table 3.1 indicates the type of objectives against which each territorial hypothesis is being considered. The scope for further hypotheses is obvious. However, for the first stage of the project (as we work towards the interim report for August 2003) we propose focusing on the hypotheses highlighted.

In Part 2, Chapter 3 we present each hypothesis, indicating how (if appropriate) it has been reformulated, its relative priority for the project and the variables identified for initial statistical analysis. Only the high priority hypotheses are summarised below.

Table 3.1 Objectives against which the territorial hypotheses will be tested.

	CAP/RDP Support/Expenditure					
	CAP/RDP in general	Market Support	Direct Income Payments	LFA Payments	Agri-envtl. Payments	Rural Devt. Payments
High-Level EU Objectives						
Social Cohesion				14		17
Economic Cohesion	**7**	**9**		14		18
Environmental Sustainability	4		11		**16**	
Agricultural Policy Objectives						
Farm Incomes	6		10			
Farm Productivity			13			
Farm Households	5					(18)
Other Indicators						
Agricultural Indicators	1, 2/3		12	12		
Undefined	8				15	19, 20

4. Choice and description of territorial typologies

The analysis of the territorial impacts of policies requires not just a detailed database at an appropriate, low geographical level, but also a grid of the regions analysed in the form of one or more territorial typologies. In particular, a framework is required which allows regions to be allocated to a limited number of territorial types. Such typologies will provide not only a structured basis on which to analyse regional results but also a meaningful basis for interpretation and further investigation of territorial differences. In particular, the typologies will provide an important criterion for the selection of both area and commodity case studies, to be carried out in year 2.

At this stage, four territorial typologies are being considered by the project team:

- A rural area typology
- A Less-favoured areas (LFA) vs. non-LFAs
- A territorial typology based on predominant farm type in the region
- A territorial typology based on average size of holdings in a region

A rural area typology

In the case of the first, we are currently using the OECD rural typology. Within the activities of its Rural Development Programme, the OECD began work on territorial indicators at the beginning of the 1990s. The aim was to agree a framework which would allow concepts such as rurality to be discussed within an internationally comparable context. Their scheme distinguishes two hierarchical levels of geographic detail. At the local community level it uses the basic administrative or statistical unit, in most cases the community, as the lowest geographical areas to be classified as "rural" or "urban". The communities were split by the simple criterion of population density (threshold of 150 inhabitants per km^2) into *rural and urban communities.*

At the second stage, as regions usually comprise rural as well as urban communities, the degree of rurality was ascribed by the share of people living in rural communities, thus distinguishing the following ***three types of regions***:

- **predominantly rural areas** (more than 50 % of the population lives in "rural" communities),
- **significantly rural areas** (the share of the population in rural communities is 15 - 50 %) and
- **predominantly urbanised areas** (less than 15 % of the population is in rural communities).

This distinction between the hierarchical levels of territorial detail is central to the conceptual approach of the territorial typology. Only through the different levels can the complexity of rural problems in various national and regional contexts be seized. The framework is conceived also to allow for analysis of interrelationships between regions but also to enable differentiation between rural and urban communities within a region at a lower geographic level. The approach therefore links to the typology method proposed by TPG 1.1.2 "Urban-rural relations in Europe".

Our understanding is that TPG 1.1.2 has considered two alternative typologies of urban-rural relations. The first is a summary classification consisting of six categories used as a basis for a synthesis map in the SPESP final report and which is reproduced in the Second Cohesion Report. However, given the reservations of many observers concerning the reliability of the map, TPG 1.1.2 decided to opt for a simpler approach to the identification of urban and rural areas that may be more feasible within the constraints of current levels of data availability.

Their alternative approach, arising from the SPESP study on *Criteria for the Spatial Differentiation of the EU Territory: Economic Strength* and favoured by TPG 1.1.2, is a settlement typology that takes account of population densities and presence/ absence of large centres of population. It is summarised in Part 2, chapter 4 below. As soon as the classification is available on NUTS III level, it will be possible to compare this with the OECD classification.

At this stage, no final decision has been made as to which of the two alternative typologies we will adopt. The straightforward classification methodology of the OECD territorial indicators project has the advantage that it has already been discussed and agreed by the OECD countries. It offers a neutral territorial grid which allows us to start our analysis with detailed regional descriptive information and retains clarity of application for further purposes. Assuming data availability, the OECD typology appears the more appropriate typology system for the task of differentiating our analysis due to the greater differentiation between rural areas types. However, no final decision will be made until the schemes can be compared.

LFA, farm type and farm size typologies

As noted above, the first initiative to introduce an explicitly spatial / territorial dimension into the CAP was the LFA directive in 1975. It is therefore appropriate that project 2.1.3 aims to utilise a typology of regions based on LFA status. We also intend to use the Community Typology of Agricultural Holdings, deriving from Commission Decisions 78/463/EEC and 85/377/EEC. There are three basic elements in the Community typology: (i) the standard gross margin (SGM), (ii) the type of farming nomenclature, and (iii) the economic size classification of farms. These LFA and farm type and size typologies are important as the very nature of agricultural land use is in many cases very different from settlement structure types. The inclusion of agricultural indicators, through farm type and size increases our potential to address regional impacts of CAP. This focus will also reflect previous work on classifying regional effects of agricultural production and policy.

These typologies will be critical in assessing the impact of different policy strands on different regions. They provide an analytical tool for the EU-wide analysis, and a base for the conception and selection of the case studies. In this work it will be central to address the increased flows between regions, relate to the concepts of peripherality and polycentricity, and structure insights gained on territorial impacts for different types of regions.

5. Presentation of methods for TIA

The ESPON project 2.1.3 will try, in accordance with the Common Platform,

a. to **analyse** the territorial impact of the five different policy areas (TIAn) and

b. as far as regional impacts on NUTS III level can be distinguished, to **assess** these regional differences against goals of cohesion and environmental protection (TIAs).

To examine the impacts of CAP/RDP policy in general, as well as the different measures, a set of hypotheses have been formulated based on literature reviews, logical deduction, and brainstorming the collective experiences of the researchers. These hypotheses can be split into two groups:

- those which **logically can be deduced** and therefore have not to be proved in general (e.g. that influx of agricultural or rural support money into a region causes additional income and a regional multiplier); but it still has to be calculated **how much** has really reached each region, and
- those which, depending on the different support measures, **might have** a general or specific regional effect but need to be proved.

To calculate the **first type of cause-effect relations**: that is the regional distribution of economic effects only based on the agricultural and rural development subsidies, independent of the related specific agricultural, environmental and/or rural development measures, the following steps are necessary:

1. Ascertain how much money was spent on each measure,
2. As far as these figures are not available, estimate the regional distribution of subsidies based on spatial distribution of subsidised crops (e.g. main vineyard regions, tobacco growing areas, etc.). Methods for doing this are discussed below.
3. Estimate how much of the support actually reached each region and what portion was "lost" on the way by administration, transport, storage, etc.
4. Based on the amount of money reaching each region a rough calculation of regional multiplier effects should be done.
5. Depending on the results, the general economic impact of CAP/RDP money based on the unequal distribution of grants, independent of the impact of specific CAP/RDP measures on the regions, can be estimated.

So far the necessary data on these flows and on the regional distribution of CAP/RDP grants is not available. Therefore we propose testing, as a second best solution, some plausible related correlations (see the hypotheses in section 3 above).

Whereas the above type of cause-effect relationship definitively exists, testing the **second type of hypothesis** requires different methods.

In particular, well elaborated hypothetical cause–effect-relations have to be proved by using a mix of different quantitative and qualitative methods including, for example:

a. Statistical methods.
b. Drawing from the findings of previous relevant research studies.
c. Models based on selected farm data trying to model agricultural decisions based on a dual indirect utility-of-wealth function.
d. Different types of "traditional" context related **case-studies** (see section case studies) used on one hand **to prove** cause cause-effect-chains in more detail

which might already be statistically tested or not and, on the other hand to **detect new relevant hypothesises** to be proved later on.

Whatever method is used, it is acknowledged that observed/statistically significant effects are not caused by a single input, i.e. CAP/RDP measures. As it is empirically usually impossible to separate a single cause out of the general contextual multi-causality, each cause-effect relation has carefully to be validated by cross-checking searching for rival explanatory variables etc. using different case-study methods.

Taking into account the extreme time-pressure to deliver some initial results for the next **Cohesion Report**, priority will be given to quantitative methods to find significant statistical correlations between CAP/RDP measures and expected regional impacts. This means that only the "entrance" and the "exit" of the cause-effect-chain are compared assuming that the intermediate cause-effect relations are valid, though this will require validation within the case-studies scheduled for the second year.

Descriptive and initial statistical analysis

Where data availability is inadequate, we will concentrate on the use of very simple methods such as the allocation of the key available variables among the different European regions. Simple correlations between variables may also be used when data constraints impede the elaboration and estimation of more complex models.

When data permits, a sound assessment of the effects of agricultural policies usually requires the modelling of farm-level economic decisions as a function of several explanatory variables, including CAP support measures. While, at this stage of the project, we do not intend to develop detailed theoretical models of farm-level economic decisions, we will consider simple expositions of theoretical considerations that will serve as a base for the empirical models and will allow the identification of relevant dependent and explanatory variables.

The theoretical framework will be based upon the assumption that farm household's welfare can be represented through a household-utility function that depends, among other variables, on farm business profits. The consideration of the farm business profit function should offer a useful representation of farmers' economic decisions. By solving the household expected utility maximisation problem, one should be able to derive the reduced form equations of the structural endogenous variables, which may include, for example, land allocation and input usage. The conceptual framework will also help to identify possible endogeneity problems that we may encounter in the hypotheses testing process. For example, many production decisions are likely to be made jointly in which case endogenous variables will be specified in the farm household's model.

Although the theoretical framework will be specified in terms of individual farm decision-making, the empirical application will rely on data aggregated at the regional level, thus treating each single region as a farm.

Case studies

In the second year of the study we will use a case study approach to explore, in more depth, the processes by which the CAP and rural development policy can lead to territorially differentiated effects. In addition to validating the ex-post analysis carried

out in year 1, this part of the project also aims to explore the possible implications of proposed future changes in the CAP and how these might differ across space.

Two sets of case studies are proposed. The first will compare the territorial impacts of different CAP commodity regimes, while the second will concentrate on the processes by which the CAP leads to differential effects in different types of rural areas. As discussed above, the final choice of case studies and methods will only be made as the findings from the initial statistical analysis emerge. However, this section details proposals for year 2 of the project currently being considered.

1. Empirical Models of the Effects of CAP on Farm Behaviour and Structure
This case study will concentrate on determining the extent to which the post 1992 CAP can be considered a coupled / decoupled policy in the different EU territories. Specifically, we will assess the extent to which CAP reforms throughout the 1990s had differential effects on the level of agricultural production in each EU territory. Our analysis will determine the extent to which recent policy changes have altered the distortions of the CAP on the agricultural production in different EU regions. Although distortionary effects of farm policies feature very highly in current World Trade Organisation (WTO) debates, the extent to which CAP policy reforms had had differential regional effects remains under-researched. Such information is essential for a comprehensive policy evaluation.

A theoretical model based on a dual indirect utility-of-wealth function will be developed to model agricultural decisions, including supply decisions. In the empirical analysis a parametric form of the theoretical model will be specified and estimated. As far as possible, the empirical analysis will be based on farm-level data that will be used to estimate the model. In order to assess the regional impacts of the CAP, the model will be estimated for different sub-samples each including different types of region. Simulations of the effects of future policy changes will be considered.

2 Area Case Studies

The proposed research will explore the cause-effect relationships hypothesised above in a number of case study areas. Given the time and resource constraints it is not possible to carefully study many regions. Some fieldwork (interviews, participatory observation, analyses of documents etc are necessary) may be necessary, but in many cases desk research will be sufficient. The case study approach finally leads to **analytical and not statistical generalisations**. The results might therefore not be transferred to the whole universe of (rural) regions in Europe (as would be the case in a statistical survey) but rather shed light on exemplary performance. This case study approach, focussing on a limited number of cases of in-depth fieldwork phases and desk research, is both conceptually and operationally a very appropriate and justified research approach for reaching the objectives of the project. Nevertheless, in order to compensate for one inherent weakness of the approach (e.g. limited generalisability) we are using the case study approach in combination with other statistical methods.

6. Progress on development of database, indicators and map-making

The majority of time and effort since the submission of the FIR has been devoted to the establishment of a database and indicators required for the project. Progress in this respect is reported in this section. The database that has been established provides a basis for some very preliminary analyses of the agricultural sector in Europe in Part 2, Chapter 7. The availability of detailed territorial data on agriculture across Europe is shockingly poor, given the extent of agricultural data collection. Time constraints and difficulties obtaining data have limited how much analysis has been possible for this report. However the maps we present do indicate the potential for highlighting territorial imbalances and regional disparities that exist in agriculture and rural development in the EU and at member state level. Part 2 concludes with a revised and extended list of indicators required for analysis.

Objectives, structure and content of the database

The starting point, in terms of database content, is the list of proposed priority indicators submitted with the First Interim Report. This was presented both as a table within the text and as an accompanying Excel spreadsheet. The latter was structured according to potential source:

(a) variables to be derived from Eurostat's REGIO (New Chronos) database.
(b) variables on CAP and RDR related expenditure, for which the best source was assumed to be DG Agriculture.
(c) miscellaneous indicators, for which no exact source had yet been identified.

Since our first interim report a full copy of the REGIO database was received. This enabled all the variables listed in (a) above to be extracted and re-formatted according to guidelines provided by Project 3.1.1, although many are not at NUTS III level.

With regard to the CAP/RDR expenditure data, approach has been made to DG Agri. The level or "incidence" of CAP support and rural development support measures accruing to each NUTS III region are key indicators for the project, necessary for both Territorial Impact Analysis (TIAn) and Territorial Impact Assessment (TIAs). These are the primary independent variables in almost all of our hypotheses. However it has become clear that DGAgri do not have expenditure data for NUTS III (or II) regions, and to permit analysis at this level we will require some form of allocation model. This is summarised below. The method for estimating the level of market price support received by producers at NUTS III level is also summarised below.

An alternative source of subsidy incidence data (per farm and excluding market price support) was identified in the FADN database. These data have been acquired by downloading from the DG Agri website. The non-standard regional structure required allocation of NUTS II and NUTS I averages to constituent NUTS III regions.

With regard to the third group (miscellaneous indicators for which no source had been identified) some progress has been made. However further refinement of the list of hypotheses has provided a context for a more focussed approach, in which variables and indicators are sought in order to satisfy specific analytical requirements. A list of the data required for testing each hypothesis, together with sources, is provided in

Appendix 1. Many of the variables were anticipated in the table provided with the project's first Interim Report, and these have already been extracted and presented in ESPON format. Work to add the remaining variables/indicators is well advanced.

Sources

Data has been acquired from the following sources:
(a) Eurostat (New Chronos) REGIO
(b) DG Agriculture - FADN
(c) Eurostat (New Chronos) Eurofarm
(d) DG Agriculture – CAP/RDR Expenditures
(e) Corine Land Use Data
(f) National Statistical Offices

Data manipulation and formats

Data has been supplied to the project team in a variety of formats. It has proved a significant task to manipulate/reformat the data into tables compatible with the guidelines provided by ESPON project 3.1.1. Further manipulation has been carried out with a limited number of indicators to replace missing values (at the NUTS III level) with higher level averages, and to reconcile non-standard region lists.

Apportioning Agricultural and CAP/RDP Expenditure Data To Nuts III Level

Very little of the data in the REGIO database is available at NUTS III level. Indeed, the only indicator from this dataset widely available at NUTS III level relating to agriculture is employment in agriculture, forestry and fishing (derived from the Regional Accounts). Moreover, the agricultural variables and the more detailed employment datasets (all at NUTS II in any case) have missing data for from 19% to 78% of regions. Similarly the FADN dataset only provides data at NUTS II or NUTS I level, and sometimes in non-standard areas. Finally data on CAP and RDP expenditure is not available at NUTS III level.

Data from the EUROFARM dataset, containing results from the EU surveys of the structure of agricultural holdings provides a far richer source of indicators on the agricultural sector at NUTS III level. However, the EUROFARM dataset relates only to Member States, not CEEC or EFTA countries and, even in relation to the EU 15, has incomplete coverage (see Table 6.1). Therefore, a method was developed to apportion indicators required for analysis either from the REGIO, FADN or CAP/RDP databases from NUTS I or NUTS II to NUTS III level.[1]

The method chosen for apportionment of higher-level data on farm numbers, crop areas, livestock numbers, subsidy receipts, etc. to NUTS III level was based on the following core set of agricultural land-use variables available at NUTS III level either from EUROFARM or national sources: Arable Area (ha); Permanent Crop Area (ha); Utilised Agricultural Area (ha); No. of Dairy Cows; Total beef animals (or total cattle less no. of dairy cows); Total sheep and goats; No. of Agricultural holdings/farms; No. of Agricultural Work Units (or agricultural employment).

[1] A similar method is proposed to apportion CAP market price support - see Section 6.5 below.

The process of collecting apportionment data from national sources has commenced, but may be a lengthy process and may not provide sufficient data for analysis to take place at NUTS III level across the whole European territory. However, even limited success will significantly improve the basis for analysing the territorial impacts of the CAP and RDP than presently available from EU datasets. Moreover, the case study work in year 2 of the project will provide a strong basis for analysing the Territorial impact of the CAP and RDP at a more localised level.

Estimating the Market Price Support received by Producers at Nuts III Level

As discussed in Chapter 2, market price support was historically the principal form of support given to EU farmers and still accounts for ?% of total CAP support (OECD, 2002). Market price support is fundamentally different from the other types of support given to EU farmers in that, for each affected commodity, it is an indirect transfer from both consumers and taxpayers arising from policy intervention which creates a gap between domestic market prices and border (import) prices. Consumers and users of these products pay prices higher than would otherwise obtain, and EU taxpayers must finance public storage operations and export refunds (subsidies).

The method proposed for estimating the incidence of market price support in each NUTS III region follows broadly that used in the preparatory study on the CAP for the Second Cohesion report. In particular, using data from the 2002 OECD Agricultural databases, the total value of market price support for each commodity[2] measured at the farm gate is allocated first to country level and then to NUTS II and finally NUTS III level using as the apportionment variable the value of output of each commodity produced. This top-down approach will ensure that the results remain consistent with relevant EU totals.

Progress with Map Making

Progress with map making is contingent upon overcoming the inadequacies of the data as provided. However a limited number of maps have already been created as a means of piloting methodologies to handle incompatible geographies and the large number of missing values at NUTS III level. These are included in Part 2, Chapter 7:

- Percentage of farmers over 65
- Total subsidies (excluding market price support) per ha (UAA)
- Agric employment as percentage of total employment
- Intensity of land use for agric (units FNVA/UAA/ha)
- AWU per holding
- average size of holding (ESU) per region
- arable land as percentage of the total UAA
- permanent grassland as percentage of the total UAA
- permanent crops as percentage of the total UAA

[2] 16 different commodity categories are specified in the OECD database.

Data Requests

A few data sets are still required in order to carry out research tasks. These are mainly GIS coverages from GISCO:

1. Inventory of sites designated under community/national legislation (DAEUINPT/DAEUINPTV2)
2. Less Favoured areas (LDEC1MV2/LDEC3MV2)
3. LEADER LAG areas (LDEC1MV1)
4. Structural Fund designations (SFEC3MV1/SFEC1MV2-5)

The first of these would be used to derive a simple indicator of environmental quality for each NUTS III region. Dataset 2 has been identified as the basis of one of the key typologies for the project. Finally datasets 3-4 would be used to assess the territorial impact of the CAP within areas designated for various Structural Fund and rural development programmes. These have each been requested from TPG 3.1.

7 Preliminary results & maps envisaged for the Third Interim Report

For the Third Interim Report we envisage the following elements:

a) Advanced analysis of the effects of the CAP and rural development policy;
b) Application of the methodology, analysis of the hypotheses previously developed in all types of areas including accession countries.
c) Presentation of a report completing the diagnosis/analysis of the agricultural (and rural development) sector in Europe, including territorial typologies, existing territorial imbalances and regional disparities in agriculture and rural development as well as the spatial effects at EU level and in Member States in terms of the economic relocation and other spatial criteria (including databases, indicators and maps);
d) First policy recommendations on improvement of the policy and the instruments;
e) First proposition on the institutional aspects of the spatial co-ordination of EU sector policies.

PART 2

1. Introduction

1.1 Background

ESPON Project 2.1.3 commenced in August 2002 with the overall aim of deepening the understanding of territorial impacts of the EU's Common Agricultural Policy and Rural Development Policy (CAP/RDP) through the provision of a standardised data base and an analysis of territorial trends covering the EU-15 and neighbouring and accession states. Within this overall aim, the following specific objectives were set:

a) To develop a method for the analysis of the territorial impact of the CAP and Rural Development Policy.
b) To establish a set of indicators, typologies and concepts along with a database and the map-making facilities necessary to implement the territorial impact assessment (TIA) method.
c) To provide a structured presentation of the CAP identifying the relevant parameters for an assessment of its potentially differential impact across the EU.
d) To apply the TIA method to show the impact of the CAP on spatial development across the EU and accession countries at the NUTS III or equivalent scale.
e) To investigate the interplay between the CAP and national agriculture/land use – related policies and best examples of implementation.
f) To recommend further policy developments for the CAP in support of territorial cohesion and a polycentric and better balanced EU territory.

This report updates progress made in the project over the five months to March 2003, since the submission of the First Interim Report (FIR) at the end of October 2002. In particular, it provides the following:

- an extended description of the CAP and RDP
- a revised presentation of hypotheses on the territorial effects of the CAP and RDP
- a description of appropriate territorial typologies for the analysis
- a presentation of the methods for the territorial impact assessment of the policies
- an account of the progress made towards the establishment of a database, indicators and map-making procedures.
- some initial analyses of the agriculture and rural development sector in Europe
- a second revised list of indicators required for the analysis

1.2 Project meetings and networking with other TPGs

Since the submission of the FIR, the project team have met on two occasions, firstly during the ESPON Seminar in Luxembourg, 21-22November 2002, and latterly at a full project team meeting at Maynooth, Ireland, 13-16 February 2003. In addition, the project co-ordinators were represented at the Lead Partners meeting in Brussels 26 February2003.

The team has received and commented on a number of documents presented by Project 3.1 and the Programme Coordination Unit and has been fully involved in the

development of the Common Platform for the ESPON programme. In particular, the project team have participated in the SWOT analysis requested by all TPGs and have volunteered to co-ordinate the development of the common definition of multifunctionality for the ESPON programme. In addition, the team has benefited from close contact with Project 1.1.2 on rural urban relations (with whom we share a team member). Amongst other things, this has ensured that we are fully aware of the rural urban typology being developed by TPG 1.1.2 and its potential use in Project 2.1.3.

1.3 Structure of the report

Chapter 2 presents an extended description of the CAP and RDP, taking into account comments made on the FIR. While some CAP measures have an explicit territorial focus in their implementation, others ("horizontal" measures) do not, while some (e.g. export refunds, purchasing into public storage) operate at specific points but have an EU-wide effect. All however can have differentiated impacts across space, especially as agriculture (and to a large extent rural development) operate on a highly heterogeneous resource base, and supply consumers and users located at different distances from the points of production, and often with strong territorial preferences. The chapter describes how the many policy measures that comprise the CAP have been classified into 6 categories for the purpose of this study, each of which - it is hypothesised - has potentially different territorial effects.

Chapter 3 describes how the initial set of hypotheses presented in the FIR have been further developed, while Chapter 4 describes the typologies that are being considered for detecting the regions and territories most positively and negatively effected by the sector policy. These include a typology of rural areas, an LFA-based typology and finally a territorial typology based on the characteristics of agricultural holdings in the regions (size and type). Taking into account the common concepts and guidance provide by Project 3.1, Chapter 5 provides a description of the methods to be used for territorial impact assessment of the CAP and RDP.

The majority of time and effort since the submission of the first interim report has been devoted to the establishment of a database and indicators required for the project. Progress in this respect is reported in Chapter 6. The database that has been established provides a basis for some very preliminary analyses of the agricultural sector in Europe in Chapter 7. Time constraints have limited the amount of analysis that could be presented in this report. However, the maps that are presented indicate the potential for highlighting territorial imbalances and regional disparities that exist in agriculture and rural development in the EU and at member state level. The report concludes in Chapter 8 with a revised and extended list of indicators required for analysis.

2. Review of the Common Agricultural Policy and Rural Development Policy

This chapter begins by reviewing the scope, objectives, financing and measures (i.e. expenditures and types) of the EU's Common Agricultural Policy (CAP) and Rural Development Policy (RDP). These components are then discussed for the purposes of later project analysis and work, i.e. Territorial Impact Assessment (TIA).

2.1 Policy Scope

For this project, the scope of the CAP/RDP is taken to be the interventions in farming and farming-related activities (e.g. farm forestry and tourism, and food regulation) via the expenditures from the European Agricultural Guidance and Guarantee Fund EAGGF, through market price support, and/or via relevant EU Regulations and Directives. These legislative instruments represent the activities and concerns of the Commission's DG Agri, for the purposes of pursuing Community objectives as set out in the various EU Treaties.

This definition of policy scope excludes a number of Commission activities: see below However, the descriptions which follow this section, and the analyses to be undertaken within this Project, will, where necessary, refer to these latter policies, and to national and regional policies outside the framework of EU Directives, e.g. fiscal and land-tenure legislation. The following relationships between included CAP/RDP areas and excluded policy areas are worth mention:

- Other structural fund policies: Regional and Social Funds are now partly "integrated" with EAGGF funding in Objective area "Programmes" etc.

- LEADER: farming and farmers were involved to a greater or lesser extent in the previous LEADER and LEADER II Community Instruments (CIs) of the previous two budget periods (1987-93 and 1994-99); the current (2000-06) LEADER+ scheme is funded entirely (except for national contributions) from within the EAGGF.

- EU environmental policy: environmental conservation and promotion (and sustainable development) are now over-arching EU policy objectives, and, in principle, all CAP initiatives must now carry environmental statements, and are subject to environmental criteria in their evaluation. In addition to the environmental effects of core CAP measures, e.g. intensification and farm/region specialisation, agri-environmental CAP instruments, introduced as "accompanying" measures in the MacSharry reforms and expanded subsequently, have explicit environmental effects as their objective. However, with more "cross-compliance" (so far limited in uptake by Member States), this distinction between the two may erode in the future, and analysis will have to take account of the different objectives and levels involved.

- EU competition policy: the Single Market is enforced with a set of regulations to control state (national and regional) aids; some such aids (which are inherently territorial) have persisted for special reasons. In the food chain,

including farmer marketing agencies (e.g. the UK milk boards), the regulation of mergers and monopolies can fall under EU as well as national auspices.

- Food policy: there is increasing EU interest and active policy involvement in this area, largely through the Consumer Affairs DG. Regulations extend from farm (e.g. livestock welfare) through distribution and processing (livestock transport, slaughterhouse hygiene) to food retailing (e.g. traceability, labelling), including (e.g.) the regulation of organic food supply.

- National legislation: each Member State has its own set of laws regarding, for example, farm business taxation, land tenure/transfers and territorial planning regulations.

2.2 Policy Objectives and Financing Mechanisms

The Starting Point

The original objectives of the CAP were laid down in Article 39 of the 1957 Treaty of Rome and in the conclusions of the 1958 Stresa conference. The Article 39 objectives were (and are, since the Treaty remains in force, though subject to re-interpretation: see below):

- increasing agricultural productivity
- ensuring a fair standard of living for farmers
- stabilising markets
- guaranteeing food security
- ensuring reasonable prices for consumers.

The Final Resolution at Stresa maintained that agriculture should be regarded as an integral part of the economy and as an essential factor in social life (Fennell, 1978, p.20).

These objectives were not considered immediately and directly from a territorial viewpoint, although obviously the original CAP was designed to support the rural population of the Community of Six relative to the urban population, which at that time was enjoying unprecedented economic growth and prosperity. However, the underlying philosophy of the Common Market as a whole was to exploit comparative economic advantages, which include spatial differences in farming productivity in terms of soil quality, climate, distance from markets, etc. These factors clearly varied greatly from location to location within the original six Member States, and do so even more greatly within the EU of 15 or 25. With changes over time in the comparative advantages of various rural areas arising from new technologies and changing consumer incomes and preferences, adjustments would be expected in the CAP (and later the RDP) to achieve especially the second of the above Treaty objectives, in particular since the others were successfully achieved by the 1980s.

In pursuing these Treaty of Rome objectives, three "principles" were commonly cited, and are still referred too, though sometimes in different terms:

- common pricing (or market unity)
- Community preference
- common funding (or financial solidarity).

Common pricing means the abolition of all artificial margins and price differentials between the different member states acting as a free trade area, so that price competition can operate without hindrance (except for transport, quality and other differentials) across borders within a common or single market. When prices are supported by appropriate policy instruments (see below), this brings in the question of the level of this support, and, in the presence of different national currencies, the appropriate exchange rate which should be used. These spatial factors emerged as major difficulties in the development of the CAP in its first three decades, and necessitated the creation of complex agri-monetary measures and "green" exchange rates as national currencies fluctuated against each other. However, with the achievement in 1992 of the Single Market, and the creation of the Euro as a single currency for twelve Member states in January 2002, these problems have largely subsided.

