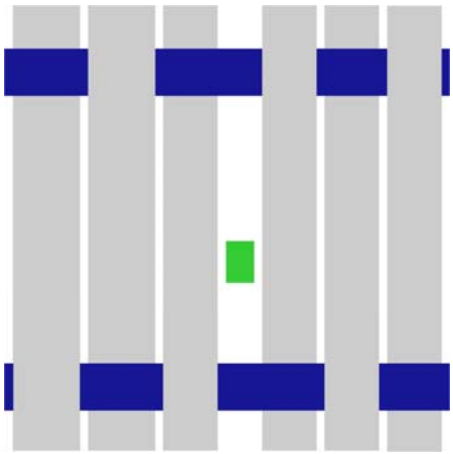
CONNECTIONS OF THE EU RURAL COMMUNITIES WITH THE REST OF THE WORLD

THE INFLUENCE OF NON-RURAL AND NON-EU DRIVERS

Deliverable no. 8.2



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1 Introduction

In order to understand interconnections between the Common Agricultural Policy, firm and household behaviour different aspects have to be taken into account. First, the difficulties in separating rural from non-rural, under discussion in different disciplines from spatial economics to agricultural economics and sociology, including both objective analysis with those based on perceptions (for a more detailed discussion of the topic cf. Grey 2000). In our context two possible levels of interaction with non-rural areas can be identified: within and outside the European Union (both rural and non-rural). Rural and non-rural interaction mainly encompasses land markets, commuting, concepts of hybrid and transition areas, residential location, price effects of major infrastructure developments, tourism and agro-tourism and economic and social opportunities for rural areas.

Possible areas of interaction with non-EU include international markets (particularly for agricultural products, energy and labour), de- and relocalisation opportunities, international networks and global value chains, negotiations on agricultural protection and subsidy systems and global food safety and food security issues. Traditionally the CAP has served as interface with global markets, first through price protection and later through area payments. The 2003 reform, introducing the single farm payment maintained income support left economic incentives connected to international markets to act on farms. Consequently, many recent studies analyse the effect of external scenarios on agriculture and their interaction with policies (cf. Binfield et. al. 2004 and Nowicki et. al. 2007)

Many of these scenarios, but also views on the future of agriculture have served formulating the scenarios used in CAP-IRE (Cristoiu, Sammeth et. al. 2010). The scenarios are summarised in the section presenting briefly the project architecture.

The present document reviews some of the many and complex links between rural economies, predominantly engaged in agriculture and non-rural and non-EU drivers partially relying on data collect through the survey within the CAP-IRE project, partially drawing from secondary data and scholarly publications.

As far as all potential drivers, including non-quantifiable ones, are concerned, some drivers have been studied empirically (e.g. price effects), some others have been identified through political debate and policy-making (provision of public goods), for others finally only the plausibility of the casual chain is known (climate change), without being measurable or verifiable through statistical analysis due to the nature of the driver and their effect through time.

Adding the policy-perspective to the list of potential drivers and interactions, the future Common Agricultural Policy, following the trend of past and recent policy reforms, will continue to integrate global environmental drivers such as climate change, pressure on biodiversity, demography and water in its policy design and reform process. For this reason, both the concept of public goods as underlying rationale of public policies, as well as some of the most important environmental drivers as a consequence of climate change will be developed in this report since they are considered providing the rationale of present and future policy reforms. Both the introduction of the public goods concept as well as its application to the improvement and maintenance of environmental quality through supporting eco-friendly farming practices will form the first part of the present review of external drivers.

The second part will use empirical data on internet usage from the CAP-IRE survey and different case studies as well as other sources.

Internet usage has broad range of economic and social benefits from which rural areas can benefit. Additionally, as suggested by USDA data, internet usage is associated with income (USDA) 2009.

Change in labour under scenarios, including non-EU agricultural migrant labour and non-household labour was collected through the CAP-IRE survey. Non-EU migrant labour in its turn compensates for declining rural populations and unwillingness of native workers to engage in low-waged seasonal work. Labour allocation in general indicates perception about the economic future of farming under the different scenarios.
A closely related issue is exiting farming and income effects. Both will be presented and discussed under the CAP-IRE scenario, including aspects of social sustainability

Additionally, the choice of public goods, internet and migrant labour as external drivers is partially motivated by the nature of the data collected during the project since most data has been collected only on the counterfactual scenarios (baseline and NO-CAP) and the applied models have simulated mostly variables not directly linkable in a causal chain to either policy or external drivers, linking the impact of the rest of the world on stated reactions of farmers to policy changes can therefore be achieved only in a limited way.
The conclusions will discuss general results of the projects relevant to our context.

In the case of environmental drivers, only retracing the rationale of how the Common Agricultural Policy integrates environmental drivers and by both outside EU-migration and

internet use for commercial purposes as only direct link to the rest of the world as exogenous drivers can be achieved presently.

We would like to thank the CAP-IRE project consortium, in particular Laure Latruffe (INRA Rennes) for the many valuable comments we have received during the preparation of the document.

The next chapter will briefly recall the project architecture and the scenarios used.

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