Community preference reflects the establishment of the European Community as a single customs union, with a common external tariff applied to all third-country imports as an instrument of market protection. Nevertheless, trade preferences have been awarded to an increasing number of non-EU countries, some on historical grounds (e.g. New Zealand supplies of dairy and sheepmeat products, and sugar from ex-colonies), some as part of pre-accession arrangements (Central Europe), and some for reasons of economic assistance and development (e.g. the Maghreb and the ACP-EC agreements). Given free trade within the Community, any such imports at one port or another are then, in principle, free to move elsewhere within its borders. Lowering the rate of Community preference, as happened under the Uruguay Round Agreement on Agriculture, and again under the Agenda 2000 CAP reforms (see below), and further under the most recent WTO and Commission proposals (ditto), naturally diminishes the significance of this principle for the commodities affected. However, current rates of protection are still high in some cases.

Common funding of the CAP involves both expenditures via the European Agricultural Fund, and income (from import and other agricultural levies etc., as well as the more general VAT- and GNP-based tax revenue) to the EU's budget as "own resources". In principle, member states have no entitlement to receive approximately the same amount in CAP/RDP expenditure from the EU as they contribute in terms of own resources (the concept of *juste retour*), and the necessary calculations are complicated by the location of these financial flows, e.g. at major ports such as Rotterdam, appropriate allocation of budget revenues, and other factors. However, given the major political significance of national and EU budgets, some influence is to be expected. A notable example of this is the "Fontainebleau" arrangement for a UK budget rebate linked to that country's net receipts of CAP funds.

None of these principles carry obvious territorial characteristics, and indeed they each imply an increased degree of common rather than differentiated treatment across the entire EU area, e.g. in terms of free flows of goods.

Subsequent Objectives and Principles

As problems in operating the original CAP emerged – primarily surpluses of certain farm products, and escalating expenditures – additions and modifications were made to the above objectives and principles, via new CAP measures or via formal Treaty commitments. Amongst these modifications, some of the more important are discussed below, along with their territorial character.

With the entry to the European Community of the United Kingdom along with Ireland and Denmark in 1973, a substantial area of "difficult" farmland, often with pre-existing policy measures in place, became subject to the CAP. Thus, in 1975, Directive 268 authorised the definition of certain agricultural regions as "mountainous" or "less favoured" areas (LFAs), and entitled to special direct payments to ensure "the continuation of farming". This marked the important departure - especially in the context of the present study - from the common policy treatment of farming in different parts of the Community. More details are given in Section 2.4 below.

The principle of producer co-responsibility is that farmers should bear some of the burden imposed by financing costly forms of support. Co-responsibility levies on marketings have long applied in the sugar regime, and for some years were operated in the dairy and cereal regimes. In these measures, territorialism plays little part. Nowadays, it is more common to apply cross-compliance requirements, i.e. to be eligible for payments, farmers must observe a range of management obligations, usually of an environmental nature. These can be (and are, via the principle of subsidiarity and the national and regional preparation of arrangements for Commission approval) more territorially differentiated.

The 1987 Single European Act mandated the consideration of environmental protection in all EU policies (Article 130R), including the CAP/RDP. In practice, this led to the creation off a number of agri-environmental CAP measures (see below), and to a stronger (but still weak) element of environmental conditions (cross-compliance) in some other measures, e.g. stocking limits. These considerations led naturally to the specification of some new territorial aspects to the relevant XAP measures, but mostly using the LFA boundaries.

In Agenda 2000, the European Model of Agriculture was endorsed for the CAP, with objectives including:

- more market orientation and greater competitiveness
- food safety and quality
- stabilised agricultural incomes
- integration of environmental concerns into agricultural policy
- developing the vitality of rural areas, and
- simplification of administration
- strengthened decentralisation.

In its 2002 Mid-Term Review of the CAP following the Agenda 2000 reforms, and recently re-stated in the Explanatory Memorandum to its Long-Term Policy Perspective (COM(2003)23), the Commission has argued that the objectives for EU agriculture should be:

- enhanced competitiveness
- more market orientation
- more sustainability
- a better balance of support, and
- strengthened rural development.

These are to be achieved through the following key elements

- a single farm payment independent from production,
- payments being linked to environmental, food safety, animal welfare, health and occupational safety standards,
- more money for rural development policy
- new measures promoting food quality, animal welfare and environmental standards,
- reduction in direct payments for bigger farmers, and
- further revisions to CAP market policy.

Financing

The CAP/RDP (as defined above) is financed by the European Agricultural Guidance and Guarantee Fund (EAGGF, or FEOGA) which accounts for about 50% of the total EU budget. That budget is financed mainly through national GDP-linked contributions from Member States, with the addition of sugar import levies and of customs duties, some of which are imposed on food imports. Following the 1984 Fontainebleau agreement, the UK's contribution is reduced by means of a rebate.

The two Sections of the EAGGF are each subject to separate financial guidelines, or upper limits, determined for the EU-15 at the Berlin Summit for the period 2000-2006.

Table 2.1: Agricultural Expenditure agreed at Berlin European Council, March 1999

(billion Euro, at 1999 prices)

	2000	2001	2002	2003	2004	2005	2006	Total
Markets	36.62	38.48	39.75	39.43	38.41	37.57	37.29	267.37
Rural Devt.	4.30	4.32	4.33	4.34	4.35	4.36	4.37	30.37
Total	40.92	42.80	43.90	43.77	42.76	41.93	41.66	297.74

Note: Veterinary and plant health measures are included in "Markets", and accompanying measures in "Rural Devt." The latter figures exclude measures financed by the EAGGF Guidance section outside Objective 1 programmes.

The Commission breaks down EAGGF expenditure into the following main categories:

a) intervention expenditure (Euro 30.5 billion), mainly direct aid (Euro 25.6 billion) which includes area payments, set-aside payments, area or production aid for olive oil, flax, rice, tobacco etc., and headage payments for cattle, sheep and goats, but also storage (Euro 0.95 billion), withdrawals (Euro 0.5 billion), and "other measures" such as some sugar intervention, special aids, financial adjustments, etc. (Euro 3.5 billion).

b) (export) refunds (Euro 5.6 billion)

c) rural development payments (Euro 4.2 billion from the Guarantee Section, and a further Euro 2.5 billion from the Guidance Section, including Leader), i.e. Reg. 1257/99 measures, which distinguish between Objective 1 measures and those applied elsewhere

There are also expenditures on veterinary and plant health measures, information measures, fisheries etc. (each relatively minor), and also some small “negative” expenditure items, such as gains made on selling public stocks.

Because of the general nature of EU financing, national (or regional) “agricultural budget” balances of CAP/RDP funding flows, as well as more sophisticated measures such as OECD-type Producer Support Estimates (PSEs), are not directly obtainable from official figures. However, estimates are available from various non-official sources.

2.3 Policy Measures and Expenditures

Agenda 2000 defined two "Pillars" of the CAP. Pillar I comprises

- commodity market support regimes with intervention buying or private storage aids
- "lightweight" regimes wit emergency buying and producer group support
- direct payments, often with quotas and/or reference yields and area ceilings to limit expenditure
- supply management tools such as quotas on milk supplies, maximum stocking densities and compulsory arable set-aside
- other elements such as environmental or animal welfare requirements, 'outgoer' (e.g. dairy) schemes and grubbing-up aid.

Pillar II covers structural and rural development measures such as:

- aids for farming in Less Favoured Areas and now in areas with environmental restrictions
- agri-environment schemes
- support for farm forestry
- aid for farm investment, modernisation, and diversification
- aids for marketing and processing
- early retirement aids, and aids for young farmers
- vocational training,
- aids for improved water management, land reparcelling and land improvement(Article 33 of Regulation 1257/1999)
- support for developing farm-related tourism and craft activities (Article 33)
- other farm-related rural development provisions (Article 33)

EAGGF Guarantee Expenditures

Table 2.2 shows expenditures from the Guarantee Section of the EAGGF by Member Stare for 2001, classified by commodity and other sector. The main item, accounting

for over 40 per cent of the total of 42 billion Euro, relates to “arable crops”, i.e. cereals, oilseeds and protein crops (peas and beans), is mainly direct area-based payments (including those on set-aside), with a small amount of market support expenditure on export refunds and storage. The next highest item relates to bovine meats, i.e. beef and veal (mainly direct payments), and smaller commodity-related expenditures to olive oil (mainly direct payments), milk products (market support), fruit and vegetables (market support), sugar (market support), sheep and goat meat (mainly direct payments), wine (market support) and tobacco (mainly direct payments). EAGGF Guarantee expenditure on rural development measures (previously accompanying measures) account for about 10% of the total.

Table 2.2: CAP EXPENDITURES BY MEMBER STATE, 2001 (million Euro)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	Total*
Arable Crops	166	666	3739	483	1934	5181	120	1919	11	251	379	242	353	420	1603	17466
Sugar	281	86	237	8	62	357	4	143		50	28	21	10	23	187	1497
Olive Oil				587	1030	5		848				54				2524
Dried Fodder etc.		10	23	5	186	83		48		14		1			4	375
Textile Plants	9		2	543	212	42				4	1	3			9	826
Fruit and Vegetables	37	1	17	235	522	294	2	348		40	2	42		2	17	1558
Wine Products			41	16	470	222		378			14	54			1	1197
Tobacco	3		34	376	115	77		339			1	19			9	973
Other Crop Products	3	32	18	24	52	26		118		10		5	2	2	4	297
Titre 1 (Crop Products)	*499*	*794*	*4111*	*2276*	*4584*	*6287*	*126*	*4144*	*11*	*368*	*425*	*441*	*365*	*448*	*1824*	*26713*
Milk and Milk Products	181	128	186	-3	29	500	144	92		479	-27	-3	46	28	127	1907
Bovine Meat	169	83	744	61	734	1468	827	296	8	86	172	126	62	101	1116	6054
Sheep and Goat Meat	1	1	34	201	390	144	90	143		12	4	48	1	3	374	1447
Pig Meat, Eggs, Poultry Meat	5	26	5	1	11	52	1	8		19	4	3		1	2	137
Other Animal Products																
Fish					6	3	1					1			1	13
Titre 2 (Livestock Products)	*356*	*238*	*969*	*261*	*1171*	*2167*	*1063*	*539*	*8*	*597*	*153*	*175*	*109*	*134*	*1619*	*9559*
Non-Annex 1 Products	40	33	65	3	23	53	51	19		79	19	2	6	9	36	436
Food Programmes	8	2	17	15	63	65	2	49		2	1	28	7	9	12	282
Ultra-Periphery Programmes				24	90	39		1				30				184
Vet. & Phytosan. Measures	4	3	22	4	18	27	15	24		51	2	8	1	1	383	566
Fraud Control & Prevention			10	3	11	-1	-1			1	2	-1			10	32
Reductions in Advances	-2		-27	-45	-311	-40		-143		1						-570
Promotion and Information	1		5		4	5	1	1		4	1				3	49
Other Measures	1	8				39	17	57					1	29	318	470
Titre 3 (Other)	*51*	*46*	*91*	*4*	*-103*	*184*	*84*	*7*	*1*	*136*	*24*	*69*	*15*	*48*	*753*	*1448*
Rural Development	*32*	*35*	*708*	*75*	*540*	*609*	*327*	*660*	*10*	*55*	*453*	*197*	*327*	*151*	*184*	*4363*
Total FEOGA Guarantee*	*938*	*1114*	*5880*	*2616*	*6194*	*9248*	*1599*	*5349*	*30*	*1155*	*1055*	*882*	*816*	*780*	*4381*	*42083*

Source:31st Financial Report on the EAAGF Guarantee Section, 2001 Financial Year, Annexe 8, COM(2002)

** Individual values may not add exactly to Totals, due to rounding and/or small amounts unallocated to countries.

Analysis of these figures is planned to proceed by allocating these national commodity totals to NUTS II and if possible III levels on the basis of crop areas and livestock numbers. This involves a degree of estimation and assumption (necessary, in any case, for market support expenditure which is not territorial in nature). It will be possible to check on possible errors by comparing results with FADN data on a per farm or (after aggregation) NUTS area basis. The method for apportioning expenditure to NUTS III level is described in section 6.4.

For non-commodity expenditures, it will be necessary to allocate national totals on a different basis, e.g., following OECD procedures for PSE measures, by the level of total agricultural output (see section 6.5). For rural development expenditure, it is hoped to follow a more specific procedure, with more detailed data for different RDP measures, and alongside Guidance and national public expenditures.

The common rules Regulation 1259/1999 authorises 'modulation' to switch funding from commodity support to certain elements of Pillar II, and obliges Member States to meet 'environmental protection requirements' in relation to market organisations.

CAP/RDP Structural Fund Expenditures

The Structural Funds of the EU comprise the Regional Fund, the Social Fund and the Guidance Section of the Agriculture Fund, together with the Cohesion Fund.

In the two previous programming periods, 1988-1993 and 1994-1999, these funds were allocated in rural areas according to a number of Objectives, viz. 1, 5(a) and 5(b), and 6. Objective 5a concerned the improvement of agricultural structures, via horizontal measures applicable throughout the EU, and hence was non-territorial in nature. However, LFA expenditures were treated as horizontal, and were in fact the major EAGGF Guidance Section commitments.

Objective 1 regions were defined as those lagging behind in development according to Regulation 2052/88, and with GDP per head less than 75% of the Community average. They included the whole of Ireland, Greece and Portugal, and much of the more remote and rural parts of the rest of the Community.

Objective 5(b) concerned the development of rural areas in difficulty but not falling within the scope of Objective 1. These areas were considerably expanded (about doubled in area and population, overall, taking into account the accession of three new Member Stats in 1995) between the 1989-1993 and 1994-1999 periods.

Objective 6 was added for Sweden and Finland on the accession of these countries in 1995, and concerns Nordic areas characterised by extremely low population densities (no more than 8 persons per square kilometre).

Some of the Structural Fund expenditure under the other Objectives (2, 3 and 4) had indirect effects on rural areas. About 15 billion Ecu were allocated to rural development over the 1988-1993 period.

In Objective 1 areas, rural development measures were financed, within an integrated (i.e. territorial) approach, from the EAGGF Guidance Section, with the exception of the Less Favoured Area scheme for which the EAGGF Guarantee Section was used.

Community Instruments (CIs) are operated directly by the Commission through local or regional bodies, and are targeted at areas and issues of special concern. The main CI in rural areas is LEADER, which emphasises a bottom-up, innovative and transferable approach to rural development. During the 1994-1999 period, Leader II programmes at national or regional level were implemented in Objective 1 and 5(b) areas.

Actual payments for the previous programming period, 1994-1999 are not yet available. Table 2.3 shows commitment appropriations for the four CIs for the programming period 2000-2006, by Member State. It can be seen that the main rural CI, LEADER, accounts for about 20% of total CI appropriations. An additional but unknown share of INTERREG funding to cross-border, transnational and interregional cooperation purposes will also be applied in rural areas.

Under the Rural Development Regulation, Article 33 measures relate "to farming activities and their conversion and to rural activities, which do not fall within the scope of any other (RDR) measure". Table 2.3 shows the allocations by Member State for all 4 CIs for the period 2000-2006, and for the 3 LEADER "Actions" at EU level.

Table 2.3: Indicative allocation of commitment appropriations among the Member States, 2000-2006 (in million euro – 1999 prices)

	LEADER	***INTERREG***	***EQUAL***	***URBAN***	***TOTAL***
B	15	104	70	20	**209**
DK	16	31	28	5	**80**
DE	247	737	484	140	**1608**
GR	172	568	98	24	**862**
E	467	900	485	106	**1958**
F	252	397	301	96	**1046**
IRL	45	84	32	5	**166**
I	267	426	371	108	**1172**
L	2	7	4	0	**13**
NL	78	349	196	28	**651**
A	71	183	96	8	**358**
P	152	394	107	18	**671**
FIN	52	129	68	5	**254**
S	38	154	81	5	**278**
UK	106	362	376	117	**961**
Networks	*40*	*50*	*50*	*15*	***155***
EUR-15	***2020***	***4875***	***2847***	***700***	***10442***

Source: European Commission Press Notice, Brussels, 13 October 1999, no. IP/99/744
The Community Initiatives in 2000-06: indicative allocation of funds among the Member States

LEADER+ 2000-2006

	EAGGF Guidance	Other	Total	%
Action 1	*1826*	*2552*	4378	86.75
Action 2	*211*	*294*	505	10.00
Action 3	*29*	*40*	69	1.36
Technical Assistance	*40*	*56*	95	1.89
Total	2105	*2941*	5047	100.00

Action 1: Support for integrated territorial development strategies of a pilot nature based on a bottom-up appro

Action 2: Support for cooperation between rural territories

Action 3: Networking

Source: http://europa.eu.int/comm/agriculture/rur/leaderplus/index_en.htm (figures in italics calcul apportionment)

Project 2.1.3 Classification of CAP/RDP Measures

For the purposes of this project, it is proposed to group CAP/RDP measures into the following six categories, on the basis that each has potentially different territorial impacts:

- market regulation
- direct income payments
- LFA payments
- agri-environmental measures
- rural development measures
- other

The first of these comprises the "traditional" CAP instruments of market support for most (but not all) farm commodities via import taxes, export subsidies and intervention purchasing, together with secondary measures such as marketing quotas.

The second category includes CAP payments made directly (or nearly so, e.g. to cooperatives etc.) to farmers linked to production, e.g. area and headage payments. Various constraints, such as set-aside for commercial arable farmers, and stocking densities for grazing livestock payments, are attached to these payments. Under Agenda 2000, these payments may be "modulated", i.e. reduced for individual farmers in order to finance Pillar 2 activities, but this has not yet been widely undertaken.

The remaining categories of CAP/RDP measure are defined on the basis of their emphasis on the environment and/or economic development. Originally (at the time of the 1992 CAP reforms), "accompanying measures" comprised three sets of measures

(agri-environmental schemes, early retirement, and afforestation). LFAs were included as accompanying measures within Agenda 2000, but remain as a dual-purpose instrument, addressing both environmental and socio-economic goals. The four measures account for about 50% of the funding of Rural Development Programmes in all EU countries. However, the situation in the member countries differs substantially; the Netherlands have the lowest share (13%) and Ireland more than 90%.

Agri-environmental measures comprise payments made to farmers under Regulation 1257/1999; these are part-financed (in differing proportions from region to region) by the EU, the rest being made up of national-government funds. Other rural development measures comprise the fourth category above, and consist mainly of grants and loans (again, co-financed) to processing and marketing investments, training and diversification schemes, and the broader "Article 33" measures. These also are only part financed by the EU and require national-government funds.

In current Commission parlance, the term "rural development" is used very widely, to include both agri-environmental and "true" development in rural areas, whether on-farm or off-farm (e.g. diversification). In the recent Mid-Term Review proposals, it has been used to encompass even food quality and animal welfare, which are likely to become of increasing importance. In the context of this study, however, "rural development" measures cover payments for processing and marketing; training and diversification; farm development; Article 33; and LEADER). The final "other" category covers all other aspects of the CAP and RDP not accounted for elsewhere, e.g. input subsidies and (special) taxes.

2.4 Territorial Components of CAP/RDP Measures

Of course, any CAP measure may have differential effects over the Community space, depending on the presence and nature of agricultural activity. However, this section examines the territorial character of the instruments themselves, i.e. where and how they apply differentially across the extent of the EU. By definition, market support in the Single European Market, without intra-EU border controls and measures such as the previous agri-monetary or "green" exchange rates, are largely non-territorial, except insofar as some of these instruments, which operate at EU borders and at intervention purchasing points, may relatively favour EU producers near these locations due to transport costs.

As indicated above, several CAP/RDP measures have strong territorial characteristics, in being applicable, at different rates, or at all, in various parts of the Community. In some cases (e.g. sugar quotas), the spatial element is restricted to Member State level, with complete freedom of action within national borders; in others, such as Less Favoured Areas (LFAs) or Objective 1 areas, there are more detailed geographical specifications.

National and regional ("ring-fenced") quotas for milk and sugar have obvious territorial characteristics, being based on historical levels of production in the various areas defined in the regulations. In some countries, the growth of a relatively free market in such quotas will have minimised the territorial "quota effect" when

compared to the spatial pattern which would have emerged without quotas (but with price support); in others, the lack of such a market will have enhanced it by "freezing" production patterns down to farm level. Similar effects can be expected with eligibility "quotas" for farm grazing livestock numbers, and with some "maximum guarantee quantities" (tobacco, etc.).

The current arable regime includes regionally specified "reference" crop yields as the basis for rates of direct payments, and hence has a territorial character, though one that offsets regional agronomic differences that would otherwise have meant a "biased" application of the direct payment system. The impact of this feature will depend on the "coarseness" of the regions defined by Member States when this regime was introduced, and possibly the interpretation for the purposes of policy implementation of "good farming practice" criteria.

Less Favoured Areas

The first initiative to introduce an explicitly spatial / territorial dimension into the CAP was the Council Directive 75/268/EEC on Less Favoured Areas which was introduced in 1975. As a complement to the range of sectoral support measures already in place, the LFAs Directive provides a framework for payment of annual compensatory allowances to farmers in less favoured areas. Specifically, Directive 75/268 states that

"the steady decline in agricultural incomes in these areas as compared to other regions of the Community, and the particularly poor working conditions prevalent in such areas are causing large-scale depopulation of farming and rural areas, which will eventually lead to the abandonment of land that was previously maintained…. The permanent natural handicaps existing in such areas, which are due chiefly to the poor quality of the soil, the degree of slope of the land and the short growing season and which can be overcome only by operations the cost of which would be exorbitant, lead to high production costs and prevent farming from achieving a level of income similar to that enjoyed by farms of comparable type in other regions… It may be essential, if the objectives assigned to farming in the less favoured areas are to be attained, that farmers permanently engaged in agriculture in such areas be paid annual compensatory allowances".

Regulation EEC No. 2328/91 provides for payment of Compensatory Allowances in designated less favoured areas characterised by one or more of the following attributes:

(1) permanent handicaps (altitude, poor soils, climate, steep slopes),
(2) undergoing depopulation or having very low densities of settlement, and
(3) experiencing poor drainage, having inadequate infrastructures, or needing support for rural tourism, crafts and other supplementary activities.

As most of the payments under this Regulation are calculated on the basis of livestock numbers they are usually referred to as 'headage payments', though of course they are not the only category of 'headage payments'.

The objectives of the LFA Compensatory Allowances, as specified in Regulation 2328/91 are "to maintain a viable agricultural community and thus help develop the social fabric of rural areas by ensuring a fair standard of living for farmers and by off-setting the effects of natural handicaps in mountain and less-favoured areas". Following the reform of the Structural Funds in 1988 the LFA scheme was incorporated as part of a horizontal EU Objective 5 (a) measure under the Structural Funds. In 1999 the total expenditure on Objective 5 (a) throughout the EU was EUR1310.9 million, which was 23.5% of the total EAGGF Guidance Section expenditure. For the period 2000-2006 there is provision to allocate EUR924 million (= 3.8% of total EAGGF Guarantee to rural development policy) to LFAs and areas with environmental restrictions in Objective 1 regions. The corresponding allocation to non – Objective 1 regions is EUR 4631.9 million, equivalent to 18.9% of the total EAGGF Guarantee to rural development policy.

LFA classification affects direct payments and rural development measures. Similarly, the boundaries defined for the old Objective 1 and 5b areas, and new Objective 1 areas have territorial implications for the effects of EU Rural Development Policy, including the LEADER schemes.

2.5 Enlargement Aspects of the CAP/RDP

It is expected that the terms of accession of ten new Member States will be agreed in time for accession in January 2004. In the meantime, most accession states have been preparing their agricultural sectors and policies for EU entry and CAP adoption, e.g. by instituting CAP-like support systems, and seeking liberalised trade with the EU-15. The territorial aspects of agricultural and rural development policies in the CEECs (two of the ten, Malta and Cyprus, are outwith the scope of this project) are therefore complex, with significant differences between conditions in the early 1990s shortly after the start of transition to those expected in (say) the mid-2000s.

In preparation for EU entry, CEEC applicants have set up regional authorities for the development of rural development programmes, and these are being used to implement the current pre-accession SAPARD funding. These regions are natural groupings for the purposes of spatial impact analysis, although they may well suffer some of the same drawbacks (e.g. based on urban centres, with a variety of agro-ecological conditions in the hinterlands) as EU regions. A similar differentiation of regional types as suggested above might allow more in-depth analysis on diverging territorial impacts within CEECs. This applies in particular to the situation of rural types, LFA situation and high nature value farming areas in these countries.

Current and future investment in rural infrastructure such as transport and water facilities part-funded by the ISPA pre-accession scheme may well have additional spatial implications for agricultural and rural areas in the CEECs, since it is to be expected that improved communications, and the reliability of better water supplies will soon affect food chain as it develops nationally and internationally.

2.5.1 Pre-accession aid for agriculture and rural development - the SAPARD programme

Preparation for membership of the EU requires many changes to industrial and public infrastructure, administrative institutions and procedures, as well as training and capacity building programmes. To support these often costly measures the EU has established PHARE, which has become a familiar source of funding. Two further funds (SAPARD and ISPA) were agreed at the European Council meeting in Berlin as part of the Agenda 2000 proposals.

In addition, a Special Preparatory Programme (SPP) in the framework of PHARE has been established (in the years 1998 and 1999), which among other things financed capacity building, training and technical assistance for the preparation of a national Rural Development Plan in each applicant country. This plan served as basis for measures under the SAPARD programme.

Both new programmes, the Instrument for Structural Policies for Pre-Accession (ISPA) and the Special Action for Pre-Accession measures for Agriculture and Rural Development (SAPARD) are of great concern for the territorial development policies of the applicant countries. ISPA is clearly modelled on the Cohesion Fund and has its main priority a reduction of the gap in economic development of these countries. With an annual budget of 1,040 million € for 2000-2006 (see Table 2.4), ISPA will fund up to 85% of the cost of infrastructure projects in the area of the environment (with its focus on investments to bring legislation on drinking-water supply, treatment of waste water, solid-waste management and air pollution up to EU standards) and transport infrastructure, which is essential if the expanded Single Market is to function smoothly. The SAPARD programme disposes of smaller financial means (520 million. € per year), and acts through horizontal measures towards the adaptation of agricultural structures and policy as well as support for rural development. As in the rural development programmes of the EU-15, regional priorities and region-specific application were aimed at.

SAPARD and SPP are the most important funds for agriculture and rural development. The required national co-financing (25%) for both funds is likely to take up a large part of the current budgetary resources for these measures in most applicant countries (annual SAPARD budget for all the CEECs covers about 14% of national agricultural budgets; Dwyer et al., 2002, p.100). Thus, it was thought that decisions on the structure of programmes under these funds would significantly influence the future direction of rural policies in CEEC.

Table 2.4: Allocations for SAPARD and ISPA programmes (indicative annual allocations)

	SAPARD		ISPA		
CEECs	**Amount in million Euro**	**Share (%)**	**Amount in mio. Euro min.**	**Amount in mio. Euro max.n**	**Average share (%)**
Bulgaria	**52.124**	**10,02**	**83.2**	**124.8**	**10,00**
Czech Republic	**22.063**	**4,24**	**57.2**	**83.2**	**6,75**
Estonia	**12.137**	**2,33**	**20.8**	**36.4**	**2,75**
Hungary	**38.054**	**7,32**	**72.8**	**104.0**	**8,50**
Lithuania	**29.829**	**5,74**	**41.6**	**62.4**	**5,00**
Latvia	**21.848**	**4,20**	**36.4**	**57.2**	**4,50**
Poland	**168.683**	**32,44**	**312.0**	**384.8**	**33,50**
Romania	**150.636**	**28,97**	**208.0**	**270.4**	**23,00**
Slovenia	**6.337**	**1,22**	**10.4**	**20.8**	**1,00**
Slovakia	**18.289**	**3,52**	**36.4**	**57.2**	**4,50**
Total	**520.000**	**100,00**	**878.8**	**1201.2**	**100,00**

Source : AgraFood East Europe no. 216, Sept. 2000, EC 2000, p.9

SAPARD provides applicant countries with the possibility of funding projects in the areas presented in Table 2.5. Out of the wide range of measures four have been selected as priorities by all applicant countries: investments in agricultural holdings, processing and marketing, agricultural diversification and technical assistance. Two measures are taken up by 6-7 countries: rural infrastructure, and environmental protection and maintenance of the countryside (i.e. pilot agri-environment schemes). This last measure indicates the relevance of the SAPARD programme but also its position as complementary funding to that for national actions.

Of the available measures, taking all 10 countries together, investment in processing and marketing is the most popular, with 26% of the total public aid, followed by investment in agricultural holdings and investment in the rural infrastructure, each at just over 20%. Next comes the group of measures of diversification, with around 11%. Of the 9 other measures in the programme, none averages more than 4% of the total public aid. Although the balance differs from programme to programme, in virtually all of the candidate countries the share of public aid accounted for by the three most used measures is over 60% of the total (Wilkinson and Korakas, 2001).

Other measures, such as support for producer groups, water resources management or forest measures, have only been taken up by some countries with a specific interest therein. Direct payments similar to the LFA scheme are (together with horizontal agri-environmental measures) not element of the SAPARD programme. Although a number of pilot actions address the need for more integration of local populations into the planning and operation agricultural and rural development schemes and for models designed for the specificity of problems of peripheral areas, experiences are rather scattered and not led by a strategic approach. In recognising the difficulties of the first experiences with the involvement of local bodies, the financial agreements for 2002 aimed to strengthen the bottom-up approach (CEC, 2002).

Table 2.5: SAPARD support measures

Measures	Priority in SAPARD programmes
• investments in agricultural holdings	XXX (all countries)
• improving the processing and marketing of agricultural and fishery products	XXX (all countries)
• improving the structures for quality, veterinary and plant-health controls, for the quality of foodstuffs and for consumer protection	X
• agricultural production methods designed to protect the environment and maintain the countryside	XX (6-7 countries)
• development and diversification of economic activities, providing for multiple activities and alternative income,	XXX (all countries)
• setting up farm relief and farm management services,	
• setting up producer groups,	X
• renovation and development of villages and the protection and conservation of the rural heritage,	X
• land improvement and reparcelling,	X
• establishment and updating of land registers,	
• improvement of vocational training,	X
• development and improvement of rural infrastructure,	XX (6-7 countries)
• agricultural water resources management,	
• forestry, including afforestation of agricultural areas, investments in forest holdings owned by private forest owners and processing and marketing of forestry products,	X
• technical assistance for the measures covered by this Regulation, including studies to assist with the preparation and monitoring of the programme, information and publicity campaigns.	XXX (all countries)

Source: European Commission 2000, Cunder 2001.

Given the early implementation state of the SAPARD programmes in general, it is not yet possible to achieve a detailed evaluation of socio-economic and environmental

impacts (see Dwyer et al., 2002). The EU programmes for support for pre-accession aid focus on facilitating adaptation of national legislation as well as administrative structures and procedures to the European Community *acquis*. This orientation is led by the conviction that the Single Market and the support system of CAP cannot function without harmonised standards and procedures. However, such a rigid approach leaves little room for national priorities or local bottom-up initiatives. Therefore there is strong criticism relating to the focus of capacity building whose actual emphasis seems misplaced since many candidate countries have a background of strong central state structures but weak local and non-state structures.

However, when assessing the implementation of the SAPARD programmes, one has to take into account the more recent decisions brought about by the agreement at the Copenhagen Summit, where it was agreed that ten new member countries can join the EU on 1 May 2004. The agreement has a particular relevance with respect to shorthening the programme period of SAPARD, and laying down provisions for programmes of rural development measures to be established as soon as the countries are EU members, including more favourable conditions than those applied to the present EU member states.

2.6 Territorial Aspects of CAP/RDP proposals

A number of proposals for further reform of the EU's CAP and RDP have been made, most noticeably:

- the recommendations of the 1996 Cork Conference, which have not been fully implemented since then (http://europa.eu.int/comm/agriculture/rur/cork_en.htm)

- the initial proposals by the Commission and others (e.g. certain Member States) for Agenda 2000, which were considerably altered in negotiations and thus only partly applied

- the July 2002 Mid-Term Review proposals of the Commission (COM (2002) 394), and the subsequent Commission Memorandum on "A Long-Term Perspective for Sustainable Agriculture" and Regulation Proposals (COM (23) 2003), notably the proposal to consolidate direct payments into a single decoupled farm income payment

- the integration strategy for the new Member States, concerning the gradual increase of direct payments and the production quota levels for the new member countries once they join the EU in 2004 (SEC(2002)95 of 31.1.2002), and the current negotiations on EU enlargement; and

- the proposals made by EU and its trading partners within the WTO framework, and on a bilateral basis (e.g. ACP and Mediterranean countries).

In addition, there are a number of other specific and general proposals for CAP/RDP reform, from national and regional governments, from social and economic partners, and from policy analysts.

From the perspective of the ESPON project and programme, the following questions arise:

- To what extent will these CAP reform possibilities address the cohesion objectives of the EU?

- Given a certain tension between different EU objectives, do these CAP/RDP reforms represent a better balance?

- What relationship will and should there be between the implementation (including delivery mechanisms and assessment) of CAP/RDP and cohesion policy at territorial level(s)?

- What is the relationship between the CAP/RDP and the rural aspects of the ESDP, i.e. the promotion of polycentric development?

CAP Reform and Cohesion Objectives

The direction of current CAP reform (Agenda 2000 and the Commission's Long-Term Perspective proposals) can be characterised by:

- lower market protection, especially for cereals but increasingly for milk, sugar and other products
- direct payments to farmers decoupled from production levels but linked (cross-compliance) to agri-environmental and other performance, and modulated (e.g. by size of total payments) to release funs for other purposes
- a stronger and wider "rural development policy", including food standards and animal welfare but also farmer and farmland diversification and environmentally valuable farming methods

Cohesion objectives include, in particular,

- the viability of rural communities and

- the reduction of urban-rural and rural-rural disparities of income, job opportunities and quality of life.

Comparison of these two lists suggests that CAP reform may have two different effects, i.e.

- maintaining the incomes (and hence existence) of certain numbers of farmers who will receive direct payments at a level likely to ensure satisfactory standards of living which are comparable with urban and other rural citizens

- requiring the adjustment – perhaps by exiting the farming sector – of a number of farmers who are unable to replace income losses from lower market returns and/or lower direct payments by farm diversification and environmental enhancement.

The impact of these trends on the viability of rural communities depends primarily on the proportion of farm workers amongst the rural population as a whole, and on the ability of those leaving farming (in whole or part) to find alternative employment and/or income without changing their community of residence. While houses abandoned by ex-farm households may not fall into disrepair, if used for occasional family or new-purchaser visits, or by incoming retirees and commuters, these new uses may not result in a satisfactory standard and variety of rural community life in terms of school attendance numbers, social activities, etc.

Even with retention of numbers of farms and farmers, the "new CAP" is unlikely to form the foundation of viable rural communities if the farm occupants so retained are generally old, and/or have non-farm activities which take them away from their communities and surroundings for significant periods of time during the day, week or year. Payment for non-labour-intensive land-using activities such as woodland or nature reserves, for example, may allow and encourage such changes. In view of the generally rising average age level of EU farmers, this is of concern, although offset by the positive aspects of providing some of the increasing numbers of older EU citizens (some returning to farming after an active first career elsewhere) with an environmentally valuable lifestyle

An alternative – and perhaps parallel – development in agricultural patterns and practices is the development of farming enterprises which are substantial in terms of land use and/or business scale, and able to survive more adverse and more variable cost-price ratios than under the "old CAP". Such businesses are likely to use modern technologies, to develop their human resources, and be fully integrated into national and international food supply chains, thus providing their managers and employees with lifestyles fully comparable with other professional occupations.

From a territorial point of view, the relative levels of these developments is likely to vary by distance from major urban centres and tourist attractions, and by the quality and variability of agronomic resources such as soils, water and processing facilities.

Balance of EU Objectives

In terms of Project 2.1.3 hypotheses (Chapter 3) and the CAP itself, EU objectives may be considered at a number of levels, e.g. at a "high" or "strategic" level, global competitiveness (European Commission, 1993) , socio-economic cohesion and environmental sustainability, and, at a lower or more specific level, (for example) "fair" levels of farm incomes, strengthened and integrated rural development, and food safety.

The optimal balance of these objectives is, of course, ultimately a political decision, taking into account the demands of the various social groups concerned, and the trade-offs necessary between current and future uses and enjoyment of resources, taking into account projected changes in technology and consumer/citizen preferences.

Nevertheless, from a socio-economic point of view, the following remarks may be made:

- The increasing emphasis placed by EU consumers on environmental quality and food safety is likely to raise the relative importance of the objective of environmental sustainability; and this will increase if consumers in Central and Eastern Europe, and/or in other major food-importing countries in the world, follow he same trend.

- As the world's largest food trader, the EU has a basic interest in global competitiveness in the production of agricultural products. Nevertheless, its unique and varied pattern of rural resources is unlikely to enable all territories to compete effectively in major world markets in grains, basic milk products, sugar, etc. Instead, it must seek competitiveness through a combination of quality and distinctiveness, recognising that any such market advantages can be eroded by the actions of trading partners (cf. wine), and that continued efforts must be made to persuade consumers to prefer EU produce over that of other countries. However, as a single market of over 400 million people, who possess marked regional, national and continental identities and are generally less mobile than e.g. in the United States, it should be possible for EU territories to establish market positions in food and drink products which can be defended against competition from elsewhere.

- As regards the relative priority to be given to food safety, this seems likely to remain of major significance in the EU. Moreover, food safety is more likely to be secured and maintained by large-scale "modern" farm enterprises and processing/retailing chains than by small-scale enterprise; this indicates a difficult choice to be made between the expressed EU objective of supporting small and medium-scale enterprises (SMEs) and those of commercial competitiveness and dynamism.

CAP/RDP Implementation and Cohesion Policy at Territorial Level

The historical (and current) structure of the CAP/RDP and its instruments are largely non-territorial in nature. The major regional CAP designations – the LFAs – have arguably been drawn at too broad a level to be regarded as territorially targeted, and the amounts of extra funding attracted by LFA status are not large compared to the major expenditures and effects of the direct payments and other market-wide support measures.

Within Pillar II of the CAP, many other rural development measures are similarly non-territorial in character, with the exception of those Guidance measures restricted to Objective 1 regions "whose development is lagging behind" and to regions previously classed as Objective 1 or 5b but now subject to transitional measures. The Objective 1 regions include 22% of the EU's population, but a much greater proportion of its land area (farmed and total). The main criterion for Objective 1 status (GNP per head at or below 75% of the EU average) is entirely economic, and not agricultural or environmental in nature.

Thus nearly the whole of the CAP is operated separately from cohesion policy, with which it fits only "accidentally". At territorial (sub-national) level, this is even more

true, because the Cohesion Fund applies only to four countries, and it and much other Structural Fund expenditure is focussed on national-level problem such as inter-regional infrastructure, often related to urban areas, e.g. major transport links and wastewater treatment.

The CAP/RDP and Polycentric Development

Very little of the CAP/RDP is specified in a way related to settlement patterns. Thus it cannot be expected that the Policy will assist in polycentric development, except insofar as it provides support for economic activities much more geographically dispersed than those located mainly in the core area of the EU. Even so, the "northern bias" of the CAP means that it impacts more on several countries which overlap substantially with this core (western Germany, southern UK, northern France, Benelux), and less on others which do not (Greece, Spain and Portugal, southern Italy). Exceptions include Ireland and Denmark which are major CAP beneficiaries, and Sweden and Finland which have substantial national supports as well as CAP measures.

It is possible that, to extent, by strengthening the economic position of agriculture, the CAP hinders economic development and adjustment in those locations where it impacts more intensively. This would be more true if environmental concerns lead to rigorous restrictions on non-agricultural development in rural areas and/or substantial payments to farmers for environmentally friendly land management, thus enabling them to survive, and to maintain highland prices. In poorer areas, it might be more likely that non-agricultural development would be more easily promoted via re-allocation of farming resources (houses, land, labour, etc.). However, as argued above, the agri-environmental aspects of the CAP/RDP are still weak, and in their infancy. Thus it is unlikely that, by constraining economic development more in richer areas than in poorer ones, the CAP/RDP aids polycentric development.

3. Hypotheses on the territorial effects of the CAP and RDP

3.1 Introduction

An initial set of hypotheses on the territorial impact of the CAP and RDP was presented in Project 2.1.3's FIR. The hypotheses were grouped into categories based on our classification of CAP and PDP policy measures. Much of the project meeting in Maynooth in February was spent re-considering the hypotheses and possible new hypotheses in the light of feedback from the FIR. As a result, some have been revised and all have been categorised as either high or low priority bearing in mind the aims of the ESPON programme, the aims of this particular project, time and data constraints.

Before presenting the hypotheses, it should be noted that, within the context of this study, there is more than one level of policy standards against which the territorial impact of the CAP and RDP can be assessed. In particular, the CAP/RDP may be shown to be either consistent or inconsistent with the "high-level" or strategic EU objectives of social and economic cohesion and environmental sustainability in the regions. There are also other possible high-level EU objectives, e.g. competitiveness. These high-level objectives may of course be measured in various ways, and probably none can be satisfactorily summarised by one particular overall index. For example, greater social cohesion may imply lower migration rates from (or more balanced age distributions in) depopulating regions. Economic cohesion implies a smaller spread (in absolute or relative terms) between high-income and low-income territories (e.g. measured by the inter-quartile range) and/or a lower share of households below (say) 75% of average EU GDP/head. Similarly, better environmental sustainability might be (partially) measured by a lower pollution index, or higher wildlife counts.

Below these high-level/strategic EU objectives, one may identify CAP objectives, outlined in the previous chapter and including adequate farm income levels, agricultural productivity improvements, de-intensification, possibly higher or adequate diversity (e.g. mixed farming). However, there is usually room to argue whether these are completely consistent with one or other (or all) of the high-level/strategic EU objectives. Thus it is possible, in principle, to examine the territorial impact of the CAP and RDP for consistency (and possibly economic significance) with both high-level and agricultural EU policy, as measured by appropriate variables.

3.2 Summary presentation

Within this context, Table 3.1 indicates the type of objectives against which each territorial hypothesis is being considered. The scope for further hypotheses is obvious. However, for the first stage of the project (as we work towards the interim report for August 2003) we propose focusing on the hypotheses highlighted.

Table 3.1 Objectives against which the territorial hypotheses will be tested.

	CAP/RDP Support/Expenditure					
	CAP/RDP in general	Market Support	Direct Income Payments	LFA Payments	Agri-envtl. Payments	Rural Devt. Payments
High-Level EU Objectives						
Social Cohesion				14		17
Economic Cohesion	**7**	**9**		14		18
Environmental Sustainability	4		11		**16**	
Agricultural Policy Objectives						
Farm Incomes	6		10			
Farm Productivity			13			
Farm Households	5					(18)
Other Indicators						
Agricultural Indicators	1, 2/3		12	12		
Undefined	8				15	19, 20

Appendix 1 presents further details of each hypothesis, indicating how (if relevant) it has been reformulated, its relative priority for the project and the variables identified for initial statistical analysis. These are elaborated further still in Appendix 2. Because we want to test the impact of CAP or RDP, the level of CAP support (as reflected in both policy expenditures and/or estimated indirect market price support) will be the independent variable in most cases. The intervening variable is a explanatory variable for not linear relations i.e. those which determine the dependent variable. The hypotheses encompass both **static** and **dynamic** aspects of the CAP and RDP, the dynamic analyses focusing on the policy development process over time, especially the change of in regional effects associated with the 1992 MacSharry reforms of the CAP.

Apart from the hypotheses which relate to the CAP and RDP as a whole, the hypotheses are grouped into the projects policy categories: market support, direct income payments, LFA payments, Agri-environment payments, rural development. However, no specific hypotheses have been formulated for the "other" policy category.

CAP/RDP in general

1. The impact of CAP on the regions is mainly visible through the CAP's impact on types of farms.

2/3. CAP does not generally differentiate between the natural production conditions of regions. Structural adjustment is thus faster in areas of high agricultural potential because of technical bias and the greater market orientation of agriculture in more favoured regions. Reform of the CAP has affected the scope of structural change but this has been highly differentiated across space.

4. The CAP has unintended side-effects, that have a negative significant territorial dimension. These side-effects can be:

a. ecological effects such as decrease of biodiversity (floor loading) and landscape quality;
b. economic effects such as unemployment (or decrease of employment in agriculture sector);
c. social effects such as population change especially in intensively farmed areas.

5. Changes in the levels of farm household, such as to part time farming, are more strongly associated with variables reflecting the strength of the local economy than the level of CAP support.

6. Changes in the CAP have had less immediate impacts on farm incomes and farm production methods than shocks to the agricultural sector such as weather, livestock disease and exchange rate fluctuations.

7. The incidence of the CAP on NUTS III regions is not consistent with the cohesion objectives of the EU with the least prosperous regions receiving less CAP support than their more prosperous counterparts.

8. The relative impact of the CAP in remote rural areas (compared to what would most likely have happened otherwise) may have been more significant than in accessible rural areas due to the fact that the later are influenced amongst other things, by contiguous urban developments (near to market centres).

Market regulations and support

9. CAP market price support contributes to the intensification processes of agricultural production. In territorial terms, more favoured regions (in terms of productive potential) are able to take greater advantage of these CAP support measures.

Direct income payments

10. The shift of CAP from product related support towards payments directly to producers leads to greater farming flexibility and thus increases the market orientation of farmers. This has territorial implications (e.g. land use changes).

11. The blanket environmental requirements for direct payments have contributed to measurable environmental improvements in the regions.

12. Some specific direct payments, e.g. area payments for tobacco and LFA payments for sheep and cattle, have had differential territorial effects by retaining in some areas farming sectors which would otherwise have diminished in size. Similarly, dairy quotas have been critical in maintaining dairy production in some Less Favoured Areas, particularly mountain areas.

13. The shift of CAP support towards direct payments has reduced the extent of risk faced by farmers and may has been most beneficial in regions where climatic conditions and/or growing conditions are highly variable.

LFA payments

14. LFA payments have been developed to compensate for persistent natural and socio-economic farming difficulties in designated regions. The extension of LFA payments has helped to reduce the marginalisation of these regions.

Agri-environmental measures

15. .The impact of agri-environmental measures, even though directed towards extensive land use systems, varies mainly in regard to farm types (a) and regional production conditions (b).

16. The uptake of AEP schemes is positively associated with environmental outcomes in the regions affected.

Rural development measures

17. Rural development measures improve the quality of life in rural areas and thus have helped to reduce the rate of population change, particularly in Less Favoured Areas.

18. Rural development measures create additional non-agricultural employment, making farm households and rural areas more multifunctional. These have, in turn, helped to stabilise regional incomes and employment.

19. Most agricultural structural expenditures are not territorially focussed, and thus their territorial impacts are more dispersed than those of the more spatially oriented rural development programmes such as Objective 5b and LEADER.

20. The success of rural development programmes that try to mobilise endogenous development is dependent on their adoption of the innovative potentials of a region.

4. Choice and description of territorial typologies

The analysis of the territorial impacts of policies requires not just a detailed database at an appropriate, low geographical level, but also a grid of the regions analysed in the form of one or more territorial typologies. In particular, a framework is required which allows regions to be allocated to a limited number of territorial types. Such typologies will provide not only a structured basis on which to analyse regional results but also a meaningful basis for interpretation and further investigation of territorial differences. In particular, the typologies will provide an important criteria for the selection of both area and commodity case studies, to be carried out in year 2 of the project.

At this stage, four territorial typologies are being considered by the project team:

- A rural area typology
- An Less-favoured areas (LFA) vs. non-LFAs
- A territorial typology based on predominant farm type in the region
- A territorial typology based on average size of holdings in a region

This chapter describes each of these typologies.

In the case of the first, the OECD territorial typology, a possible alternative rural urban typology is currently being developed as part of ESPON. project 1.1.2. A brief outline of this possible alternative will also be provided.

The additional LFA and farm type and size typologies are important as the very nature of agricultural land use is in many cases very different from settlement structure types. The inclusion of agricultural indicators, through farm type and size increases our potential to address regional impacts of CAP. This focus will also reflect previous work on classifying regional effects of agricultural production and policy (e.g. Terluin, 1996; Carneri et al., 1996, Institute for Agricultural Policy, 2000).

The typologies will be critical in assessing the impact of different policy strands on different regions. They provide an analytical tool for the EU-wide analysis, and a base for the conception and selection of the case studies. In this work it will be central to address the increased flows between regions, relate to the concepts of peripherality and policentricity, and structure insights gained on territorial impacts for different types of regions.

4.1 Typology of rural areas

Regional analysis has for many years searched to find a common definition of different area types. Countries have applied varying criteria and thresholds to differentiate between urban and rural categories of areas and the lack of a common notion and definition of rural areas has, until recently, impeded international comparisons on the situation and development of rural areas. With the rising concern

for rural development international organisations have increasingly turned their attention to this issue. The term rural area is widely used as an expression for non-urban or peripheral regions without necessarily defining the concept or its spatial implications. During the process of the reform of the Structural Funds in 1988 the European Commission proposed a qualitative typology of regions, differentiating three groups of rural problem areas which had been widely referred to since then in conceptual and political terms (EC, 1988). However, this distinction of standard rural problem types did not allow comparative analysis of rural areas.

4.1.1 . The OECD territorial typology framework[3]

Within the activities of its Rural Development Programme, the OECD launched, at the beginning of the 1990s, work on territorial indicators. The aim of this work was to agree a framework which would allow concepts such as rurality to be discussed within an internationally comparable context. A review of the definition of rural areas had revealed at the start of the project that different criteria and different thresholds were applied across OECD member countries (OECD 1994, p.82-83). These national definitions tend to reflect national debates, institutional structures and specific socio-economic and administrative patterns, and can hardly be used for international comparisons or for a generalised interpretation of spatial change. The new approach of the OECD methodology developed afterwards focuses on the territorial scheme on a sub-national level which covers the entire territory of member states and addresses two hierarchical levels of geography.

The intensive discussion of the method and results of this typology lead to refinement of the concept, the recognition of the need to take account of the variance of regional development performance as a central determinant for interpretation on actual territorial development trends, and the reference to the typology in later analytical work and reform discussion. Major examples and components of the reception of this method by other institutions (above all, the EU Commission) will be discussed after the description of the typology itself. This is intended to underpin the need and scope for guidelines for breaking down regional analysis of CAP and rural development policy to the three territorial types and further analytical groups according to additional criteria.

4.1.1.1 The OECD territorial scheme

The territorial scheme developed by the OECD Group of the Council on Rural Development for the collection and presentation of sub-national data at the international level is not intended to substitute for any national definitions, but should allow for additional insights from international comparability to national situations. The scheme covers the entire territory and not just the „rural“ part. As rural analysis relies on the description of the differences and interrelationships between rural areas and other parts of the country, data for all parts are required to confirm the consistency of the results. The scheme distinguishes two hierarchical levels of geographic detail. At the local community level it uses the basic administrative or

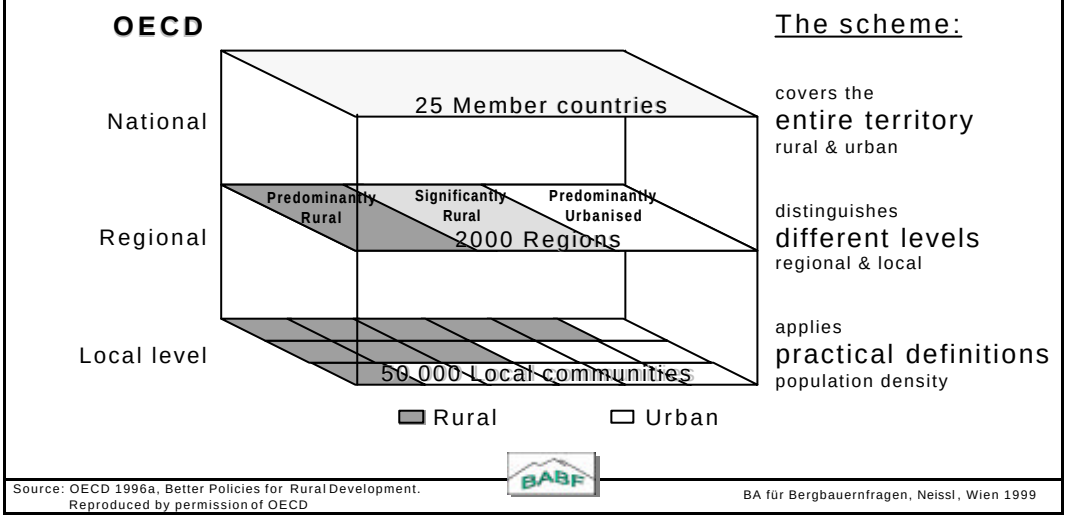
3 The concept of the OECD Rural Indicator Project has been published first by OECD (1994), comprising a survey on core indicators and results of the typology developed. More recent up-to-date information was prepared by the Working Group on Territorial Indicators and published in the series of Territorial Reviews and the OECD Territorial Outlook (2001).

statistical unit, in most cases the community, as the lowest geographical areas to be classified as „rural“ or „urban“. The communities were split by the simple criterion of population density (threshold of 150 inhabitants per km^2) into *rural and urban communities.*

At the second stage, as regions usually comprise rural as well as urban communities, the degree of rurality was ascribed by the share of people living in rural communities, thus distinguishing the following ***three types of regions***:

- predominantly rural areas (more than 50 % of the population lives in „rural“ communities),
- significantly rural areas (the share of the population in rural communities is 15 - 50 %) and
- predominantly urbanised areas (less than 15 % of the population is in rural communities).

Figure 1: Territorial Scheme for OECD analysis

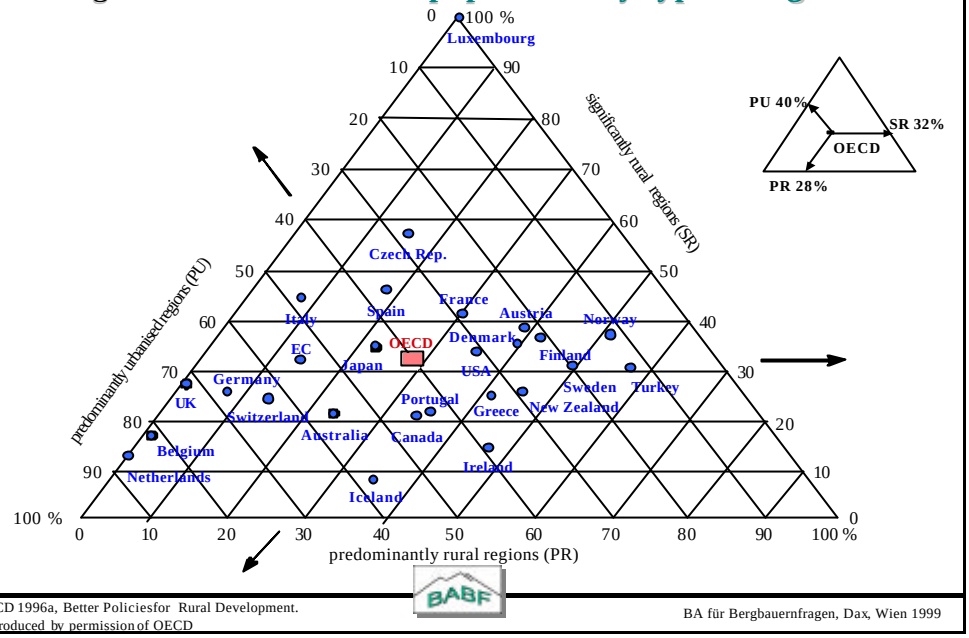


This distinction between the hierarchical levels of territorial detail is central to the conceptual approach of the territorial typology. Only through the different levels can the complexity of rural problems in various national and regional contexts be seized. The framework is conceived also to allow for analysis of interrelationships between regions but also to enable differentiation between rural and urban communities within a region at a lower geographic level. The approach therefore links to the typology method proposed by ESPON project 1.1.2 “Urban-rural relations in Europe”.

4.1.1.2 Classification at local and regional level

According to this methodological approach, about one third of the total OECD population live in rural communities, occupying over 95% of the territory. National shares differ considerably, ranging from a rural population of less than 10% in the Netherlands and Belgium to about 60% in Finland, Norway and Turkey. The degree of rurality at the regional level is illustrated by the distribution of the three types of regions within each OECD member country.

Figure 2: **Distribution of population by type of region**



Source: OECD 1996a, Better Policiesfor Rural Development. Reproduced by permissionof OECD

BA für Bergbauernfragen, Dax, Wien 1999

In some OECD countries, in particular the Scandinavian countries and Austria, more than three quarters of population live in either predominantly rural areas or significantly rural areas, reflecting the high degree of rurality at the regional level in these countries. For Japan and the north-western European countries, in particular the Netherlands, Belgium, Germany, the UK and Switzerland, the opposite is the case.

France, Portugal, Canada and the USA have a rather balanced structure, while Italy, Spain and the EC as a whole are characterised by a greater population share in urbanised regions. Ireland, Iceland, and to some extent Australia and Canada, have a dual structure with greater shares of their population inhabiting the rural and urban extremes and only a smaller fraction living in the intermediate regions.

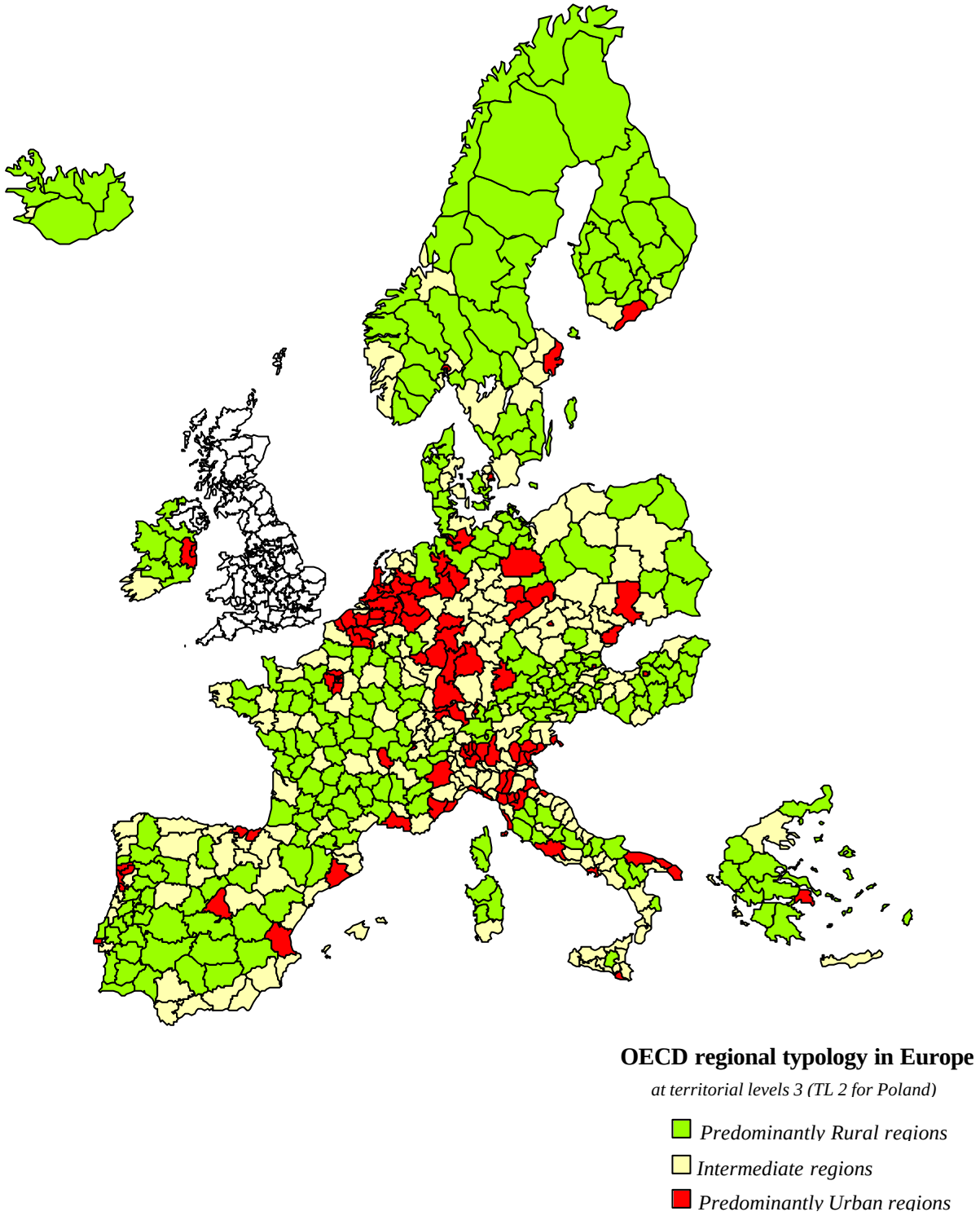


Figure 3: OECD regional typology in Europe (source: OECD Rural Indicators project)

4.1.1.3 Leading and lagging regions

The international comparative analysis of the sub-national data achieved further insights with respect to the regional economic performance. It revealed the restricted level of agricultural employment even in most predominantly rural areas where the shares of agricultural employment don't exceed 20% on the average (OECD 1996, p. 45ff.) Especially, the changes in employment structures of the last decades have led to a shift of labour force from primary (and secondary) to tertiary sector. Nevertheless the majority of land use remains shaped by agriculture which underscores the spatial relevance of agricultural structures and the tight link to rural economy.

In a next step of analysis population and employment changes were chosen to serve as primary indicators to offer an indication of the prospects for regional development and lead to a further differentiation into leading and lagging regions within each of the three types. The simple split was done by comparing the regional performances with the respective national averages.

With the experience of substantial shifts in territorial employment growth the assumption that urban countries are the sole defining principle of territorial development is challenged. Looking at the regional employment development case by case (see example for all the Austrian regions, figure 4) one can identify leading regions within all three types of regions. The recognition of the diverse development performance is particularly important for predominantly rural areas as it rejects the notion that the mere fact of being located in a rural context quasi automatically would lead to economic decline.

> "Comparisons of employment change just between the three types of region do not reveal, however, a sufficiently detailed picture of the territorial diversity in development dynamics. The actual territorial patterns of development can not be properly appreciated just by looking at average figures of types of regions. Austria provides a clear but not untypical example. As Figure 4 shows, there are many rural regions that have been much more successful in employment creation than others. In fact, also in other countries many (dynamic) rural regions, although not the majority, perform better than many of the more urbanised (but lagging) regions (Figure 5). This indicates that territorial development performance - in this case, success and failure to create additional regional employment opportunities - is not strictly correlated with the degree of rurality or urbanisation. Rurality in itself is not a handicap. It is not synonymous with decline, as much as urbanity and agglomeration are not automatic guarantees for prosperous development" (OECD 1996, p.53).

Figure 4: Rurality and employment change in Austria, 1981 - 1991

Regions by share of rural population and employment change

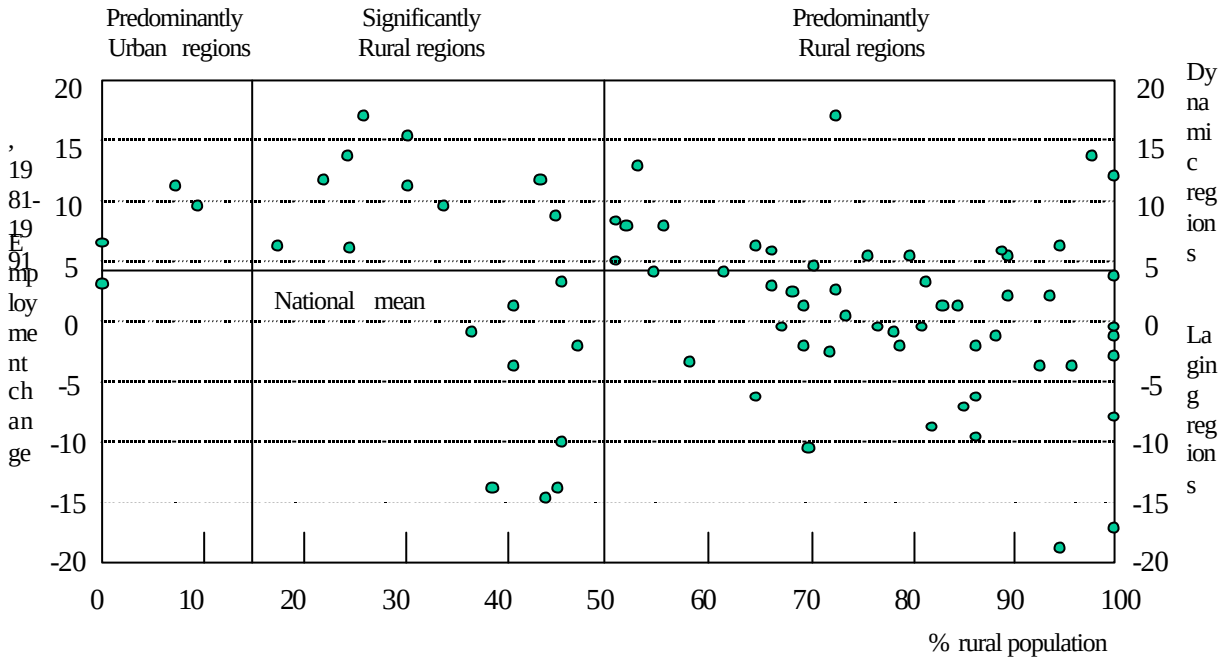


Figure 4

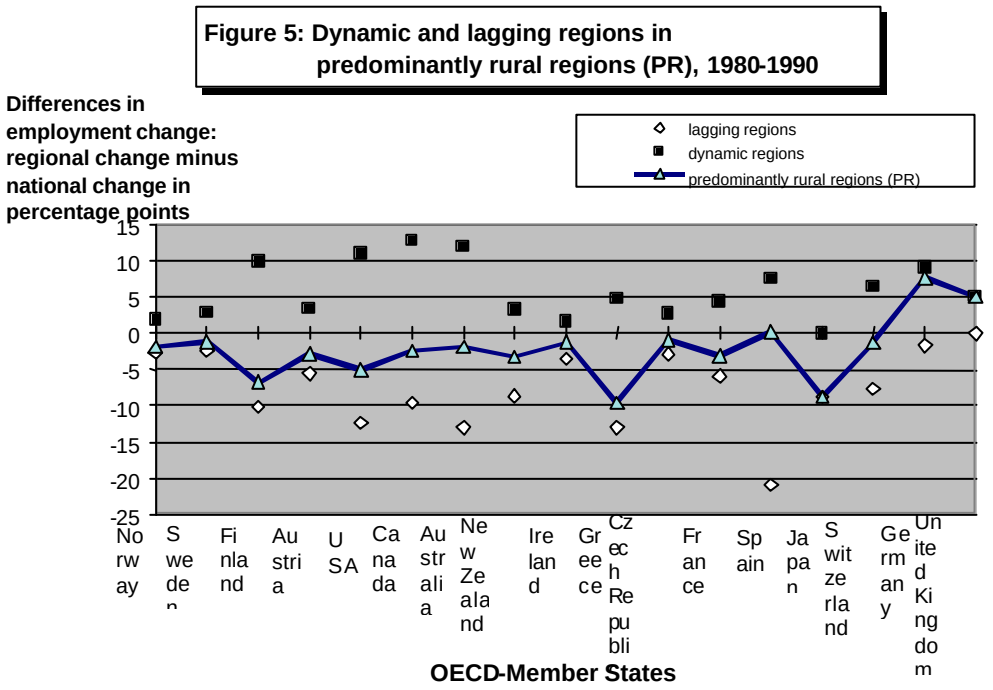


Figure 5

As has been shown there are many rural regions distributed over all countries which show a dynamic development track. This tendency which is especially relevant for a great deal of the rural areas in countries with a low degree of rurality (like Germany and United Kingdom) primarily refers to significant differences across territories. Moreover, in-depth analysis within the regions underpin the critical role of small- and medium-sized towns in this development (e.g. Dax, 1999). Prosperous rural areas are found, on the other side, in largely „rural" countries with great areas of a low population density (like Canada, Australia, USA and Finland). There the regional change of employment in dynamic rural areas is more than 10 percentage points higher than on the national average (see Figure 5). However, these statistical indicators do not give information on social development within those areas. As much of the employment created might be in low-wage sectors or attributed to part-time or unfavourable (flexible) working conditions, further analysis of the contents of the employment growth is needed for a thorough assessment. For the application of this concept in the ESPON project it is therefore suggested to discuss an analysis distinguishing leading from lagging regions, e.g. on the basis of change in a GDP variable. However, care will have to be taken to avoid "output variables" for this purpose.

4.1.2 Rural urban typology (being developed as part pf project 1.1.2)

The use of appropriate typologies is a main concern for all ESPON projects. In general, a common framework for the various analytical tasks would be helpful and increase comparability. On the other hand, the specific needs are quite diverse and regional scope might differ considerably. In the current discussion, interim work available from project 1.1.2 urban-rural relations seems most interesting for our purposes.

Our understaing is that ESPON project 1.1.2 on Rural Urban relations has considered two alternative typologies of urban-rural relations. The first is a summary classification consisting of six categories

- regions dominated by a large metropolis
- polycentric regions with high urban and rural densities
- polycentric regions with high urban densities
- rural areas under metropolitan influence
- rural areas with small and medium sized towns
- remote rural areas.

These categories have been used as a basis for a synthesis map in the SPESP final report and which is reproduced in the Second Report on Economic and Social Cohesion. However, given the reservations of many observers concerning the reliability of the map, it has been decided to opt for a simpler approach to the identification of urban and rural areas that may be more feasible within the constraints of current levels of data availability.

The alternative approach, arising from the SPESP study on *Criteria for the Spatial Differentiation of the EU Territory: Economic Strength* and favoured by TPG 1.1.2,

is a settlement typology that takes account of population densities and presence/ absence of large centres of population. It is summarised in the following table.

Settlement type	
1 **Agglomerated regions** with a centre >300,000 inhabitants	1.1 Population density >300 persons per sq. km. 1.2 Population density <300 persons per sq. km
11 **Urbanised regions** with a centre > 150,000 inhabitants	11.1 Population density <300 persons / sq km *or* centre >300,000 and density <150 persons per sq. km. 11.2 Population density <150 persons per sq. km
111 **Rural regions** with a population density < 100 persons per sq. km.	111.1 Centre >125,000 inhabitants 111.2 Centre <125,000 inhabitants

As soon as the classification is available on NUTS III level, it will be possible to compare the overlap with the OECD classification. In this regards, links to work done by Eurostat applying the OECD concept for European Commission uses (EC, 1997) are important. There the population density threshold of 100 inhabitants / km^2 has been used as classifying criterion at the local level (instead of 150 inhabitants /km^2 as in the OECD typology). The SPESP model uses the same threshold (of 100 inhabitants / km^2) but at the regional level which implies a quite different selection process and very different results.

At this stage, no decsion has been made as to which of the two alternative typologies will be adopted. The straightforward classification methodology of OECD territorial indicators project has the advantage of already being discussed and agreed upon by the OECD countries. It suggests a neutral territorial grid which allows to start analysis through some detailed regional descriptive information and keeps clarity of application for further purposes. Assuming data availability, the OECD typology appears more appropriate typology system for the task of differentiating our analysis due to the greater differentiation between rural areas types. However, no final decision has been made.

4.2 Less favoured areas typology

As noted in Chapter 2, the first initiative to introduce an explicitly spatial / territorial dimension into the CAP was the Council Directive 75/268/EEC on Less Favoured Areas which was introduced in 1975. It is therefore appropriate that project 2.1.3 aims to utilise a typology of regions based on LFA status.

Regulation EEC No. 2328/91 provides for payment of Compensatory Allowances in designated less favoured areas characterised by one or more of the following attributes:

- permanent handicaps (altitude, poor soils, climate, steep slopes),

- undergoing depopulation or having very low densities of settlement, and
- experiencing poor drainage, having inadequate infrastructures, or needing support for rural tourism, crafts and other supplementary activities.

Through the use of the LFA typology, project 213 will establish whether the impacts of CAP have been different between LFA and non-LFA areas. However, in doing so we are aware of the many conceptual and methodological issues that arise in any exercise seeking to account for outcomes which may be only partially due to the CAP measures.

4.3 The Community Typology of Agricultural Holdings

In order to provide comparable data on the structure of agricultural holdings at Community level harmonised surveys have been undertaken under the provisions of special Council Regulations and Directives, most notably Commission Decisions 78/463/EEC and 85/377/EEC,establishing a Community Typology of Agricultural Holdings. There are three basic elements in the Community typology: (i) the standard gross margin (SGM), (ii) the type of farming nomenclature, and (iii) the economic size classification of farms.

4.3.1 Standard Gross Margin

The *Standard Gross Margin* (SGM) of an agricultural product is defined as the monetary value of its gross production from which corresponding specific costs are deducted and is determined on a per hectare basis for crops and a per animal basis for livestock. Gross production costs includes the value of primary and secondary products. Evaluated at farm gate prices and inclusive of any relevant subsidies. The specific costs cover any direct costs related to the production of the product and are evaluated on a delivered-to-farm basis less the value of any subsidies linked to these costs.

The SGM coefficient for each product is determined on the basis of a standard twelve month production period and is calculated as a regional average. It is important to note that SGMs should not be regarded as absolute indicators of nominal incomes for individual farms as they are not designed for this purpose. Rather, their purpose is to facilitate comparisons to be made in relative terms between different enterprises within a farm and between farms in respect of overall economic size.

4.3.2 Farm Type classification

The *Farm Type classification* is based on the proportion of a farm's total SGM accounted for by individual enterprises or combinations of homogenous enterprises. Typically, farms are categorised as either "specialist" or "mixed" where "specialist" farms derive over two-thirds of their total SGM from a particular enterprise. The Farm Type classification is a four – level hierarchical nomenclature which arranges types of farming into the following structure:

Level 1: General farm types (9 headings)
Level 2: Principal farm types (18 headings)
Level 3: Particular farm types (51 headings)

Level 4: Subdivisions of level 3 (72 headings)

For example, Level 1 Type 4 is described as “specialist grazing livestock” and is defined on basis grazing livestock contribute at least two-thirds of the total farm SGM. This category included Principal farm type 41 described as “specialist dairying” where dairy cattle account for > 2/3 and dairy cows contribute >2/3 of all dairy cattle SGMs.

4.3.3 Economic size of a farm

The *Economic size of a farm* is determined as its total SGM expressed in terms of the Community standard known as the European Size Unit (ESU) which was defined for the 1996 reference year as EUR 1,200 in Commission Decision 90/36/EEC.

The concepts underpinning the EU farm typology have been applied by member state statistical agencies to the data collected through censuses of agriculture. The data on ESUs distributions provide a better indicator of farm economic viability than area based indicators such as the AAU index. The relative distributions of farm types (no. of farms in each type as a percentage of all farms in a region) has the potential to provide a basis for indirect assessment of the territorial impact of CAP sector specific measures, and changes therein, resulting from reforms of the policy framework.

5. Presentation of methods for TIA

5.1 Brief Overview

Based on the fact that that it can be expected that the CAP and RDP (as well as all the policies of other DG's) have a more or less significant territorial impact, ESPON project 2.1.3 will try

a. to **analyse** the territorial impact of the five different policy areas (TIAn) and

b. as far as distinguished regional impacts on NUTS III level can be proved to **assess** these regional differences against the goals of cohesion and environmental protection (TIAs).

To prove and to assess the impact of CAP/RDP measures it is assumed that CAP/RDP policy in general, as well as the different measures cause different impacts on the NUTS III regions in Europe.

To examine these impacts, a set of hypothetical cause-effect-relations have been formulated based on literature analyses, logical deduction, and brainstorming the collective experiences of the researchers.

These cause-effect relations can be split in to two groups:

- those which **logically can be deduced** and therefore have not to be proved in general (e.g. **that** influx of agricultural or rural support money into a region cause additional income and a regional multiplier); but it still has to be calculated **how much** has really reached each region, and
- those which, depending on the different support measures, **might have** a general or specific regional effect but need to be proved.

To calculate the **first type of cause effect relations**: that is the regional distribution of economic effects only based on the agricultural and rural development subsidies, independent of the related specific agricultural, environmental and/or rural development measures, the following steps are necessary:

1. Ascertain how much money was spent on each measure,
2. As far as these figures are not available, estimate the regional distribution of subsidies based on spatial distribution of subsidised crops (e.g. main wine yard regions, tobacco growing areas, etc.). Methods for doing this are discussed further in sections 6.4 and 6.5.
3. Estimate how much of the support actually reached each region and what portion was accounted for by (non-local) administration, transport, storage, etc.
4. Based on the amount of money reaching each region a rough calculation of regional multiplier effects should be done[4].

[4] As up-to-date regional input-output matrices are not available and even if these would be existing could not be used within the given framework only a rough estimation can be done based on the estimated outflow (if appropriate differentiated by economic strength measured in GDP/head) from the region in each round of the multiplicator (see: G. Kroës: The impact of farmland consolidation on regional development).

5. Depending on the results the general economic impact of CAP/RDP money based on the unequal distribution of grants, independent of the impact of specific CAP/RDP measures on the regions, can be estimated.[5]

Up to now the necessary data on the above described flow and regional distribution of CAP/RDP grants is not available. Therefore we propose testing, as a second best solution, some plausible related correlation's (see Chapter 3).

Whereas the above type of cause-effect relationship definitively exists, testing the **second type of hypothesis** requires different methods.

In particular, well elaborated hypothetical cause–effect-relations have to be proved by using a mix of different quantitative and qualitative methods including, for example:

1. Statistical methods.
2. Proving and backing by literature (for instance drawing from the findings of previous relevant research studies).
3. Empirical modelling of the effects of CAP interventions of farm behaviour and farm structures, based on standard economic theoretical approaches.
4. Different types of "traditional" context related **case-studies** used on the one hand **to prove** cause cause-effect-chains in more detail which might already be statistically tested or not and, on the other hand to **detect new relevant hypothesises** to be proved later on.

Whatever method is used, it is acknowledged that observed/statistically significant effects are not caused by a single input, i.e. CAP/RDP measures. As it is empirically usually impossible to separate a single cause out of the general context multi-causality, each cause-effect relation has carefully to be validated by cross-checking searching for rival explanatory variables etc. using different case-study methods.

Taking into account the extreme time-pressure to deliver first results for the next **Cohesion Report**, priority will be given to quantitative methods to find significant statistical correlation's between the input in terms of CAP/RDP measures and expected regional impacts. This means that only the "entrance" and the "exit" of the cause-effect-chain is compared assuming that the intermediate cause-effect relations are valid although empirical proving (with, for example, the FACT-method, see section 6.5) only can be done within the case-studies scheduled for the second year.

5.2 Descriptive and initial statistical analysis

As noted above, the methodology employed to test the key hypotheses on the territorial impact of the CAP will ultimately depend on the availability of the adequate variables to test each specific hypothesis. If, for a specific hypothesis, we are constrained by data availability, we will concentrate on the use of very simple methods such as the allocation of the key available variables among the different European regions. In this regard, the elaboration of maps showing the distribution of variables across space will prove to be a useful tool. Simple correlations between

[5] Opportunity costs have to be neglected!

variables may also be used when data constraints impede the elaboration and estimation of more complex models.

When time or data availability does not constrain the analysis, the method outlined below will be followed.

A sound assessment of the effects of agricultural policies usually requires the modelling of farm-level economic decisions as a function of several explanatory variables, including CAP support measures. While, at this stage of the project, we do not intend to develop detailed theoretical models of farm-level economic decisions, we will consider simple expositions of theoretical considerations that will serve as a base for the empirical models and will allow the identification of relevant dependent and explanatory variables.

The theoretical framework will be based upon the assumption that farm household's welfare can be represented through a household-utility function that depends, among other variables, on farm business profits. The consideration of the farm business profit function should offer a useful representation of farmers' economic decisions. For example, a farm that participates in the COP (Cereals, Oleaginous, and Proteaginous) regime, farm business profits may be represented, in the following way:

$$\mathbf{p} = \mathbf{P_f Q_f} - \mathbf{?}_x \mathbf{X} + \sum_{i=1}^{p} A_i S_i + G \qquad (1)$$

where $\mathbf{p}$ represents farm business profits, which are defined as the value of the farm production ($\mathbf{P_f Q_f}$, where $\mathbf{P_f}$ is the vector of farm's outputs prices and $\mathbf{Q_f}$ is the vector of farm's output quantities) minus production costs ($\mathbf{?}_x \mathbf{X}$, where $\mathbf{?}_x$ is a vector of prices of the variable inputs employed and $\mathbf{X}$ is a vector of the quantities of these inputs). $\mathbf{A}$ is a *n*-dimensional vector of land allocations and S_i is the effective crop specific per hectare payment for each of the "*p*" crops participating in the COP regime ($p<=n$), including set-aside payments. G represents other government payments such as livestock subsidies, subsidies on intermediate consumption and other subsidies.[6]

We will assume that farm households take their decisions with the aim of maximising the discounted present value of the utility of farm business profits, subject to the appropriate restrictions:

$$EU(\mathrm{p}) = \int_{t=0}^{T} \mathrm{d}^{i} \mathrm{U}(\mathrm{p}) \mathrm{d}t \qquad (2)$$

where $EU(\mathrm{p})$ represents the expected value of the utility function, d is the discount factor, 0 is the current time period, T is the terminal point of the farmer's planning horizon and $\mathrm{U}(\mathrm{p})$ is the utility derived from farm profits. The maximum value that

[6] For simplicity it is assumed here that the rest of the payments are decoupled from farmers' production decisions.

the expected utility can take might be constrained, for example, by the total farm hectarage, farm household total time endowment, etc.

By solving the household expected utility maximization problem, one should be able to derive the reduced form equations of the structural endogenous variables, which may include, for example, land allocation and input usage. The conceptual framework will also help to identify possible endogeneity problems that we may encounter in the hypotheses testing process. For example, many production decisions are likely to be made jointly in which case endogenous variables will be specified in the farm household's model.

Although the theoretical framework will be specified in terms of individual farm decision-making, the empirical application will rely on data aggregated at the regional level, thus treating each single region as a farm.

In the empirical application, we will estimate a simultaneous system of structural equations of the model when more than one dependent variable is identified, or simple linear regressions for those models with only one dependent variable. The use of more complex functional forms will be considered in the statistical case study analyses, but not at this stage of the project. The explanatory variables will obviously differ in each model. These may include, for example, CAP support measures, farm size, inputs and outputs prices, etc. In order to assess the different impacts of the CAP on the different European regions, we will estimate the models for different sub-samples each one including different types of regions or groups of NUTS III areas.

To the extent that production decisions from year to year are related, the modelling of farm agricultural supply will have to consider the effects of actions of several periods. Hence, we will not only rely on cross-sectional variability. Instead, we will also observe the same region in more than one single year, in order to condition observed events on the preceding years' experience or on fixed farm effects. Lagged explanatory variables will also be useful if expected values for certain variables need to be used.

A number of econometric issues are likely to arise in the empirical analysis that will have to be addressed. Some of these problems may include the stratified nature of the sampling used to collect data, censoring issues, etc.

Although the precise methods for disaggregating the total CAP support to an area have yet to be finalised, the aim is to be able to differentiate between the following types of support:

- market price support,
- direct income payments,
- LFA payments (as a special, but major category combining income with environmental motives),
- direct income payments associated with agri-environmental schemes,
- rural development schemes, and finally
- all other types of CAP-related payments to farmers.

Each of these types of support has played a distinct role within the recent CAP reform process. Moreover, they each may have given rise to territorially distinct effects. By differentiating between them in the analysis, it will be possible to significantly contribute to the existing understanding of how the CAP has, over time, impacted regions across Europe.

5.3 Case studies

From August 2003 (the second year of the study) will use a case study approach to explore, in more depth, the processes by which the CAP and rural development policy can lead to territorially differentiated effects. In addition to validating the ex-post analysis carried out in year 1, this part of the project also aims to explore the possible implications of proposed future changes in the CAP and how these might differ across space.

Two sets of case studies are proposed. The first will compare the territorial impacts of different CAP commodity regimes, while the second will concentrate on the processes by which the CAP leads to differential effects in different types of rural areas. As discussed above, the final chice of case stduies and methods will only be made as the findings from the initial statistical analysis emerge. However, this section details proposals for year 2 of the project currently being considered.

5.3.1 Empirical Models of the Effects of CAP Interventions on Farm Behaviour and Structure

This case study will concentrate on determining the extent to which the post 1992 CAP can be considered a coupled / decoupled policy in the different EU territories. Specifically, we will assess the extent to which CAP reforms throughout the 1990s had differential effects on the level of agricultural production in each EU territory. Our analysis will determine the extent to which recent policy changes have altered the distortions of the CAP on the agricultural production in different EU regions. Although distortionary effects of farm policies feature very highly in current World Trade Organisation (WTO) debates, the extent to which CAP policy reforms had had differential regional effects remains under-researched. Such information is essential for a comprehensive policy evaluation.

As it is well known, protectionism has been pervasive in international agricultural markets. Agricultural protectionism acquired special relevance after the Great Depression and the World War II that stimulated the use of protectionist policies, especially among the developed countries, to both stabilize commodity prices and address public concerns for adequate food supplies following shortages after the war. The unfavourable consequences of agricultural protectionism for commodity prices, the high costs borne by taxpayers and consumers and the inadequacies of the GATT (General Agreement on Tariffs and Trade) rules for agriculture became widely recognized by the 1980's (Hassan 1996). Countries with some of the most protectionist policies experienced production surpluses and the resultant budgetary pressures created strong domestic opposition (Anderson et al. 2001). It became clear that agricultural intervention based on price guarantees and other market insulating policies led to overproduction, which in turn brought about market distortions and disagreements in multilateral trade policy negotiations.

During the 1980s, it also became evident that problems affecting international agricultural trade were beyond import access limitations. To address the problem, disciplines should be imposed on all measures distorting trade, including export subsidies and domestic policies. As a result of trade discussions, budgetary pressures and other causes, since the inception of the Uruguay Round of the GATT/WTO, many domestic policies underwent significant reforms worldwide. In a trend towards decoupling farm programs, many of these reforms were characterised by the implementation of direct income support payments and the reduction of price management programs (Canada, Mexico and the U.S. are good examples of this reform trend). Not being an exception, the EU reformed its CAP in the 1990s. 1990s CAP reforms represented an important shift in the farm support policies provided by the EU, signalling the transition toward a new policy environment characterised by less government involvement in agricultural markets. Price support policies were reduced. To compensate farmers for their income loss, direct income payments were introduced and/or increased.

As noted before, price support programs have caused important distortions in international markets and damaged the competitiveness of trading partners. The OECD Policy Evaluation Matrix (PEM) recently confirmed the common understanding that national support measures affect other countries through trade and world prices (OECD 2000). The PEM also confirmed that the extent of the impact varies with the implemented measures. Direct payments have, in principle, fewer impacts than market support measures on trade and economics welfare. 1990s CAP reforms should, accordingly to OECD conclusions, have reduced the distortion effects of the EU farm policy by reducing the influence of this policy on production and marketing decisions. However, given that the production of the agricultural commodities affected by the 1990s CAP reforms across the EU is characterised by different cropping systems, scale of operations, management, etc., a regional assessment will be necessary. We hypothesise that the impacts of the reforms on the EU regional supply decisions will be distinct, as a result of the different farm structures of the regions. For example, the extensification measures introduced with the reforms of the CMO for beef and veal might have had a different impact on EU regions depending on the livestock densities in each region.

A theoretical model based on a dual indirect utility-of-wealth function will be developed to model agricultural decisions, including supply decisions. In the empirical analysis a parametric form of the theoretical model will be specified and estimated. To the extent possible, the empirical analysis will be based on farm-level data that will be used to estimate the model. In order to assess the regional impacts of the CAP, the model will be estimated for different sub samples each one including different types of regions. Simulations of the effects of future policy changes will be considered.

5.3.2 Area Case Studies

5.3.2.1 General Understanding

The case- study approach is not always understood in the same way. Neglecting the ongoing debates between “quantitative” and “qualitative” scientists about the

definition of the “case-studies”, the general approaches and methods to be used to in our area case studies to test hypotheses are described below. A bibliography of case study methods and list of selected previous studies using this approach is provided in Appendix 3.

The **origins** of the case study approach are to be found in clinical medicine and in law. In the first, the case study was to complement mass evaluations of drug effectiveness by studying in greater detail a small number of patients' well-being after drug treatment. In the second, previous legal cases were analysed and referred to in ongoing law suits (especially in the British and American legal system). From these origins the case study approach quickly spilled over into the social sciences, e.g. education, anthropology, and sociology. Thus the focus was expanded from studying only individuals to studying groups of people. It was this shift that finally paved the way for the adoption of the case study approach by management science and economics (e.g. intra-organisational decision-making, location behaviour of firms) and the newly emerging planning sciences (e.g. development project comparison and evaluation). As of today, the case study approach has reached both conceptual and operational maturity and is a well established, respected and frequently applied social research approach (see the attached selected bibliography on its methodology and application).[7]

A classic **definition** describes the case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used" (Yin 1994, 23). Therefore, a case study is an **approach**, not a method; in fact the use of several different methods (both quantitative and qualitative) is typical for a case study. The contemporary phenomenon to be studied could be a project, an organisation, a programme, or a region. So the unit of analysis is an existing group of people, who are joined by a common feature like a goal that they strive for, and not a geographical area. Nevertheless, the 'real-life context' (which geography is one part of) is very important in case studies. In effect a case study always investigates the interrelations and interactions between that context and the group processes of the persons to be studied. A second focus is the interrelation between individual perspectives/attitudes and real behaviour, thus the intentions stated by persons or organisations is always compared with observable, real consequences (here the reaction on specific CAP/RDP measures). In the end a case study can be used for a variety of different objectives: to describe the context of a phenomenon and the process of the phenomenon itself; to test (validate, modify, or falsify) hypotheses that try to explain causal links or to generate new hypotheses about hitherto unknown relations. Case studies can therefore apply both deductive and inductive research strategies. They seem to be especially suited for exploratory and explanatory purposes, though, focussing on 'how' and 'why' questions instead of 'how often' or 'how many'.[8]

This last point leads us to a **comparison** of the case study approach with other research approaches in light of ESPON 2.1.3. Project. Other possible research approaches are history research, action research, experimental research, and survey

[7] See Jüttemann 1981, Mayring 1990, Campbell 1988 and Bromley 1986 for more on the origins of case studies.

[8] See Marshall/Rossman 1989, Yin 1993 & 1994, Stake 1995 for more on basic features of case study research

research. In the following we want to explain why the case studies are a very appropriate research approach for the ESPON 2.1.3. Project.

***Control over variables and subjects*:** The aim of this research is strictly not to make an intervention into the studied regions. Therefore action research, where the researcher is taking an active part in changing the studied phenomenon, can be ruled out. Likewise in the experimental research the subjects of the study are being isolated and one variable is manipulated for testing the change effects. This is neither feasible nor desirable for this research project. This precondition is also an impediment for a survey research, because the instrumental variable cannot be manipulated and resulting effects be measured, thereby reducing the analysis to variations which can be observed between cases (Fekade 1994; Yin 1994).

***Cause-effect relations*:** The aim of the proposed research project is not just to observe and describe actions and consequences, but also to explain the relationships between both. Experimental research is clearly trying to identify cause-effect relations, but under 'artificial' conditions. In contrast, surveys measure, on the basis of 'natural' empirical evidence, the correlation's between different variables. However ambitious and advanced methods one uses, statistical correlations do not necessarily prove logical and real-world causalities. The case study approach is generally considered to be better able to identify and examine cause-effect relations in this respect, especially when recognising the dynamic nature of such causal relations (Yin 1993; Patton 1987).

***Participation*:** One distinguishing advantage of the case study approach is its ability to (e.g. in the course of personal face-to-face encounters in open-ended interviews) discover and reveal new, latent or heretofore hidden information. This information might be the key to understanding adoption processes of CAP/RDP measures and developing new or revising old hypotheses and variables. If the researcher is able to create a dialogical, participatory working relationship, he or she can later communicate the final results back to the informants, thus giving them a chance to validate or refute the researcher's interpretations and increasing the validity of the whole research (Mayring 1990 and Lamnek 1993).

***Feasibility*:** The proposed research is a comparative analysis of regions in the way in which they are affected by different CAP/RDP measures. Given the time and resource constraints it is not possible to carefully study many regions to prove the stated hypotheses and more specific the impact changing CAP/RDP has had on their regional development in terms of regional cohesion and on their environment. The exact size of the sample is especially crucial for a survey because it determines the validity and generalisability of the survey results. For the case study approach this issue is less important because it does not aim at reaching representative findings. At the moment the number of cases to be analysed in year 2 to test and probably improve the hypotheses can not be given. This also will depend a lot from the specific case-study-method applied. As far as real field studies (interviews, participatory observation, analyses of documents etc are necessary) the numbers are very limited[9]. As far as desk research will be sufficient, a larger number of cases can be analysed but as above case studies do not aim at giving representative results. Case studies apply what is known as purposeful or theoretical sampling. This means that the theories/hypotheses to be tested determine the cases to be selected. A researcher

[9] E.g by using the fact method

would specifically select those cases that can possibly further or falsify the original propositions. Thus analytically deviant cases (whether positively or negatively deviant cases) are at the centre of a case study approach. The aim is to examine in detail the typical/critical patterns of action that lead to these deviations. The case study approach finally leads to **analytical and not statistical generalisations**. The results might therefore not be transferred to the whole universe of (rural) regions in Europe (as would be the case in a statistical survey) but rather shed light on exemplary performance.

Since the ESPON project is an applied research in the sense that it aims at understanding the cause-effect chains between CAP/RDP policy measures and their regional impacts in different national and regional contexts as well as finally making proposals for improving CAP/RDP and as far as possible to synchronies it with the "first priority goals" of the EU the case study approach is one research approach within the methodological mix (Morse 1991, Uphoff 1992 and Yin 1994).

Appendix 4 provides some short definitions, indicating in a telegraphic style further sub-methods and variations of the case-study-approach.

The above points should have made clear, that also the case study approach, focussing on a limited number of cases in in-depth field work phases, is both conceptually and operationally a very appropriate and justified research approach for reaching the objectives of the project. Nevertheless, in order to compensate for inherent weaknesses of the approach (e.g. limited generalisability) we are using the case study approach in combination with other statistical methods.

Within the wide range of different methods to be used within the case-study-approach the following is being considered for the second year of ESPON project 2,1,3..

5.3.3.2 Proving Hypothetical Cause Effect Relation by the FACT Method

The FACT method (**F**ocussed **A**ssessment through **C**ause-effect **T**racing) aims, through the use of field-studies, to prove step by step the underlying chain of cause-effect relations using different tools like analyses of documents and reports, interviews, participatory observation, etc. The FACT method was developed at the Institute of Spatial Planning at the University of Dortmund within the framework of the EU research project PRIDE (Partnerships for Rural Integrated Development in Europe) funded by DG Agri[10].

For the ESPON 2.1.3. project a reduced version can be applied as far as remaining resources will allow. The crucial methodological challenge within this project, is to discern if any and which portion of the overall outputs and outcome is attributable to the CAP/RDP policy and its changes. Thus the causal linkages between the CAP/RDP measures and specific outputs need to be established and validated. Standard evaluation methods often do not explicitly focus on the underlying causation mechanisms but simply compare inputs or measures with the outputs of the studied

[10] See Kroës, G. , Lückenkötter, J. In: Partnerships for Rural Integrated Development in Europe, Final Report, just published

projects or programmes and does not prove the causal relations between the two. In contrast the FACT-method concentrates on identifying modifying, detailing, and investigating so-called “cause-effect-chains” which lead from CAP/RDP measures to their regional outcome.

The idea for this tracing technique came from what in the evaluation literature is sometimes called a “causal model,” i.e. a graphic depiction of a causal theory. But instead of using such a model for communicating a theory or the results of a study, the FACT method uses graphic cause-effect chains as a central tool for the empirical work of the impact study.

The Fact method as developed for the PRIDE-project was embedded into a set of other statistical (survey, feedback-survey) and qualitative methods (literature analyses, and another case-study approach) and composed of the following techniques and phases:

Step 1: Hypothesis generation:

In order to make maximum use of the already existing and collected knowledge about the impact of CAP/RDP measures and to guide the field work hypothetical cause-effect (or impact) chains were already developed as described in Chapter 3.

Drawing on the various research outputs of the previous tasks, visual depictions of the plausible cause-effect chains have to be generated in more detail, using a blank 'Flow-chart diagram'. The starting point for such a hypothetical chain could be either a *possible impact determinant* (Which feature could have possibly influenced the outputs/outcomes of the partnership?), *a relevant output or outcome* (Which output/outcome might have been affected by which CAP/RDP measure?), *relevant intermediate link* (Which everyday or extraordinary event, which is related to the CAP/RDP policy could have had an effect, e.g. changing crop growing pattern?), or the *programmatic logic* of the CAP/RDP policy (How did these measures plan or ideally expect to produce outputs and outcomes?).

Step 2: Identifying resource persons and secondary data sources

Based on the earlier results a very limited number of well selected case-study-regions have to be selected for further in-depth studies to prove the relevance and reliability of the generated and improved hypotheses. Resource persons have to be identified and contacted for interviews and relevant material and secondary data has to be selected and analysed. The researcher is encouraged to use the hypothetical impact chains to identify whom else he/she needs to interview and what data to collect. They are also advised to interview people from 'inside' and especially also from 'outside' the agricultural sector so as to ensure a wide range of perspectives to be captured.

Step 3: Building cause-effect chains

'Building a cause-effect chain' means first of all collecting and bringing together the necessary information and data to factually back up a cause-effect chain. This

involves a series of complex, detective-like research activities in which data collection and data analysis are closely connected. For 'building a chain', different types and sources of data have to be used (triangulation). In the end, a short summary text should be written and a flow-chart been drawn to visualise the causal connections and overall 'flow' of the chain. For this documentation a standard format will be used (adopted 'FACT-Sheet'). This FACT-Sheet is also useful for the reporting of results of all subsequent analytical steps. It thus serves as the main tool for guiding the investigation of each impact chain. A standard interview guide is not appropriate because the 'puzzle-like' nature of the investigation of each impact chain will result in interviewing strategies which need to vary depending on the type of chain, the stage of the 'chain building' and the position of the interviewee in the chain. Allowing for flexibility in the execution of the field work and having a standard reporting format as the 'guiding light' at the end of the analysis proves to be a good combination.

Step 4: Testing the cause-effect chains

In order to check the logical and empirical soundness of an impact chain, three 'tests' should be conducted. This is important to prevent jumping to conclusions too quickly and building a cause-effect chain on rather shaky evidence. Both happen very easily because we usually tend to see patterns and connections between events/processes if we only want to see them. Therefore, to safeguard against hasty 'chain building' each researcher is asked to deliberately look for (a) negative/rival evidence (facts), which would completely contradict/disconfirm the hypothetical chain. In a further step each researcher is asked to go even further and (b) actively generate and check rival explanations ('theories') which would contradict/disconfirm the hypothetical impact chain. This means playing the "devil's advocate" and trying to analytically challenge the prepared impact chain. Finally, based on both of these exercises and the amount and reliability of the data used to back up the impact chain, each researcher will have to rate the (c) degree of confidence she/he has in the correctness of the chain. The FACT-sheet provides sub-sections for reporting the results of these tests. In retrospect, these exercises have been very helpful for becoming aware of logical 'blind spots', empirical gaps and unfounded confidence in data and explanations when applying it in the PRIDE project. However, since this step was often conducted when already back from the field, it was a demanding, and sometimes very time-consuming operation to e.g. make follow-up phone calls if any of these tests brought up serious gaps.

Step 5: Qualifying the cause-effect chains

In order to assess the scope of an impact chain, two key characteristics were assessed. The first regards the degree of context-relatedness of a cause-effect chain. Here the researchers are asked to assess whether in their own judgement the chain (a) depend highly on the very specific and rare regional circumstances and could thus not be generalised at all, or (b) if the chain related mainly to contexts or processes that are often or typically found in a specific type of regions, so that the chain could be generalised to all regions of this type, or (c) if the chain is based on contexts or processes of a more universal nature, so that the chain could possibly be generalised to a European level. This analytical exercise can be performed relatively quickly. But it has to be realised that researchers often tend to be very guarded as to how far a chain could be generalised to other contexts, whereas, after all findings had been

pulled together, it might become apparent that many chains do indeed resemble each other. Here the results of the statistical analyses have to be compared with these results whether they back the findings of these case-studies or not.

The second analytical exercise consists of assessing the degree of the CAP/RDP measures effect. As far as the impact could not be measured before, the researchers are to rate on a three-point scale how much relative influence the identified CAP/RDP measures had on the identified outputs and outcomes of the chain - in other words, to what degree the CAP/RDP measures influenced the identified outputs or outcomes in relation to all other influences. We are aware that, as shown in other applications of the FACT method, such an assessment is often almost impossible as it mostly require much more information on 'all other influences'. Nevertheless the exercise has proved to be a worthwhile mental activity to look at an impact chain from this angle and at least 'think through' the assessment. It will depend on the previous results whether these can be used for any subsequent analytical steps, but in any case it forces the researcher to reflect his results very critically and nevertheless maybe reported in the FACT sheet.

It has to be expressed once again, that the central question to be answered by this method is *which CAP/RDP measures* were determining *which kinds of regional impacts* (positive or negative) on social and economic cohesion and environmental development or protection in comparison to other factors. Thus it will not be necessary to deal explicitly with the multi-causality problem.

Step 6: Describing and specifying the impacts

After testing and qualifying the cause-effect *chains* in the field the focus of the next steps are the impacts themselves. In step 6 the researchers have to provide as much empirical evidence for the existence of the impacts as possible. Thus they have to document in an appropriate section of the FACT-sheet all qualitative and quantitative information for a) each output and b) each outcome of a cause-effect chain. Note again that within this exercise we will not try to measure or assess how much of that output or outcome was due to the cause-effect chain and how much was caused by other, non CAP/RDP measures related factors (e.g. harvest disasters). In this step we only have to document that the outputs or outcomes identified by the cause-effect chain indeed exist and were not a fictional construct of the researcher or interviewees or showing a high statistical evidence/significance but in reality were caused by other determinants than by EU agri-policy (but e.g. by the reunification of Germany)

Step 7: Qualifying the impacts

In the 7th step we have to qualify what impact the outputs of a cause-effect chain will have on cohesion and environment. Three straightforward assessment exercises can be used. (1) For each outcome the effect has to be assessed, e.g. whether, because of a specific regional context, only this case-study region is affected, only a few regions with similar conditions or which type of regions, etc. (2) Likewise, the mainly affected social group have to be identified, e.g. only large-scale farmers, only tobacco farmers or the entire regional population. (3) Finally it had to be assessed which regional context was mainly affected (built environment, natural environment, economic context, social context, socio-cultural context, administrative/institutional

context or political context) Because of very limited resources all these assessments have deliberately to be kept very simple, thus requiring only an informed estimation by the researcher who will have investigated the chain.

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Step 8: Validating the cause-effect chain findings

In order to increase the validity of the documented cause-effect chains, at least two people (preferably one directly affected, maybe the regional representative of the farmers, one from outside the target groups) have to validate the findings of each cause-effect chain. Researchers should be given a relatively free hand as to how they conduct the validation exercise (mostly by telephone). The valuators were asked whether or not they confirm the chain, what (if any) qualifications they propose and how important they think the chain is. The names of the valuators and the responses of the valuators have to be documented in the FACT-sheets. Overall the validation is a very time-consuming exercise, but it meanwhile has been proved to be very useful for 'polishing up' and 'filling in gaps' - or correct false assessments due to prior misunderstandings.
The validation exercise will end with the identification and detailed analysis of each chain. A filled-out FACT-sheet including the corresponding flow-chart might easily have 10 pages[11].

Step 9: Designing the cause-effect matrix

In order to get from the individual cause-effect chain to regional type related findings, the chain data had to be aggregated. To this end a so-called cause-effect matrix has to be developed juxtaposing the causes/determinants/measures (rows) with the effects (columns). On the basis of the field work and completed analysis of the individual cause-effect chains an internal workshop at a project meeting should be carried out with the aim of identifying the key measures and effects to serve as the basis of the cause-effect matrix. In the end a certain number of determinants, here different CAP/RDP measures, have to be agreed and the most important (in terms of quantity, i.e. TIAN and/or positive and negative effects i.e. TIAs) have to be identified.

The determinants are ordered according to the categories of measures used and defined earlier to ensure a common understanding of demarcation. Likewise the most observed (and relevant?) effects have to be defined.

The final steps in the fact method consist of filling in a in a cause-effect matrix for the respective case study area, analysing and comparing the impact results on a case by case and cross-case basis at national level and finally, carrying out an international-level impact analysis through a combination and analysis of national results. .

Reflection

[11] In the PRIDE project all in all 182 cause-effect chains were identified and documented, i.e. on average about 30 per country or 7-8 per partnership. This database of about 1,800 pages of data constituted the basis for all following research activities of the Impact Study.

The methodology for the Impact Study was a central element of the overall PRIDE research. It was closely related to the previous tasks of the **Literature Review**, the **Extensive Survey**, and the **Practice Study**, which delivered important information about the context and the functioning of the partnerships. Therefore the impact methodology was able to right away concentrate on an in-depth analysis of cause-effect relations underlying the value-added effects of the partnership approach. The Impact Study was also closely linked to the subsequent **Feedback Survey**, which was to check the generalisability of findings emanating from the Impact Study. These backwards and forwards links were crucial for increasing the internal and external validity of the overall results.

Concerning the methods employed in the Impact Study, it proved to be the right decision not to apply well known standard methods as originally planned (multi-criteria analysis, utility analysis), but to develop the tailor-made FACT-method, which allowed a careful and systematic analysis of the real cause-effect relations between relevant elements/characteristics of the partnership approach and the impacts each of them had on integrated rural development. This method allowed to check and validate the cause-effect links and - in combination with the subsequent **Feedback Survey** - provided a solid base for political conclusions and recommendations. But it was recognised that the FACT analysis was more time- and labour-intensive than originally expected, although the solid results in the end justified this extra work.

In the end it was probably one of the most important features (and strengths) of the FACT methodology to successfully combine different approaches and techniques, e.g. using quantitative and qualitative data (triangulation), combining deductive and inductive approaches (hypothetical cause-effect chains, 'chain building), ensuring a common understanding of major concepts (definitions), allowing for flexibility and ensuring scientific rigour ('detective-like' fieldwork, FACT sheets) and combining in-depth analysis of single cases with highly aggregated international comparison (cause-effect chain investigations, cause-effect matrix).

Consequences for the ESPON project:

All these experiences with the FACT method can be used for the ESPON project as well. But as it provides a complex set of different techniques out of this toolbox the most relevant tools have to be selected and critically to be adapted to the specific demands of this ESPON project. The details have to be and only can be discussed and decided after the first more quantitative results are available. Not all of the above described steps must and can be done. Fore instance unlike the research on the value-added of the partnership approach in this project the relevant determinants of the input are already well determined by the different CAP/RDP measures. Therefore the main aspect within this project is to test and reflect the reliability of the hypothetical cause-effect relations described in chapter 4. Additionally the employment of the FACT method might help to associate the different proved impacts to the different types of regions.

6. Progress Report on development of database, indicators and map-making

6.1 Objectives, structure and content of the database

The starting point, in terms of database content, is the list of proposed priority indicators submitted with the First Interim Report. This was presented both as a table within the text and as an accompanying Excel spreadsheet. The latter was structured according to potential source:

(a) One sheet listed variables which it was known could be derived from Eurostat's REGIO (New Chronos) database.
(b) A second sheet listed variable relating to CAP and RDR related expenditure, for which the best source was assumed to be DG Agriculture.
(c) A third sheet contained miscellaneous indicators which were felt would be required for analysis, but for which no exact source had yet been identified.

Subsequent to submission of the project's first interim report a full copy of the REGIO database was received. This enabled all the variables listed in (a) above to be extracted and re-formatted according to guidelines provided by Project 3.1.1.

With regard to the CAP/RDR expenditure data, approach has been made to DG Agri. The level or "incidence" of CAP support and rural development support measures accruing to each NUTS III region are key indicators for the project, necessary for both Territorial Impact Analysis (TIAn) and Territorial Impact Assessment (TIAs) of the CAP and RDP. These are the primary independent variables in almost all of the hypotheses described in Chapter 5. However it soon became clear that DGAGRI do not have expenditure data for NUTS III regions, and that, in order for analysis to be carried out at this level, the project team will require some form of allocation model. This is described above (Section 6.4 below). The method for estimating the level of market price support received by producers at NUTS III level is described separately in section 6.5.

An alternative source of subsidy incidence data (per farm and excluding d market price support) was identified in the FADN database. These data have been acquired by downloading from the DG Agri website. The non-standard regional structure required allocation of NUTS II and NUTS I averages to constituent NUTS III regions.

With regard to the third group (miscellaneous indicators for which no source had been identified) some progress has been made. However further refinement of the list of hypotheses (Section 4 above) has provided a context for a more focussed approach, in which variables and indicators are sought in order to satisfy specific analytical requirements. A list of the data required for testing each hypothesis, together with sources, is provided in Appendix 2. Many of the variables were anticipated in the table provided with the project's first Interim Report, and these have already been extracted and presented in ESPON format. Work to add the remaining variables/indicators is well advanced.

6.2 Sources

Data has been acquired from the following sources:
(a) Eurostat (New Chronos) REGIO
(b) DG Agriculture - FADN
(c) Eurostat (New Chronos) Eurofarm
(d) DG Agriculture – CAP/RDR Expenditures
(e) Corine Land Use Data
(f) National Statistical Offices

Clearly most of these sources relate only to EU15 or EU15+the candidate countries. Data collection to extend the coverage of the candidate countries and the EFTA countries will continue, in tandem with pilot analysis using EU15 data.

6.3 Data manipulation and formats

Data has been supplied to the project team in a variety of formats. It has proved a significant task to manipulate/reformat the data into tables compatible with the guidelines provided by ESPON project 3.1.1. Currently the data are held in a series of simple Excel spreadsheets, which may later, if appropriate, be imported into a single Access database.

Further manipulation has been carried out with a limited number of indicators to replace missing values (at the NUTS III level) with higher level averages, and to reconcile non-standard region lists. Further detail is provided in Section 8.

6.4 Method for Apportioning Agricultural and CAP/RDP Expenditure Data To Nuts III Level

As noted above, very little of the raw data in the REGIO database is available at NUTS III level. Indeed, the only indicator from this dataset widely available at NUTS III level relating to agriculture is employment in agriculture, forestry and fishing (derived from the Regional Accounts). Similarly the FADN dataset only provides data at NUTS II or NUTS I level, and sometimes in non-standard areas. Finally data on CAP and RDP expenditure is not available at NUTS III level.

Data from EUROFARM dataset, containing results from the EU surveys of the structure of agricultural holdings provides a far richer source of indicators on the agricultural sector at NUTS III level. However, the EUROFARM dataset relates only to Member States, not CEEC or EFTA countries and, even in relation to the EU 15, has incomplete coverage (see Table 6.1 below). Therefore, a method was developed to apportion indicators required for analysis either from the REGIO, FADN or CAP/RDP databases from NUTS I or NUTS II to NUTS III level.[12]

[12] A similar method is proposed to apportion CAP market price support - see Section 6.5 below.

Table 6.1 Coverage of selected datasets for project 2.1.3

Country	DATASET		
	FADN	EUROFARM	REGIO
BE	Country	NUTS II (Incomplete)	NUTS III or II, dep. on var.
DK	Country = NUTS I = II	NUTSIII (Some aggregated)	"
DE	NUTS I	NUTS II (Incomplete)	"
GR	NUTS III Groups but not NUTS II or I (?)	NUTSIII	"
ES	NUTS II	NUTSIII	"
FR	NUTS II	NUTSIII (Incomplete)	"
IE	Country = NUTS I	NUTS III (1995 version)	"
IT	NUTS II (some NUTS III)	NUTSIII	"
LU	Country = NUTS I = II = III	NUTSIII	"
NL	Country	NUTS II	"
AT	Country	NUTS II	"
PT	NUTS III groups, sometimes incl. NUTSII	NUTSIII	"
FI	NUTS III Groups	Mainly NUTSIII (some II)	"
SE	NUTS III Groups	NUTSIII	"
UK	NUTS II or NUTS II Groups	NUTS II	"
BG	no	no	NUTS III or II dep on var. (few available)
CY	no	no	"
CZ	no	no	"
EE	no	no	"
HU	no	no	"
LT	no	no	"
LV	no	no	"
MT	no	no	"
PL	no	no	"
RO	no	no	"
SI	no	no	"
SK	no	no	"
CH	no	no	no
NO	no	no	no

The method chosen for apportionment of higher-level data on farm numbers, crop areas, livestock numbers, subsidy receipts, etc. to NUTS III level was based on the following core set of agricultural land-use variables available at NUTS III level either from EUROFARM or national sources:

1. Arable Area (ha)
2. Permanent Crop Areas (ha)
3. Utilised Agricultural Area (ha)
4. No. of Dairy Cows
5. Total number of beef animals (or total cattle less no. of dairy cows)
6. Total no. of sheep and goats
7. No. of Agricultural holdings/farms
8. No. of Agricultural Work Units (or agricultural employment)

The actual variable used to allocate an indicator from NUTS II to NUTS III depends on the indicator to be apportioned. For example, in the case of disaggregating the total level of feed used for grazing livestock, the sum of variables 5 and 6 is used, on the assumption that the relative proportions of total grazing livestock is consistent with the relative proportion of feed used in each component NUTS III region. Similarly, in allocating total cereal compensation payments from NUTS II to NUTS III level, variable 1, the arable area of each NUTS III region is being used as the apportionment variable. As indicated by these examples, the method relies on the assumption that the actions of farmers (in relation to feed per livestock unit in the first case, enrolment on the arable payments scheme the second) does not vary significantly within each NUTS II region (or varies to the same extent within each NUTS III region). The list of apportionment variables applied to FADN variables is given in Appendix 5.

The process of collecting apportionment data from national sources has commenced, but may be a lengthy process and may not provide sufficient data for analysis to take place at NUTS III level across the whole European territory. However, even limited success will significantly improve the basis for analysing the territorial impacts of the CAP and RDP than presently available from EU datasets. Moreover, as described in Chapter 5, the case study work in year 2 of the project will provide a strong basis for analysing the Territorial impact of the CAP and RDP at a more localised level.

Table 6.2 indicates the country responsibilities for each partner in the project. In the case of national data collection, data for 1990 and the latest year available is being collected.

Table 6.2 Partners leading the search for apportionment variables by country

Partner	Country
Aberdeen	UK
(with assistance from Madrid)	Switzerland
	Spain
	Portugal
Maynooth	Ireland
	France
	Belgium
	Netherlands
	Luxembourg
NIFL	Norway
(with assistance from Nordregio)	Sweden
	Finland
	Denmark
Dortmund and Budapest	Germany
(with assistance from Budapest and Nordregio)	Bulgaria
	Cyprus
	Czech Republic
	Estonia
	Hungary
	Latvia
	Lithuania
	Poland
	Romania

	Slovenia
	Slovakia
	Turkey
	Iceland
	Liechtenstein
	Malta
Wien	Austria
	Greece
	Italy

6.5 Method for Estimating the level of Market Price Support received by Producers at Nuts III Level

As discussed in Chapter 2, market price support was historically the principal form of support given to EU farmers and still accounts for 58% of total CAP support as measured by the OECD's Producer Support Estimate (OECD, 2002). Market price support is fundamentally different from the other types of support given to EU farmers in that, for each affected commodity, it is an indirect transfer from both consumers and taxpayers arising from policy intervention which creates a gap between domestic market prices and border (import) prices. Consumers and users of these products pay through prices which are usually higher than would otherwise obtain, and EU taxpayers must finance public storage operations and export refunds (subsidies). Table 6.3 gives a broad indication to the extent to which the level of market price support given to different commodities varies, and how it has changed over time through various reforms of the CAP.

Table 6.3 EU-15 Producer Support Estimates by commodity showing relative importance of market price support

Commodity	Total PSE (EURmn)		percentage PSE[1] (%)		Share of Market Price Support[2] (%)	
	1990	*2000*	*1990*	*2000*	*1990*	*2000*
Wheat	6111.6	9903.4	38.6	46.3	79.1	10.4
Maize	2365	2972.4	50.2	40.6	90.3	30.5
Oilseeds	3665.1	2085.4	63.7	41.8	0.0	0.0
Milk	21335.6	16751.7	62.4	42.5	92.1	89.4
Beef and Veal	14426.4	18948.8	61	77.7	82.6	62.6
Pigmeat	3320.3	4621.5	16.8	19.4	81.4	83.5
Sheep meat	4271.5	3550.1	71.7	53	54.4	21.8
Poultry meat	1667.1	4661.6	21.5	52.5	85.4	93.6

Notes:
[1]Percentage PSE is defined as the ratio of the value of total gross farm receipts divided by the value of total production. The higher the percentage, the greater the support given to the commodity.
[2] This indicates the importance of market price support in relation to the total support given to a commodity.

The method proposed for estimating the incidence of market price support in each NUTS III region follows broadly that used in the preparatory study on the CAP for the Second Cohesion report.

In particular, using data from the 2002 OECD Agricultural databases, the total value of market price support for each commodity[13] measured at the farm gate is allocated first to country level and then to NUTS II and finally NUTS III level using as the apportionment variable the value of output of each commodity produced. This top-down approach will ensure that the results remain consistent with relevant EU totals.

Market price support for each region (mps_k) is then found as the sum of price support for each commodity i:

$mps_k = S_i\, mps_{i,k}$ for i = 1 to n.

6.6 Progress with Map Making

Progress with map making is contingent upon overcoming the inadequacies of the data as provided (see Chapter 8). However a limited number of maps have already been created as a means of piloting methodologies to handle incompatible geographies and the large number of missing values at NUTS III level. These are included in Chapter 7.

To illustrate some of the problems being encountered, two examples are discussed. The first example (Figure 7.4) shows the percentage of farm holders who were over 65 years old in 1999, and is based upon data from the A2EFARM table within the REGIO database. As its name implies, the source table is based on a NUTS II geography. However, in large areas and some entire countries data are missing at NUTS II. However some data is available at NUTS I and, failing this, at NUTS 0. In order to avoid large areas of Europe being blank in Figure 7.4 a simple methodology was designed to apply to each NUTS III region the data from the lowest available region level. In this way 42% of the 1,093 EU15 NUTS III regions were allocated NUTS II data. In a further 52%, NUTS I data was the most detailed available, and in the remaining 6% NUTS 0 was the best option. The distribution of these regions is shown in Figure 6.1. The pattern of missing values in A2EFARM is not untypical of REGIO tables, and it is anticipated that this procedure will be necessary for the purpose of mapping the majority of indicators derived from this source. This procedure is not appropriate for prepare data for statistical analysis,(such as regression analysis) since it artificially modifies the pattern of variability within the dataset.

The second example (Figure 7.10) is based upon FADN data, and shows the level of subsidies per hectare of utilisable agricultural area (UAA). The FADN list of regions is a mixture of NUTS III, II and I. In order to draw the map a similar approach has been taken to the REGIO data above, although in this case the raw data is not presented in a hierarchical form, and therefore, in a limited number of cases it is not possible to allocate data to NUTS III regions[14].

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[13] 17 different commodity categories are specified in the OECD database.

[14] These are generally tightly bounded urban areas, but in a few cases (such as in SW Sweden) the problem derives from recent changes to the NUTS map.

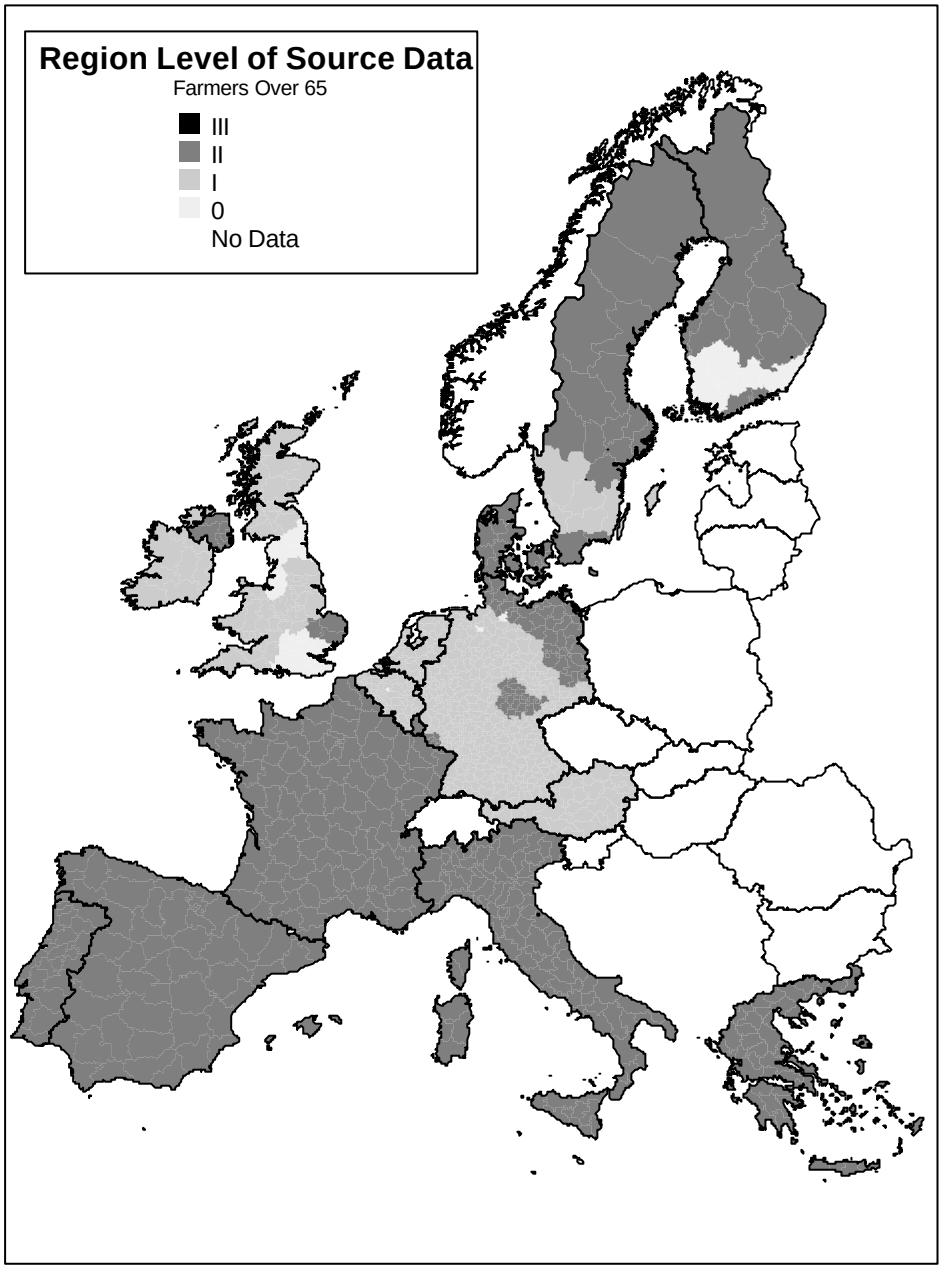

Figure 6.1

7. First analysis of the EU Agricultural and Rural Development sector

Please see annex to this report for this chapter

8. Revised and extended list of indicators required for analysis

8.1 Incomplete Datasets

The relatively large number of missing values in the REGIO datasets has already been alluded to in Section 7. Table 8.1 below illustrates the issue with a selection of REGIO variables. The demographic, employment, unemployment, and GDP variables all have less than 10% of NUTS III/II regions missing. However the agricultural variables, and the more detailed employment datasets (all at NUTS II in any case) have missing data for from 19% to 78% of regions.

Table 8.1: Completeness of REGIO Datasets

Variable	Regio source file	CEEC file name	Lowest NUTS level	% Missing Values at lowest NUTS level
Total area of the regions NUTS III	D3AREA	XDAREA	III	4
Total area of the regions NUTS II	D3AREA	XDAREA	II	7
Population density	D3DENSIT	XDDENSIT	III	4
Pop 0-20 years	D2AGE80	XDAGE80	II	6
Pop 60 years plus	D2AGE80	XDAGE81	II	8
Annual ave female pop	D3POP	XDPOP	III	6
Annual ave male pop	D3POP	XDPOP	III	6
Total population	D3POP	XDPOP	III	4
Number of agricultural holdings	A2EFARM		II	65
Total livestock units	A2EFARM	XAANIMAL	II	78
Number of farmers 65 plus	A2EFARM		II	65
Number of farmers under 35	A2EFARM		II	65
Utilized agric area	A2EFARM		II	38
Arable land	A2LAND	XALAND	II	27
Permanent crops	A2LAND	XALAND	II	26
Permanent grass	A2LAND	XALAND	II	19
Fallow land	A2LAND	XALAND	II	44
Unemployment rates	UN3RT	XUNRT	III	9
% employed in high-med tech industry	EHTRD		II	32
% employed in high tech industry	EHTRD		II	31
% employed in computer related act.	S2SBS	XSBS	II	63
Employment in agric forestry fishing	E3EMPL79	XE2EMPL	II	6
GDP in pps per inhabitant 95	E3GDP95	XEGDP	III	4

Clearly it is technically feasible to allocate to each NUTS III region the data for the lowest NUTS region in the hierarchy (as described in section 6.6). However this is only a reasonable thing to do when data is missing from relatively few regions. When the majority of NUTS III or II regions are blank the justification becomes rather more tenuous. Furthermore it is only correct to fill missing data cells in this way when dealing with ratio data. In cases where absolute variables are involved some form of apportionment using proxy variables is necessary. A very important example of this is the need to apportion total CAP/RDR expenditure to NUTS III regions. This has been described in Sections 6.4 and 6.5 above.

8.2 Incompatible Geographies

There are several issues relating to incompatible geographies associated with data supplied to the project so far. For instance, both the FADN and the Eurofarm use hybrids of NUTS I/II/III. In the case of the Eurofarm database these are known as "Districts". Although it is a relatively simple task to allocate data to constituent NUTS III regions for mapping purposes, although it would be necessary to be cautious in the use of these data in statistical analysis at the NUTS III level.

A more substantive problem of incompatible geography relates to land use or environmental datasets which are stored in raster format. A good example is the Corine database, which contains a number of land use variables on an 800x800m grid square basis. To generate NUTS III totals from the grid square data requires a GIS facility. The project team are grateful to Javier Gallego of the Joint Research Centre in Ispra, Italy for his assistance in this.

8.3 Data Requests

A number of important data sets, defined in a way compatible with analysis at NUTS III level, have been requested (or promised) but are still required in order to carry out Project 2.1.3 research tasks. These are mainly GIS coverages from GISCO:

1. Inventory of sites designated under community/national legislation (DAEUINPT/DAEUINPTV2)
2. Less Favoured areas (LDEC1MV2/LDEC3MV2)
3. LEADER LAG areas (LDEC1MV1)
4. Structural Fund designations (SFEC3MV1/SFEC1MV2-5)

The first of these would be used to derive a simple indicator of environmental quality for each NUTS III region. Dataset 2 has been identified as the basis of one of the key typologies for the project (see chapter 4 above). Finally, datasets 3-4 would be used to assess the territorial impact of the CAP within areas designated for various Structural Fund and rural development programmes.

References

Anderson, K., B. Hoekman, and A. Strutt. "Agriculture and the WTO: next steps." Review of International Economics 9 (May 2001): 192-214.

Boatman, N. et al. "The Environmental Impact of Arable Crop Production in the European Union: Practical Options for Improvement." Directorate-General XI of the European Commission, 1999.

Carneri, A., De Muro, P., Henke, R. and Scarano, G. (1996), Regional models of agri-food production in the European Union: some preliminary results, in: Sotte, F. (ed.), *The Regional Dimension in Agricultural Economics and Policies*, 40th EAAE Seminar, Ancona, Italy 1995, pp. 653-668.

Centre for Urban and Regional Studies, Helsinki University of Technology (2002), Urban-rural relations in Europe, ESPON 2006 programme, first interim report, Helsinki.

Dax, T. (1996), Defining Rural Areas - International Comparisons and the OECD Indicators, In: *Rural Society*, Wagga Wagga (Australia).

Dax, T. (1997), Rural areas - choosing the right level for policy analysis, paper to the 48th EAAE-seminar „Rural Restructuring within Developed Economics", 20th/21st March 1997, volume – session 1, Dijon.

Dax, T. (1999), The emergence of new uses for rural spaces and interrelations of rural and urban labour markets, in: Crampton, G. (ed.), *Regional Unemployment, Job Matching, and Migration*, European research in regional science 9, Pion Limited, London 1999, pp.221-234.

European Commission (1993) White Paper on Growth, Competitiveness, and Employment: the Challenges and Ways Forward into the 21st Century. COM(93) 700 final, Brussels.

European Commission (1988), The Future of Rural Society (Com(88)371 final), summary in Supplement 4/88 of the Bulletin of the European Communities, Luxembourg.

Fennell, R. The Common Agricultural Policy of the European Community. London: Granada. (1979)

Hassan, Z.A. "Agreement on agriculture in the Uruguay Round of GATT: from Punta del Este to Marrakesh." Agricultural Economics 15 (1996): 29-46.

Institute for Agricultural Policy (2000), Common Agricultural Policy Regional Impact Analysis (CAPRI), Final report, FAIR3 – CT96 – 1849, Bonn.

OECD – A matrix approach to evaluating policy: preliminary findings from the Policy Evaluation Matrix (PEM) pilot studies of crop policy in the EU, the US, Canada and Mexico, 2000. Internet site: http://www1.oecd.org/agr/Documents/pem117e.pdf (Accessed November 5, 2001).

OECD (1994), *Creating rural indicators for shaping territorial policy*, Paris.

OECD (1996), *Territorial indicators of employment, Focusing on rural employment*, Paris.

OECD (2001), *OECD Territorial Outlook*, 2001 Edition, Paris.

Terluin, I. (1996), The regional impact of direct income subsidies on agricultural income in less favoured areas of the EU, in: Sotte, F. (ed.), *The Regional Dimension in Agricultural Economics and Policies*, 40th EAAE Seminar, Ancona, Italy 1995, pp. 653-668.

Terluin, I. J. And Venema, G. S. (2003), *Towards regional differentiation of rural development policy in the EU*, Agricultural Economics Research Institute (LEI), report 6.03.01, The Hague, 234pp.

Weber, A., Strade, A. and Schön, K.P. (2000), Synthetic analysis of selected indicators for the spatial differentiation of the EU territory, Final Report, Study Programme on European Spatial Planning (SPESP), Strand I: Development of indicators reflecting criteria of spatial differentiation, Bonn.

Appendix 1 Development of Hypotheses

This appendix provides further details on the way in which the original hypotheses presented in the FIR have been reformulated in the light of discussion of the project partners.

CAP/RDP in general

Hypothesis number 1

Original formulation:

> The CAP impacts on different farm types tend to be more distinct than between different regions. In other words, the territorial impact of CAP is mainly determined by the different farm structures of the regions (e.g. different size, management, production orientation of farms).

High priority (test by relating the level or "incidence" of CAP support to farm type)

New formulation:

> The impact of CAP on the regions is mainly visible through the CAP impact on types of farms.

Independent variable: Total CAP support (direct and indirect)
Dependent variable: impact of CAP at regional level, measured by:

e.g.: - GDP by sector
- sectoral employment } at regional level (as data available)
- farm income

Intervening variable: farm type / farm structure
operationalisation of farm type / farm structure by: farm size, or/and product orientation of a farm

Hypotheses numbers 2 and 3

Original formulation:

> The CAP has the effect of slowing down changes in agricultural structures, e.g. farm numbers, sizes and type patterns. This stabilising effect has to be

assessed within the context of ongoing technological change and adjustments in farm management methods.
Because the CAP does not generally differentiate between the natural production conditions of regions, structural adjustment is relatively faster in areas of high agricultural potential because of technical bias and the greater market orientation of agriculture in more favoured regions.

High priority (to be linked together). Dependent variable in this case is structural change, so test by relating incidence of support to rate of change).

New formulation:

CAP does not generally differentiate between the natural production conditions of regions. That's why structural adjustment is relatively faster in areas of high agricultural potential because of technical bias and the greater market orientation of agriculture in more favoured regions. Reform of the CAP has affected the scope of structural change but this has been highly differentiated across space.

Independent variables: CAP expenditure (related measure)
Dependent variable: structural change, measured by

growth rate of agricultural GDP at regional (NUTS III) level in relation to total growth rate of GDP at regional (NUTS III) level
Intervening variable: degree of comparative advantage of the region

Hypothesis number 4

Original formulation:

The CAP has unintended side-effects, including ecological threats in certain areas (e.g. water quality, erosion), decrease of biodiversity and landscape quality, and out-migration from intensively farmed areas etc. These negative effects have a significant territorial dimension.

High Priority To be split into a number of separate hypotheses dependent on indicator availability. Replace "out-migration" with "population change and number of agricultural employees" (because of lack of data on former).

New formulation:

The CAP has unintended side-effects, that have a negative significant territorial dimension. This side-effects can be:

a) ecological effects such as decrease of biodiversity (floor loading) and landscape quality;
b) economic effects such as unemployment (or decrease of employment in agriculture sector);
c) social effects such as population change especially in intensively farmed areas.

Independent variable: CAP expenditure (relevant measures)
Dependent variable: unintended side-effects

a) decrease of biodiversity and landscape quality,

b) unemployment
c) population change

Hypothesis number 5

Original formulation:

> Changes in the levels of farm household pluriactivity are more strongly associated with variables reflecting the strength of the local economy than the level of CAP support.

High priority given its relevance to ESDP. Use part-time farming as indicator for pluiactivity since no better indicator is available. Use economic activity rates as indicator of strength of local economy.

New formulation:

> Changes in the levels of farm household, such as to part time farming, are more strongly associated with variables reflecting the strength of the local economy than the level of CAP support.

Independent variable: CAP expenditure
Dependent variable: diversity of farm household activity, measured by:
share of part time farmers
Intervening variable: strength of local economy, measured by:
share of non agriculture employment in total number of jobs

Hypothesis number 6

Original formulation:

> Changes in the CAP have had less immediate impacts on farm incomes and farm production methods than shocks to the agricultural sector such as weather, livestock disease and exchange rate fluctuations.

Low priority. Limited territorial dimensions.

Independent variable: - CAP expenditures
- shocks (as available e.g. weather, livestock disease [BSE, foot and mouth disease]; hours of sunshine) at NUTS III level
Dependent variable: farm income

Hypothesis number 7

Original formulation:

> The incidence of the CAP on NUTS III regions is not consistent with the cohesion objectives of the EU with the least prosperous regions receiving less CAP support than their more prosperous counterparts.

Very high priority. Linking CAP support per AWU to GDP per head (not CAP as % of total GDP or as % of total government expenditure). Note "consistent with cohesion", not necessarily "significant for".

Independent variable: CAP expenditure
Dependent variable: prosperity of a region, measured by:
GDP per capita and unemployment rate
Intervening variable: prosperity of a region, measured by:
GDP per capita and agriculture GDP per capita per NUTS III region

Hypothesis number 8

Original formulation:

> The relative impact of the CAP in remote rural areas (compared to what would most likely have happened otherwise) may have been more significant than in accessible rural areas due to the fact that the later are influenced amongst other things, by contiguous urban developments (near to market centres).

High Priority Attempt "incidence" in Year 1, perhaps "impact" in Year 2 (e.g. via case studies). Similar to 2.1.7 but relates to accessibility (preferably local, as in polycentricity) via CAP/RDP as % of GDP and/or Net Farm Income (NFI).

Independent variable: CAP expenditure
Dependent variable: relative impact of CAP, measured by:
share of CAP in net farm income
Intervening variable: remoteness of an area (Peripherally index)

Market regulations and support

Hypothesis number 9

Original formulation:

> CAP market price support contributes to the intensification processes of agricultural production. In territorial terms, more favoured regions are able to take greater advantage of these CAP support measures.

High Priority Link incidence per ha to agricultural intensity

Independent variable: CAP (market support: see list of indicator A 2.1.2)
Dependent variable: intensification of land use, measured by:
agriculture output per ha
Intervening variable: degree of comparative advantage of the region, measured by:
higher proportion of supported sector or reception of payments at a region

Direct income payments

Hypothesis number 10

Original formulation:

> De-coupling of direct payments (shifting from product-related support to payments made directly to producers) leads to greater farming flexibility and thus increases the market orientation of farmers. This has territorial implications (see 2.1.2 above).

High priority It was agreed that "de-coupling" was to be replaced by "shift towards", in order to cover past, current and proposed CAP reforms. Such a "shift" might be measured as market support as % of total support. It was not clear how to measure "market orientation" and "flexibility", but structural change in agriculture (e.g. changes in: farmer numbers, % old or young farmers, farm types) might be possible and suitable.

New formulation:

> The shift of CAP from product related support towards payments directly to producers leads to greater farming flexibility and thus increases the market orientation of farmers. This has territorial implications (e.g., land use changes).

Independent variable: CAP (product related measures and direct payment)
Dependent variable: market orientation (flexibility), measured by:

- market prices of products which were supported (price subsidy)
- production rate of these products

Hypothesis number 11

Original formulation:

> The blanket environmental requirements for direct payments have contributed to measurable environmental improvements in the regions.

Low priority Relates to XC and national implementation; and in any case only 1990 CORINE data (potentially) available.

Independent variable: environmental requirements for direct payments
operationalise: with time

Dependent variable: environmental improvements in the region (NUTS III)

Characteristics of environmental requirements via document analysis
development of a ranking:

0 = no environmental requirements for direct payments
1 = little environmental requirements for direct payments
2 = middle environmental requirements for direct payments
3 = high environmental requirements for direct payments

Hypothesis number 12

Original formulation:

> Some specific direct payments, e.g. area payments for tobacco and LFA payments for sheep and cattle, have had differential territorial effects by retaining in some areas farming sectors which would otherwise have diminished in size. Similarly, dairy quotas have been critical in maintaining dairy production in some Less Favoured Areas, particularly mountain areas.

Low priority Can be interpreted as a set of commodity-specific hypotheses, which might be tackled via literature sources and/or Year 2 case studies. Would involve not only direct payments (or shift to these), but would have to recognise different national implementations of CAP measures by country.

Mainly through case studies in the 2nd year for the study.

Hypothesis number 13

Original formulation:

> The shift of CAP support towards direct payments has reduced the extent of risk faced by farmers and may has been most beneficial in regions where climatic conditions and/or growing conditions are highly variable.

Low priority Measurement of risk very difficult

Independent variable: CAP expenditure (direct payments)
Dependent variable: risk perception of farmers (interviews year 2)
Intervening variable: degree of variability or flexibility of growing conditions in the NUTS III region

LFA payments

14. LFA payments have been developed to compensate for persistent natural and socio-economic farming difficulties in designated regions. The extension of LFA payments has helped to reduce the marginalisation of these regions.

Agri-environmental measures

Hypothesis number 15

Original formulation:

> The impact of agri-environmental measures, even though directed towards extensive land use systems, varies mainly in regard to farm types (a) and regional production conditions (b).

High priority Initial analysis - link incidence (take-up) of agri-environmental measures to an environmental designation map.

secondary analysis:

a) The impact of agri-environmental measures becomes higher with the size of the supported farm.

Independent variable: direct payment with agri-environmental requirements
Dependent variable: impact of agri-environmental measures on farm type, measured by farm size

b) agri-environmental measures influence the change from traditional farming toward organic farming.

Dependent variable: regional production conditions, measured by:
share of intensive land use of an "intensive product" (e.g. maize)

Hypotheses 16:

> The uptake of AEP schemes is positively associated with environmental outcomes in the regions affected.

High priority: Initial analysis linking AEPs to environmental outcome data. Use literature sources if territorial differentiation identified in these.

Rural development measures

Hypothesis number 17

Original formulation:

Rural development measures improve the quality of life in rural areas and thus have helped to reduce the rate of out-migration, particularly in Less Favoured Areas.

High priority Use population loss and age data instead of "out-migration". CAP effect expected to be small. Approach DG Agri for ERINA (?) project's data on pluriactivity.

New formulation:

Rural development measures improve the quality of life in rural areas and thus have helped to reduce the rate of population change, particularly in Less Favoured Areas.

Independent variable: rural development measures
operationalise: with time
Dependent variable: population change (e.g. less obsolescence, age distribution, less population loss)

Characteristics of rural development measures (quality of life in relation population change) via document analysis and case studies
development of a ranking.

Hypothesis number 18

Original formulation:

Rural development measures create additional non-agricultural employment, making farm households and rural areas more multifunctional. These have, in turn, helped to stabilise regional incomes and employment.

High priority Use data on agri/non-agricultural employment shares (for multifunctional areas) and GDP change (for stability).

Independent variable: rural development measures
Nuts III regions, which received rural development measures
Dependent variable: employment in non agricultural sector
GDP per capita

Hypothesis number 19

Original formulation:

Most agricultural structural expenditures are not territorially focussed, and thus their territorial impacts are more variable than those of the more spatially oriented rural development programmes such as Objective 5b and LEADER.

High priority "Variable" to be replaced by "dispersed". Similar to 2.1.7. General structural expenditure vs. targeted RDP expenditure..

New formulation

Most agricultural structural expenditures are not territorially focussed, and thus their territorial impacts are more dispersed than those of the more spatially oriented rural development programmes such as Objective 5b and LEADER.

Independent variable: GDP per capita at NUTS III region
Dependent variable: CAP expenditure
RDP expenditure

Hypothesis 20:

The success of rural development programmes which try to mobilise endogenous development is dependent on their adoption of the innovative potentials of a region.

Independent variable: Rural development programmes (e.g. LEADER, "Regionen aktiv" [or other national programmes])
Dependent variable: mobilisation of endogenous development
Intervening variable: degree of adoption of the innovative potential of a region.

Appendix 2: ESPON 2.1.3: Hypothesis Data Requirements

Variables	Sources	Hypothesis Numbers
1. Total CAP expenditure	NUTS III Apportioned CAP expenditure	1, 2/3, 7, 8
2. Market support as a % of total expenditure	NUTS III apportioned CAP expenditure	9
3. Agri-environmental payments per 1,000 hectares	Nuts III apportioned expenditure	15
4. Rural Development Expenditure apportioned to NUTS III?	Apportionment from NUTS 0 data	16,17,18, 20
5. Targeted RDP expenditure by NUTS III	Apportionment from NUTS 0 data	19
6. Non-targeted agric structures expenditure apportioned to NUTS III	Apportionment from NUTS 0 data	19
7. AWU	REGIO A2EFARM	8
8. Total UAA	REGIO A2EFARM	15
9. Arable area	National Stat offices	For apportioning CAP Expenditure
10. Perm. Crop area	" " "	" " " "
11. UAA	" " "	" " " "
12. Dairy cows	" " "	" " " "
13. Beef animals	" " "	" " " "
14. Sheep and goats	" " "	" " " "
15. Holdings	" " "	" " " "
16. AWU or total employment	" " "	" " " "
17. % Distribution of farm types	Eurofarm database	1
18. Number of holdings, or size distribution (1990 and 2000)	REGIO A2EFARM	2/3
19. Population change	REGIO D3POP	4
20. Number of PT farms	REGIO A2EFARM	5
21. Economic activity rates	UN3WPOP/LF2ACTRT	5
22. GDP per capita	REGIO E3GDP95	7
23. Peripherality Index	IRPUD Periph. Index	8
24. Change in number of farmers 1990-2000	REGIO A2EFARM	10

Variables	Sources	Hypothesis Numbers
25. % farmers <35 And >65	REGIO A2EFARM	12
26. Percentage of area within EU environmental designations	GISCO DAEUINPT	14
27. Output or FNVA per hectare	REGIO A2ACT97	9
28. % area within LFA	REGIO A2EFARM	14
29. Population change, or migration indicator	REGIO D3POP, or migration indicator based on cohort analysis of D2AGE80 data	14, 16
30. Employment in AFF	REGIO E3EMPL79	16
31. GDP change	REGIO E3GDP95	17

Appendix 3 Bibliography on case study methods and Selected Studies using the Case Study Approach

Abrahamson, Mark (1983): Social Research Methods, Englewoods Cliffs

Becker, Howard S.; Blanche Geer: Participant Observation (1982): The Analysis of Qualitative Field Data. In: Field Research: A Sourcebook and Field Manual. / Ed. By Robert G. Burgess. London: Allen & Unwin, (Contemporary Social Research Series. 4.) S. 239 - 251

Becker, Howard S.; Geer, Blanche (1960): Participant Observation – The Analysis of Qualitative Field Data, in: Adams, Richard; Preiss, Jack (eds.): Human Organization Research – Field Relations and Techniques, Homewood (Dorsey), pp. 267-89

Brannen, Julia: Combining Qualitative and Quantitative Approaches. An Overview (1992): In: Mixing Methods: Qualitative and Quantitative Research. / Ed. By Julia Brannen. Aldershot (Hants.): Ashgate, S. 3 - 38

Bryman, Alan: Quantitative and Qualitative Research. Further Reflections on their Integration (1992): In: Mixing Methods: Qualitative and Quantitative Research. / Ed. By Julia Brannen. Aldershot (Hants.): Ashgate, S. 57 - 80

Bryman, Alan: Research Methods and Organization Studies (1989): London, u.a.: Unwin Hyman, 280 S. (Contemporary Socal Research Series. 20.)

Bryson, John M. (1983): Representing and Testing Procedural Planning Methods. In: Evaluating Urban Planning Efforts. Approaches to policy analysis. / Ian Masser (Ed.) Aldershot: Gower, 1983. S. 245 ff.

Bullock, Roger; Michael Little; Spencer Millham (1992): The Relationship between Quantitative and Qualitative Approaches in Social Policy Research. In: Mixing Methods: Qualitative and Quantitative Research. / Ed. By Julia Brannen. Aldershot (Hants.): Ashgate, S. 81 - 100

Burgess, Robert G. (1985): Issues in Educational Research – Qualitative Methods, London/Philadelphia (Falmer)

Burgess, Robert G. (1985): Strategies of Educational Research – Qualitative Methods, London/Philadelphia (Sage)

Burgess, Robert G. (1982): Elements of Sampling in Field Research. In: Field Research: A Sourcebook and Field Manual. / Ed. By Robert G. Burgess. London: Allen & Unwin, (Contemporary Social Research Series. 4.) S. 76 - 79

Burgess, Robert G. (1982): Styles of Data Analysis. Approaches and Implications. In: Field Research: A Sourcebook and Field Manual. / Ed. By Robert G. Burgess. London: Allen & Unwin, (Contemporary Social Research Series. 4.) S. 235-239

Campbell, Donald T. (1988): Methodology and Epistemology for Social Science – Selected Papers, Chicago/London (University of Chicago Press)

Fowler, Floyd J. (1987): Survey Research Methods. 5. ed. Beverly Hills, u.a.: Sage. 159 S. (Applied Social Research Methods Texts. 1.)

Frankenberg, Ronald (1982): Participant Observers. In: Field Research: A Sourcebook and Field Manual. / Ed. By Robert G. Burgess. London: Allen & Unwin, (Contemporary Social Research Series. 4.) S. 50 - 53

Girtler, Roland (1984): Methoden der Qualitativen Sozialforschung – Anleitung zur Feldarbeit, Wien/Köln/Graz (Böhlau)

Jüttemann, Gerd (1981): Komparative Kasuistik als Strategie psychologischer Forschung, in: Zeitschrift für Psychologie und Psychotherapie, 29 (2), pp. 101-118

Kelle, Udo (ed.) (1995): Computer-aided qualitative data analysis – theory, methods, and practice, London/Thousand Oaks/New Delhi (Sage)

Kidder, Louise, H.; Judd, Charles M. (1986): Research Methods in Social Relations, New York (Holt, Rinehart, and Winston)

Lamnek, Siegfried (1993): Qualitative Sozialforschung – Band 2: Methoden und Techniken, München (Beltz)

Marshall, Catherine; Gretchen B. Rossman (1989): Designing Qualitative Research. London, u.a.: Sage Publications. 175 S.

Maruyama, Geoffrey; Deno, Stanley (1992): Research in educational settings, Newbury Park/London/New Delhi (Sage)

Mayring, Philipp (1990): Einführung in die qualitative Sozialforschung, München (Psychologie Verlags Union)
Miles, Matthew B.; Huberman, A. Michael (1984): Qualitative Data Analysis – A Sourcebook of New Methods, Beverly Hills/London/New Delhi
Miller, Delbert C. (1991): Handbook of Research Design and Social Measurement, Newbury Park/London/New Delhi
Morse, Janice M. (1991): Strategies for Sampling, in: Morse, Janice M. (ed.): Qualitative Nursing Research – A Contemporary Dialogue, Newbury Park/London/New Delhi (Sage), p. 127-145
Morse, Janice M. (ed.) (1991): Qualitative Nursing Research – A Contemporary Dialogue, Newbury Park/London/New Delhi (Sage)
Morse, Janice M. (ed.) (1994): Critical Issues in Qualitative Research Methods, Thousand Oaks/London/New Delhi (Sage)
Patton, Michael Quinn (1987): How to Use Qualitative Methods in Evaluation, Newbury Park/London/New Dehli (Sage)
Platt, Jennifer (1988): What Can Case Studies Do? In: Studies in Qualitative Methodology. A research annual. Vol. 1 - London, u.a.: Jai Press, 1988 - Social Sciences. Research. Qualitative Methods. S. 1 - 24
Rawlings, Barbara (1988): Local Knowledge. The Analysis of Transcribed Audio Materials for Organisational Ethnography. In: Studies in Qualitative Methodology. A research annual. Vol. 1 - London, u.a.: Jai Press, 1988 - Social Sciences. Research. Qualitative Methods. S. 157 - 178
Richards, Lyn; Tom Richards (1994): From Filing Cabinet to Computer. In: Analyzing Qualitative Data /ed. By Alan Bryman and Robert G. Burgess. London,u.a.: Routledge, S. 146 ff.
Robson, Colin (1997): Real World Research – A Resource for Social Scientists and Practitioner-Researchers, Oxford/Cambridge (Blackwell)
Rossi, Peter H.; Freeman, Howard E. (1993): Evaluation – A Systematic Approach, Newbury Park/London/New Delhi
Silverman, David (1993): Interpreting Qualitative Data – Methods for Analysing Talk, Text and Interaction, London/Thousand Oaks/New Delhi (Sage)
Silverman, Myrna; Ricci, Edmund M.; Gunter, Margaret J. (1990): Strategies for increasing the rigor of qualitative methods in evaluation of health care programs, in: Evaluation Review 14 (1), February 1990, pp. 57-74
Smith, Louis M. (1988): Braodening the Base of Qualitative Case Study Methods in Education. In: Studies in Qualitative Methodology. A research annual. Vol. 1 - London, u.a.: Jai Press, 1988 -Social Sciences. Research. Qualitative Methods. S. 25 - 58
Stake, Robert E. (1995): The Art of Case Study Research, Thousand Oaks/London/New Delhi (Sage)
Struening, Elmer; Guttentag, Marcia (eds.) (1975): Handbook of Evaluation Research, Beverly Hills/London (Sage)
Uphoff, Norman (1992): Learning from Gal Oya – Possibilities for Participatory Development and Post-Newtonian Social Science, Ithaca/New York (Cornell University Press)
Weitzman, Eben A.; Miles, Matthew B. (1995): Computer Programs for Qualitative Data Analysis – A Software Sourcebook, Thousand Oaks/London/New Delhi
Whyte, William Foote (1982): Interviewing in Field Research. In: Field Research: A Sourcebook and Field Manual. / Ed. By Robert G. Burgess. London: Allen & Unwin, (Contemporary Social Research Series. 4.) S. 111 - 122
Yin, Robert (1994): Case Study Research, Thousand Oaks/London/New Delhi (Sage)
Yin, Robert (1993): Applications of Case Study Research, Newbury Park/London/New Delhi (Sage)

Selected Studies using the Case Study Approach

Barrie, Ibrahim S. (1993): Community Participation in Planning for Improved Rural Water Supply and Sanitation in District Development - case studies in the Ahanta West District. Kumasi
Birungi-Mijumbi, Jane R. (1991): An Impact Assessment of the Agricultural Extension Services to Farmers - a case of Daugne West District, Ghana. Kumasi
Blakeley, Edward J. (1988): Developing the biotechnological industry - a case study of rural industrial planning in the San Francisco Bay Area. Berkeley
Bromley, D. B. (1986): The Case-study Method in Psychology and Related Disciplines, Chichester (Wiley)

Butse, Anthony K. (1991): Farming Practise, Energy, and the Environment (case studies in Goden, Ghana). Dortmund

Cross, Piers (1983): Community Based Workshop for Evaluating and Planning Sanitation Programs - a case study of primary schools sanitation in Lesotho. Washington: World Bank,

Cruz Santos, Severino (1991): Rural-to-rural vs. Rural-urban Immigration - a comparative case study in Thailand. Bangkok.

Curb, Adam (1966): Planning for Education in Pakistan. A personal case study. London: Taristock,

Dowell, David; James Lynch (1986): The Impacts of Technological Change on Residential Constructions - a case study of the US manufacture living industry. Berkeley

Fekade, Wubalem (1994): Local Determinants of Development Sustainability – A Study of Development Projects in Tanzania, Dortmund

Flyvbjerg, Bent (1998): Power and Rationality - Democracy in Practice, Chicago (University of Chicago Press)

Krishna, Anirudh; Uphoff, Norman; Esman, Milton J. (eds.) (1997): Reasons for Hope – Instructive Experiences in Rural Development West Hartford (Kumarian)

Lynd, Rober S.; Lynd, Helen M. (1956): Middletown – A Study in American Culture, New York

Pappol, Frederic R. (1993): Public and Private Co-operation for Improved Housing Delivery Systems in Rural Areas - case studies in Ahanta West District. Kumasi

Paris, Andi Y. (1995): Determinants of Crop Changes from Farmer Perspective - case studies in Tamton Pontalong, Amphoe Pakchong, Changwat Nakon Ratchasima, Thailand. Bangkok

Pasteur, David (1979): The Management of Squatter Upgrading - a case study of organisation, procedures, and participation. Farnborough

Rees, David G. (1994): Essential Statistics for Medical Practice - a case study approach. London: Chapman & Hall,

Shapira, Philip (1984): The Crumbling of Smokestack California - a case study in industrial restructuring and organisation of work. Berkeley

Storper, Michael; Richard Walker; Ellen Widess (1979): Performance Regulation and Industrial Location - a case study. Berkeley

Technology and Employment in Industry - a case study approach. / Ajit Bhalla (Ed.). Geneva, ILO, 1975.

Thierauf, Robert J. (1982): Decision Support Systems for Effective Planning and Control - a case study approach. Eaglewood Cliff

Uphoff, Norman (1992): Learning from Gal Oya – Possibilities for Participatory Development and Post-Newtonian Social Science, Ithaca/New York (Cornell University Press)

Wegener, Michael (1987): The Life Cycle of Industrial Cities - a case study of Dortmund, Germany. Dortmund

World Bank / Energy, Water and Telecommunications Department (1979): Eight Case Studies of Rural and Urban Fringe Areas in Latin America - a behavioural case study. Washington.

Yin, Robert; Sottile, Stephanie; Bernstein, Nancy (1985): Attracting high-technology firms to local areas – Lessons from nine high-technology and industrial parks, Washington

Yin, Robert et al. (1989): Interorganizational partnerships in local job creation and job training efforts – Six case studies, Washington

Appendix 4 Sub-methods and variations in the area case area approach

To supplement the general description of the case study approach given in Chapter 5, this appendix provides short definitions of several common sub-methods and variations used in area case studies.

Content analysis is a method of systematically examining the content of observed meetings, collected documents, and recorded interviews. This is done following a prescribed sequence of analytical steps which focus on the context, assumptions, conditions, meanings, logic and intensity of the content (further variations and sub methods: theory-driven differentiated analysis, structuration analysis, explication)

Pattern-coding is related to content analysis but usually considered a separate method. It is made up of different document examination procedures (e.g. LEADER evaluations). In several waves document passages are coded using predetermined and emerging categories and sub-categories which relate to the variables and hypotheses of the research in order to find relevant recurrent analytical patterns (further sub-methods: open coding, axial coding, selective coding).

Pattern-matching refers to a method whereby empirically based patterns (of events, interview passages, and terms) are compared with predicted patterns (or with several alternative predictions). If the patterns coincide, the results can help to strengthen the case study's internal validity (variants: non-equivalent dependent variable pattern matching, multiple dependent variable pattern matching, rival explanation pattern matching).

Cross-validation is a general technique of validating one's result by comparing it with the results generated a) by using a different method on the same data set, b) by treating different data in the same way as the original data (expecting results in the same direction as before) c) using different perspectives or theories to interpret the same data set.

Cross-site analysis (whether done on a regional, national, or international level) refers to a series of analytical steps whereby the characteristics and findings of different cases (reactions of different regions within a different context on CAP/RDP measures) are systematically compared (sub-methods: case-ordered meta matrix, case-ordered predictor-outcome matrix, time-ordered meta matrix, causal models).

Appendix 5 Choice of variables to apportion FADN data to NUTS III level.

YEAR	All. Var.
A24_	
A1_	
FADN_code	
EUROSTAT_name	
EUROSTAT_code	
NUTSIII_name	
NUTSIIIcode	
SYS02_Farms_represented_	
SYS04_Exchange_rate_	
SE005_Economic_size_ESU_	7
SE010_Total_labour_input_AWU_	8
SE011_Labour_input_hours_	8
SE015_Unpaid_labour_input_FWU_	7
SE016_Unpaid_labour_input_hours_	7
SE020_Paid_labour_input_AWU_	8
SE021_Paid_labour_Input_hours_	8
SE025_Total_UAA_ha_	3
SE030_Rented_UAA_ha_	3
SE035_cereals_ha_	1
SE041_other_field_crops_ha_	1
SE046_veget_and_flowers_ha_	1
SE050_vineyards_ha_	2
SE054_permanent_crops_ha_	2
SE055_orchards_ha_	2
SE060_olive_groves_ha_	2
SE065_other_permanent_crops_ha_	2
SE071_forage_crops_ha_	3
SE072_agricultural_fallows_ha_	1
SE073_set_aside_ha_	1
SE075_Woodland_area_ha_	3
SE080_Total_livestock_units_LU_	7
SE085_dairy_cows_LU_	4
SE090_other_cattle_LU_	5
SE095_sheep_and_goats_LU_	6
SE100_pigs_LU_	7
SE105_poultry_LU_	7
SE110_Yield_of_wheat_100kg_ha_	
SE115_Yield_of_maize_100kg_ha_	
SE120_Stocking_density_LU_ha_	
SE125_Milk_yield_kg_cow_	
SE131_Total_output_cu_	
SE135_Total_out_crops_prod_cu_	1
SE140_cereals_cu_	1
SE145_protein_crops_cu_	1
SE150_potatoes_cu_	1
SE155_sugar_beet_cu_	1

Key
1. Arable Area (ha)
2. Permanent Crop Areas (ha)
3. Utilised Agricultural Area (ha)
4. No. of Dairy Cows
5. Total number of beef animals (or total cattle less no. of dairy cows)
6. Total No. of sheep and goats
7. No. of Agricultural holdings/farms
8. No. of Agricultural Work Units (or agricultural employment)

SE160_oil_seed_crops_cu_		1
SE165_industrial_crops_cu_		1
SE170_vegetables_flowers_cu_		1
SE175_fruit_cu_		2
SE180_citrus_fruit_cu_		2
SE185_wine_and_grapes_cu_		2
SE190_olives_olive_oil_cu_		2
SE195_forage_area_cu_		3
SE200_other_crop_output_cu_		3
SE206_Total_out_livestproduct_cu		7
SE211_change_livest_value_cu_		7
SE216_cows_milk_milkprod_cu_		4
SE220_beef_and_veal_cu_		5
SE225_pigmeat_cu_		7
SE230_sheep_and_goats_cu_		6
SE235_poultrymeat_cu_		7
SE240_eggs_cu_		7
SE245_ewes_and_goats_milk_cu_		6
SE251_other_livestock_prod_cu_		7
SE256_Other_output_cu_		3
SE260_farmhouse_consumption_cu_		7
SE265_farm_use_cu_		7
SE270_Total_Inputs_cu_		7
SE275_Total_intermed_cons_cu_		7
SE281_Total_specific_costs_cu_		7
SE285_seeds_and_plants_cu_		1
SE290_seed_plant_home_grown_cu_		1
SE295_fertilisers_cu_		1
SE300_crop_protection_cu_		1
SE305_othercrop_specific_cost_cu		1
SE310_feed_for_grazing_livest_cu	5+6	
SE315_feedgrazing_homegrown_cu_		3
SE320_feed_for_pigs_poultry_cu_		7
SE325_feed_pigspoult_homegr_cu_		7
SE330_otherlivest_spec_cost_cu_		7
SE331_forestry_spec_cost_cu_		3
SE336_Total_farming_overhea_cu_		7
SE340_machbuild_currentcost_cu_		7
SE345_energy_cu_		7
SE350_contract_work_cu_		7
SE356_other_direct_inputs_cu_		7
SE360_Depreciation_cu_		7
SE365_Total_external_factor_cu_		7
SE370_wages_paid_cu_		8
SE375_rent_paid_cu_		7
SE380_interest_paid_cu_		7
SE390_Taxes_cu_		7
SE395_VAT_on_investm_cu_		7
SE405_substaxes_on_invest_cu_		7
SE406_Subs_on_invest_cu_		7
SE407_Paym_dairyoutgoers_cu_		4
SE408_VAT_on_investments_cu_		7
SE410_Gross_Farm_Income_cu_		7
SE415_Farm_Net_Value_Added_cu_		7
SE420_Family_Farm_Income_cu_		7
SE425_Farm_NVA_AWU_cu_		7

SE430_Family_Farm_Inc_FWU_cu_		7
SE436_Total_assets_cu_		7
SE441_Total_fixed_assets_cu_		7
SE446_land_		3
SE450_buildings_cu_		7
SE455_machinery_cu_		7
SE460_breeding_livestock_cu_		7
SE465_Total_current_assets_cu_		7
SE470_nonbreeding_livestock_cu_		7
SE475_stock_agricult_prod_cu_		7
SE480_other_circul_capital_cu_		7
SE485_Total_liabilities_cu_		7
SE490_long_medium_term_loans_cu_		7
SE495_short_term_loans_cu_		7
SE501_Net_worth_cu_		7
SE506_Change_net_worth_cu_		7
SE510_Average_farm_capital_cu_		7
SE516_Gross_Investment_cu_		7
SE521_Net_Investment_cu_		7
SE526_Cash_Flow1_cu_		7
SE530_Cash_Flow2_cu_		7
SE600_Balance_subsid_taxes_cu_		7
SE605_Total_subs_excl_invest_cu_		7
SE610_Total_subs_crops_cu_		1
SE611_compensatory_payments_cu_		1
SE612_set_aside_premiums_cu_		1
SE613_other_crops_subs_cu_	1+2	
SE615_Total_subs_livestock_cu_		7
SE616_subs_dairying_cu_		4
SE617_subs_other_cattle_cu_		5
SE618_subs_sheep_goats_cu_		6
SE619_other_livest_subs_cu_		7
SE620_other_subs_cu_		7
SE621_environmental_subs_cu_		3
SE622_LFA_subs_cu_		3
SE625_subs_intermed_consum_cu_		7

ESPON
EUROPEAN SPATIAL PLANNING OBSERVATION NETWORK

ESPON Project 2.1.3

The Territorial Impact of CAP and Rural Development Policy

Second Interim Report
March 2003
ANNEX

Trans National Project Team:
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This Annex contains some initial analyses of the EU agricultural and Rural development sector.

As noted in chapter 6 of the SIR, the main task of the project team since the submission of the FIR has been the establishment of a database and indicators required to analyse the territorial impact of the CAP and RDP. This process is not yet complete. However in order to illustrate the extent of regional disparity that exists in the sector and type of analysis which will be possible over the coming months, the following ten maps are presented:

7.1 Employment in agriculture, forestry and fishing as percentage of total employment
7.2 AWU per holding, 1999.
7.3 Average size of holding (ESU) per region, 1997
7.4 Percentage of farmers aged over 65 years.
7.5 Arable land as percentage of the total UAA
7.6 Permanent grassland as percentage of the total UAA
7.7 Permanent crops as percentage of the total UAA
7.8 Intensity of land use for agriculture as represented by Farm Net Value Added per hectare (units FNVA/ha), 1999.
7.9 Intensity of land use for agriculture as represented by Farm Net Value Added per Annual Work Unit (AWU) in agriculture (units FNVA/AWU), 1997
7.10 Total direct subsidies received by farmers, 1999.

The first map illustrates the extent to which the relative importance of the sector varies across the EU. This is the only map for which indicators at NUTS 3 level is widely available at this stage of the project. Maps 7.2 and 7.3 indicate the range of variability in farm size (by AWUand ESU) while map 7.4 shows the extent to which different regions of the community have farmers aged over 65.

Focussing on predominate land use, maps 7.5 to 7.7 provide an initial indication of how different regions of the EU specialise on the production of different types of commodities. Maps 7.8 and 7.9 also show clear regional disparities in the type of farming across the EU in this case however in relation to the generation of FNVA. Finally, map 7.10 gives the first (incomplete) indication of the distribution of CAP-related support. In particular, the map, based on data from FADN database, show the distribution of total direct subsidies received by farmers including direct support payments from national government's but, importantly, excluding indirect market price support or any Rural Development funds accruing to a region.

Unless indicated otherwise, the maps relate to the year 2000. It should be stressed that the analyses presented are preliminary and some definitional issues remain to be resolved.

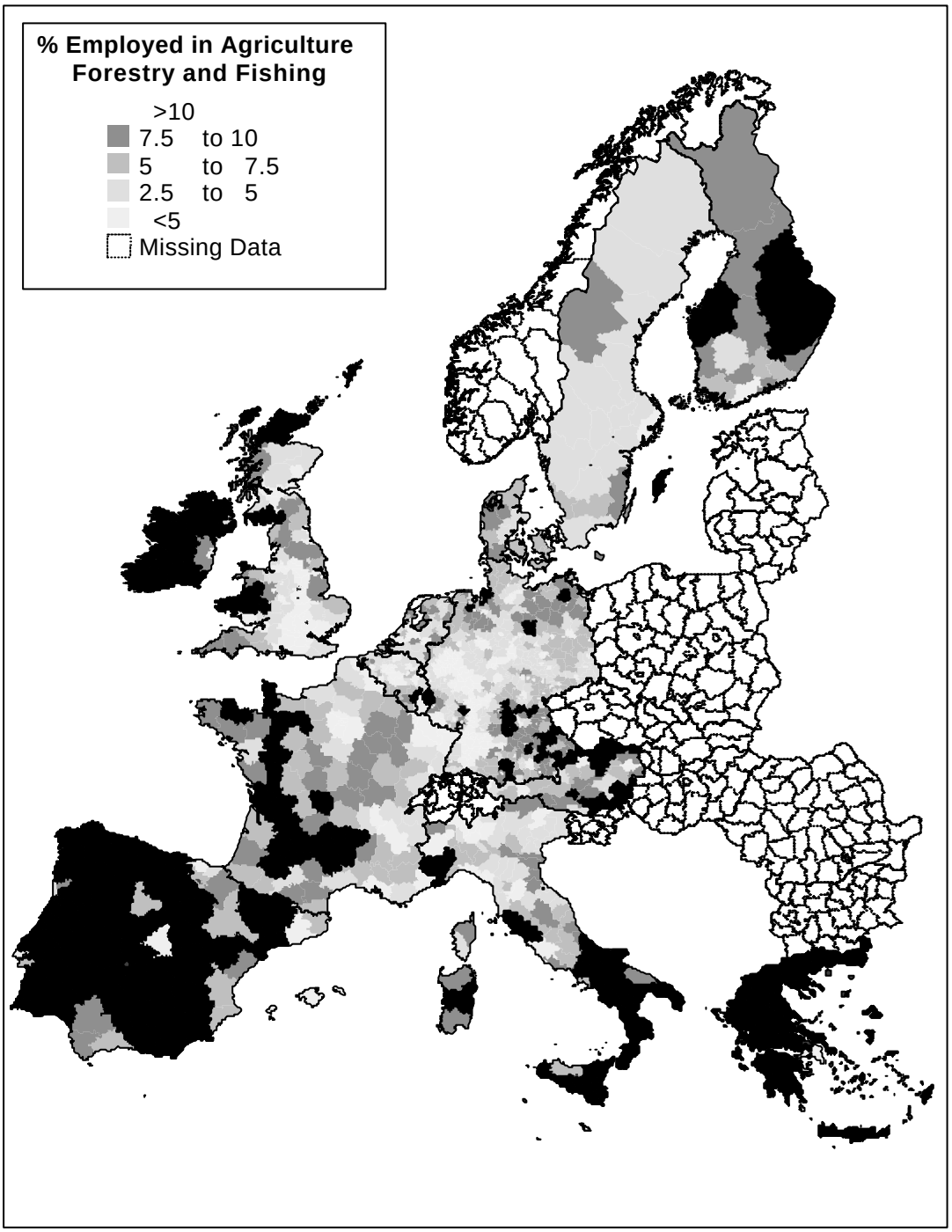


Figure 7.1 Employment in agriculture, forestry and fishing as percentage of total employment

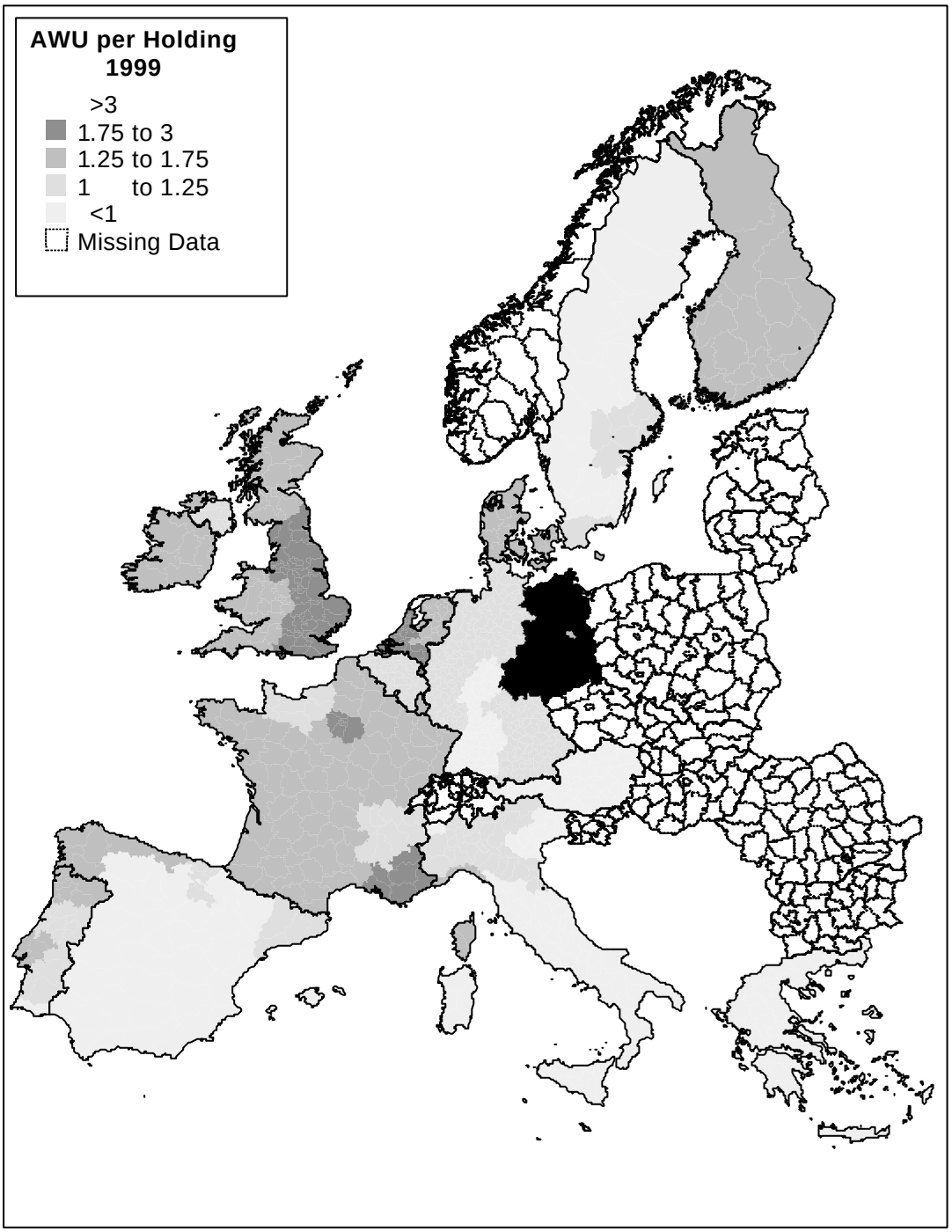


Figure 7.2 AWU per holding, 1999.

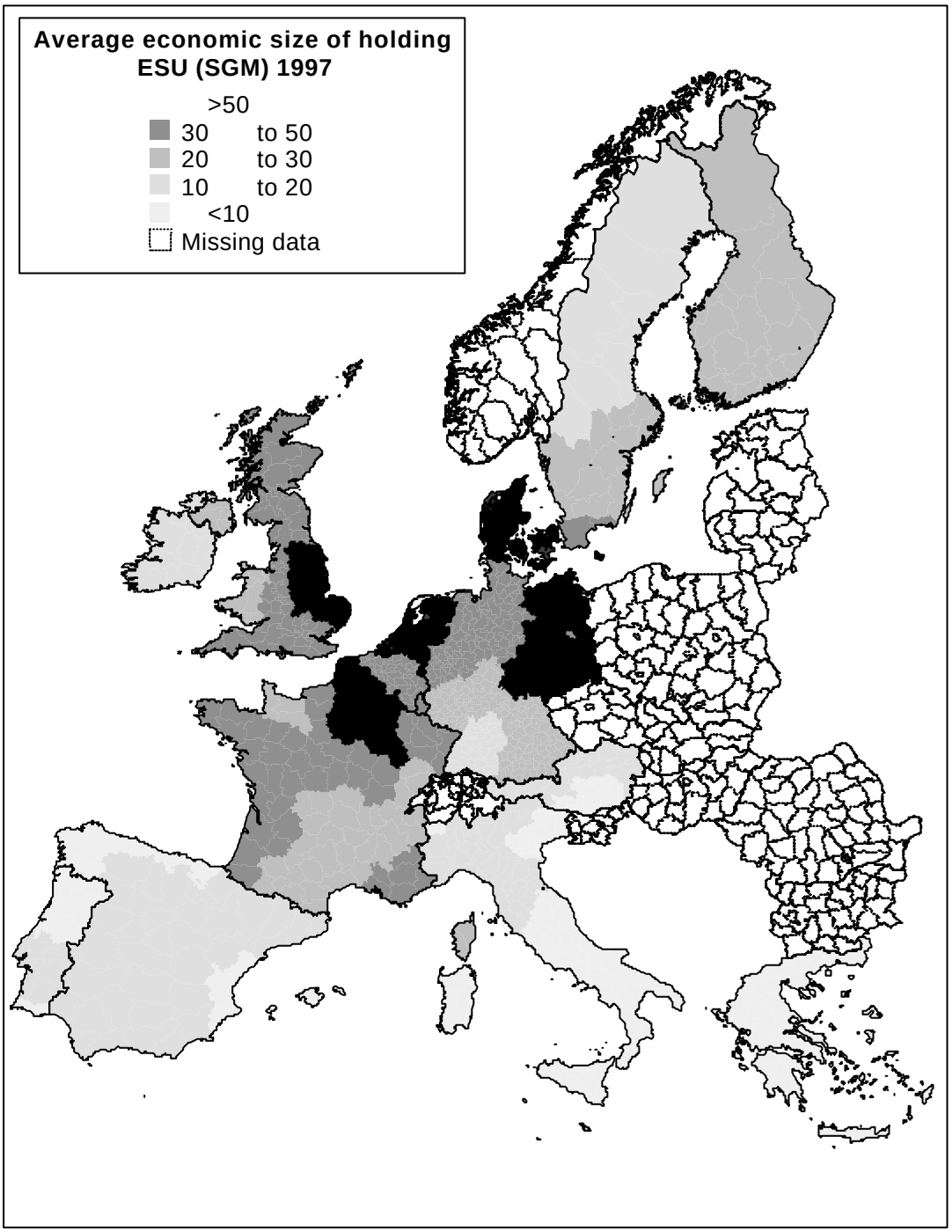


Figure 7.3 Average size of holding (ESU) per region

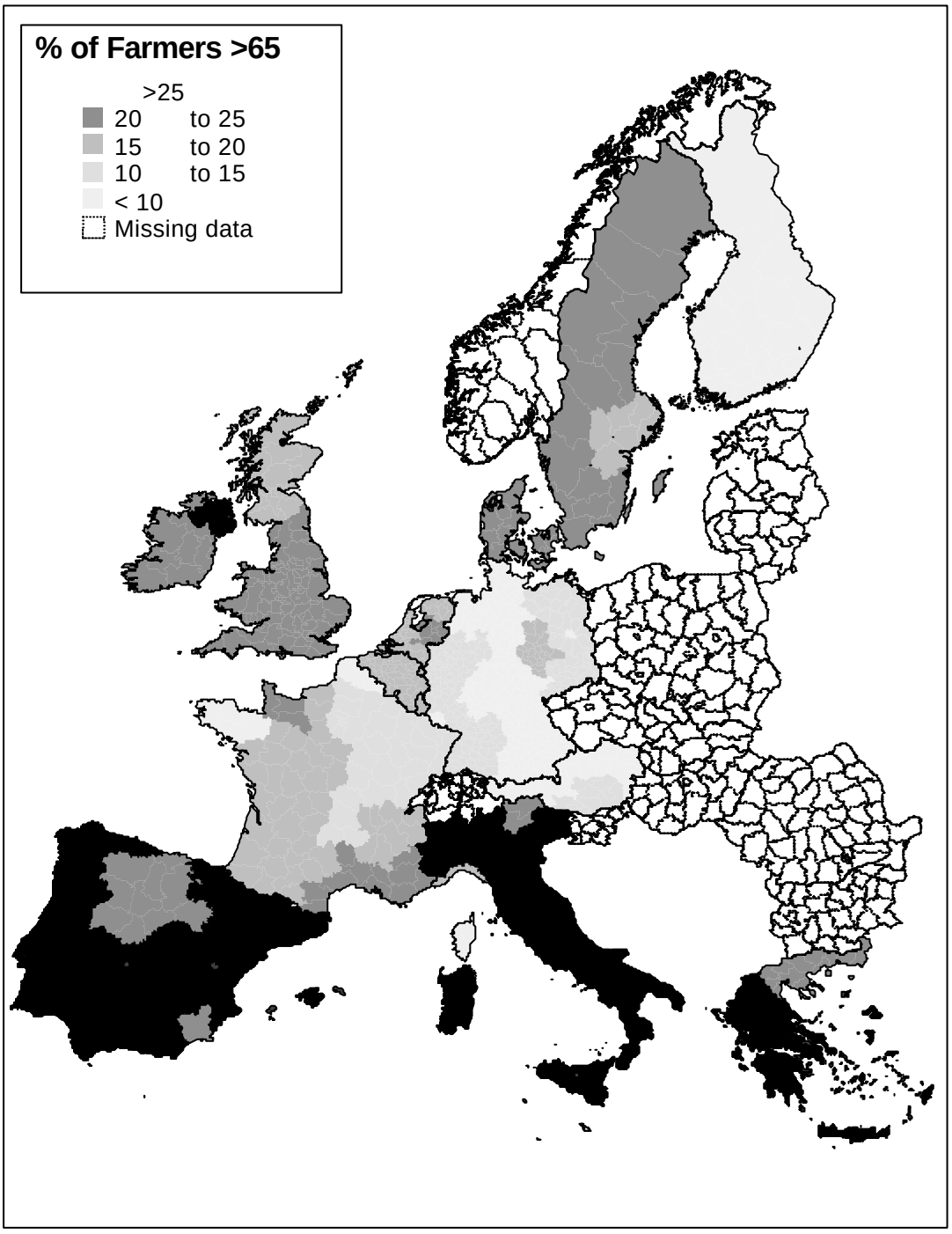


Figure 7.4 Percentage of farmers aged over 65 years.

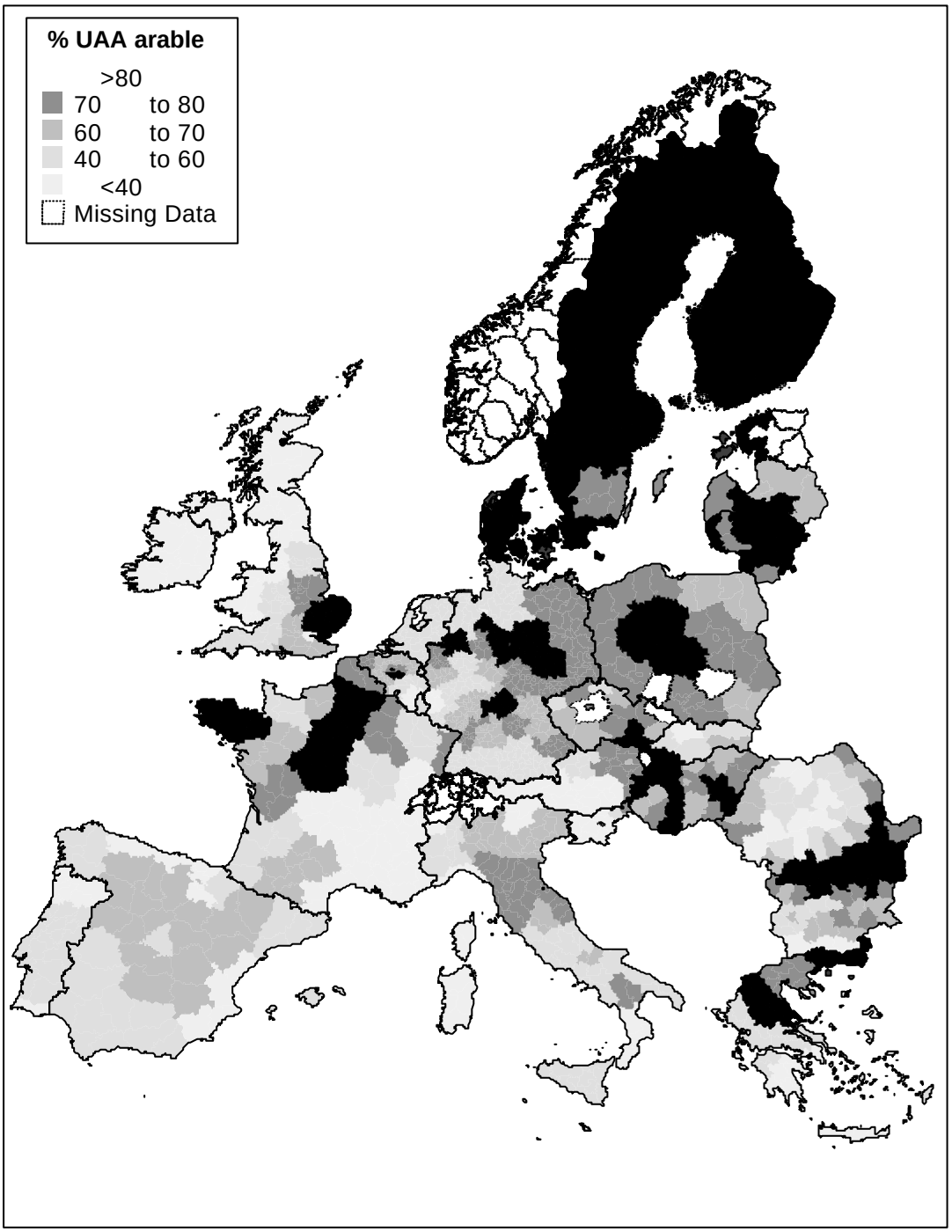


Figure 7.5 Arable land as percentage of the total UAA

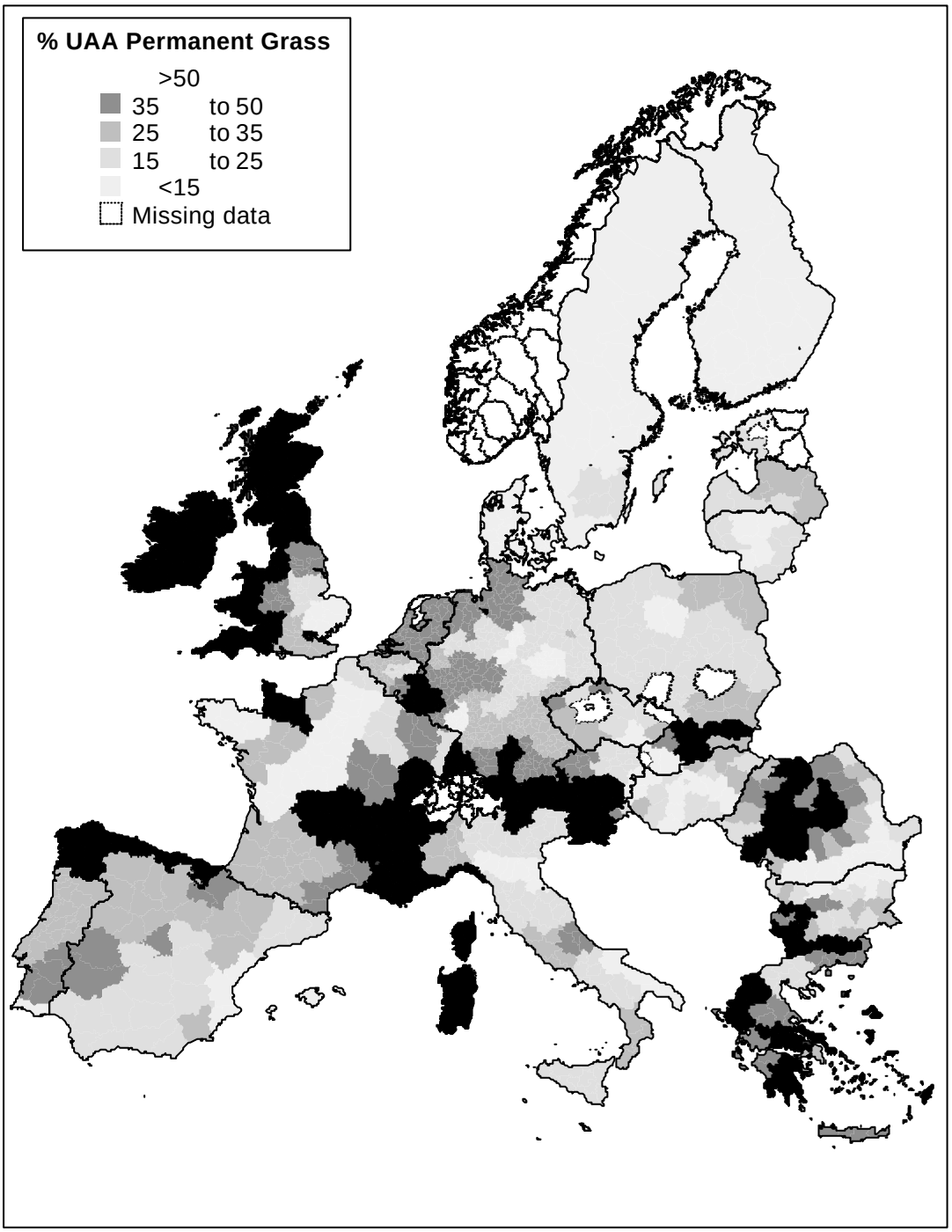


Figure 7.6 Permanent grassland as percentage of the total UAA

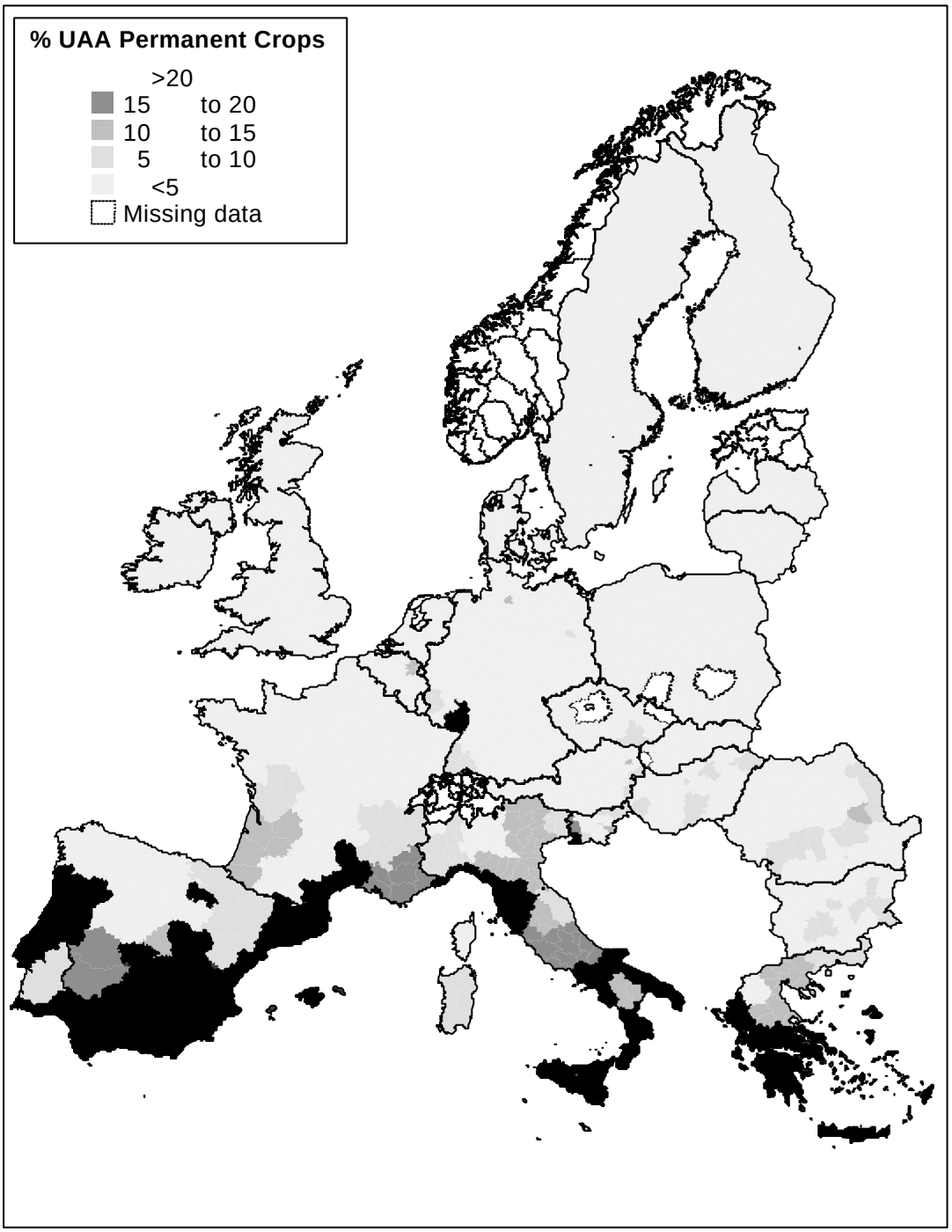
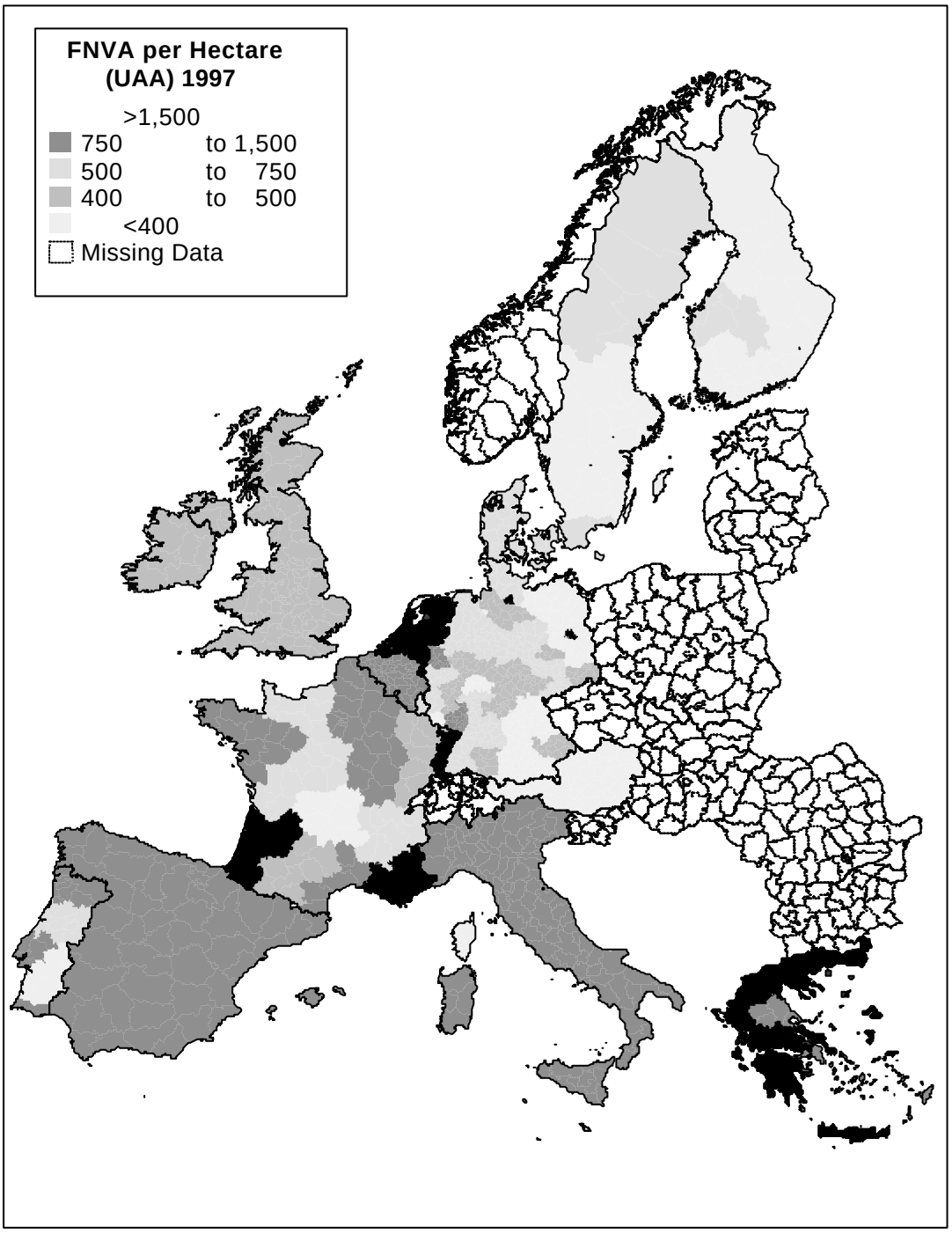


Figure 7.7 Permanent crops as percentage of the total UAA



7.8 Intensity of land use for agriculture as represented by Farm Net Value Added per hectare (units FNVA/ha)

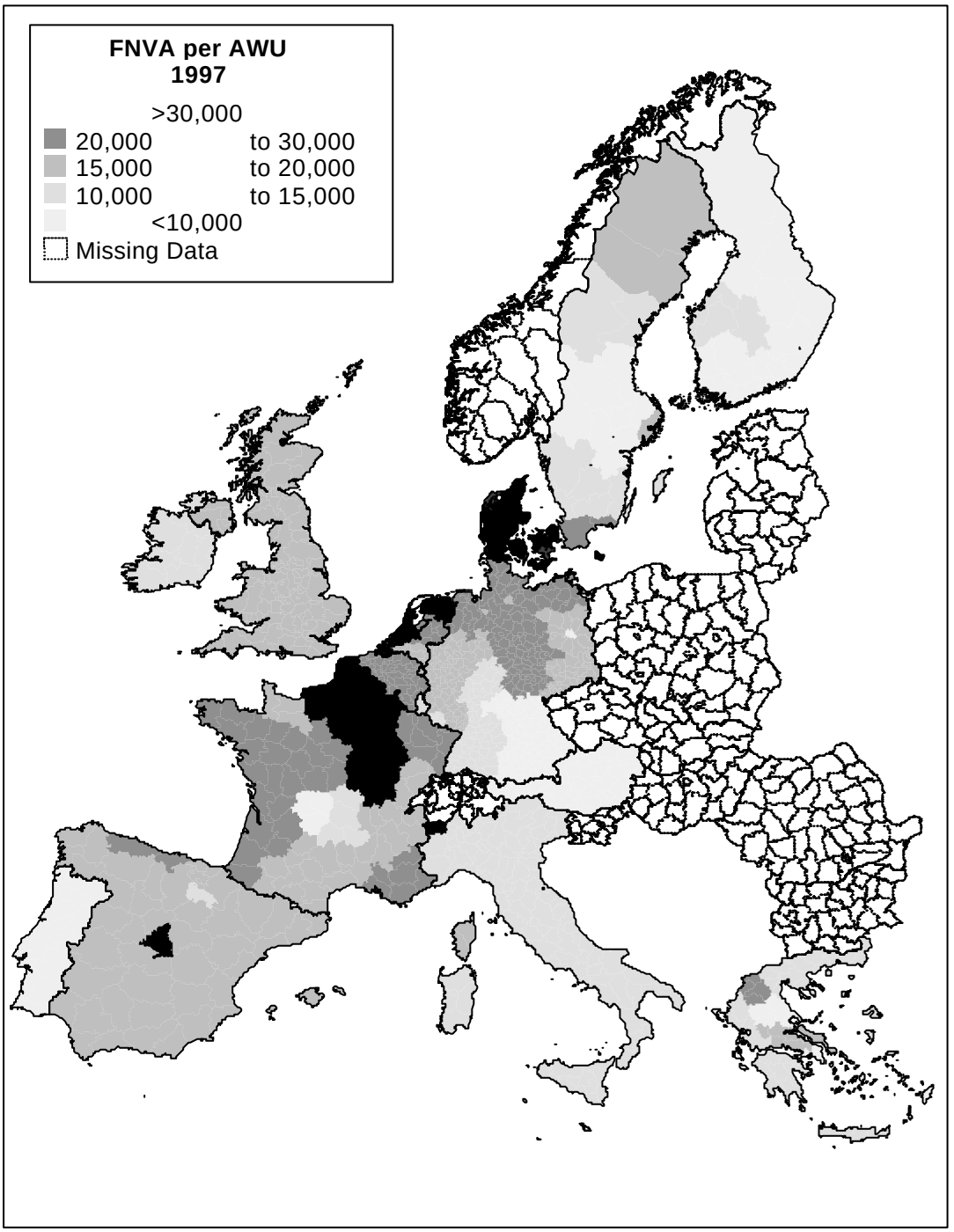


Figure 7.9 Intensity of land use for agriculture as represented by Farm Net Value Added per Annual Work Unit (AWU) in agriculture (units FNVA/AWU), 1997.

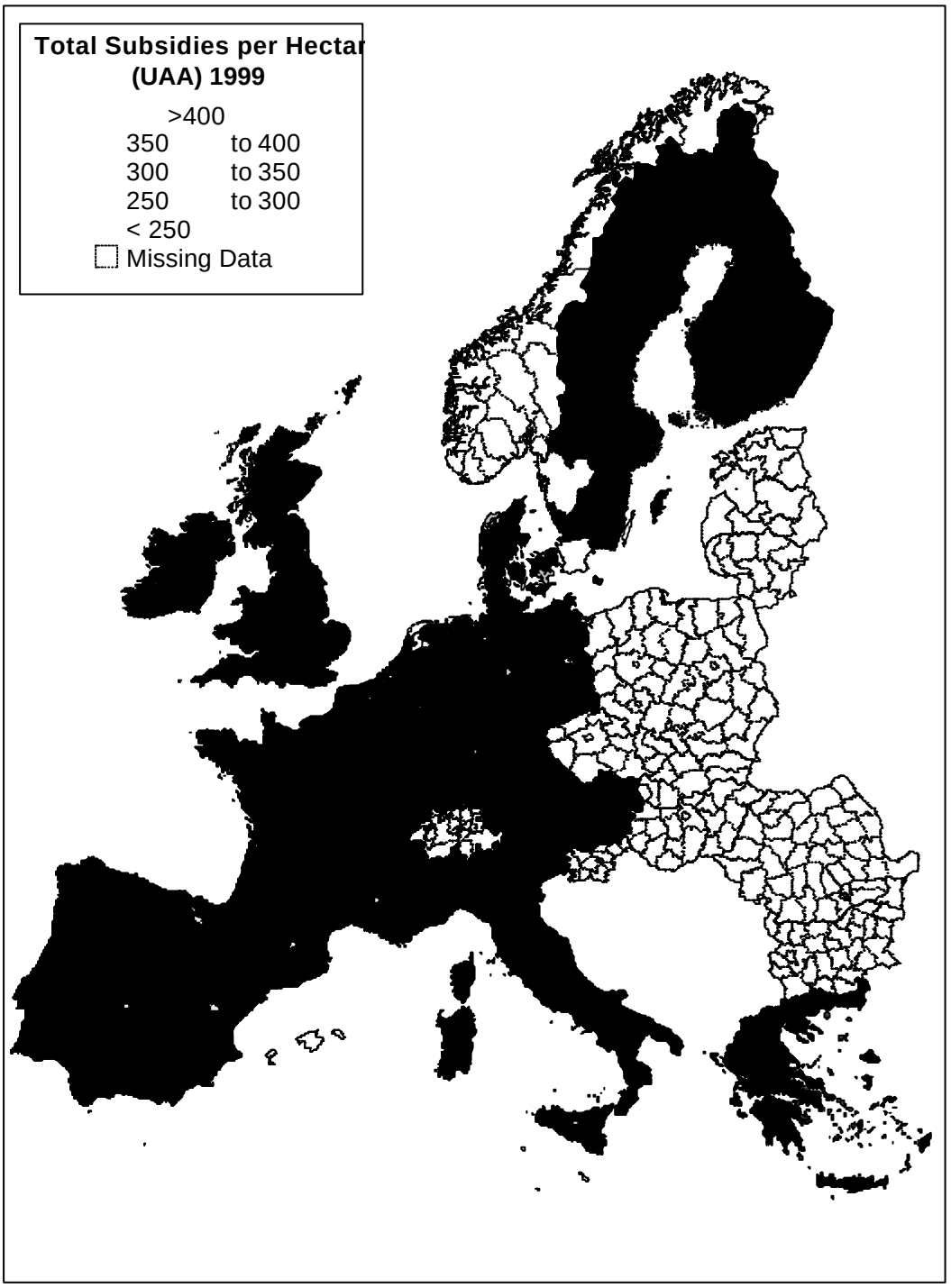


Figure 7.10 Total direct subsidies receive d by farmers per hectare, 1999.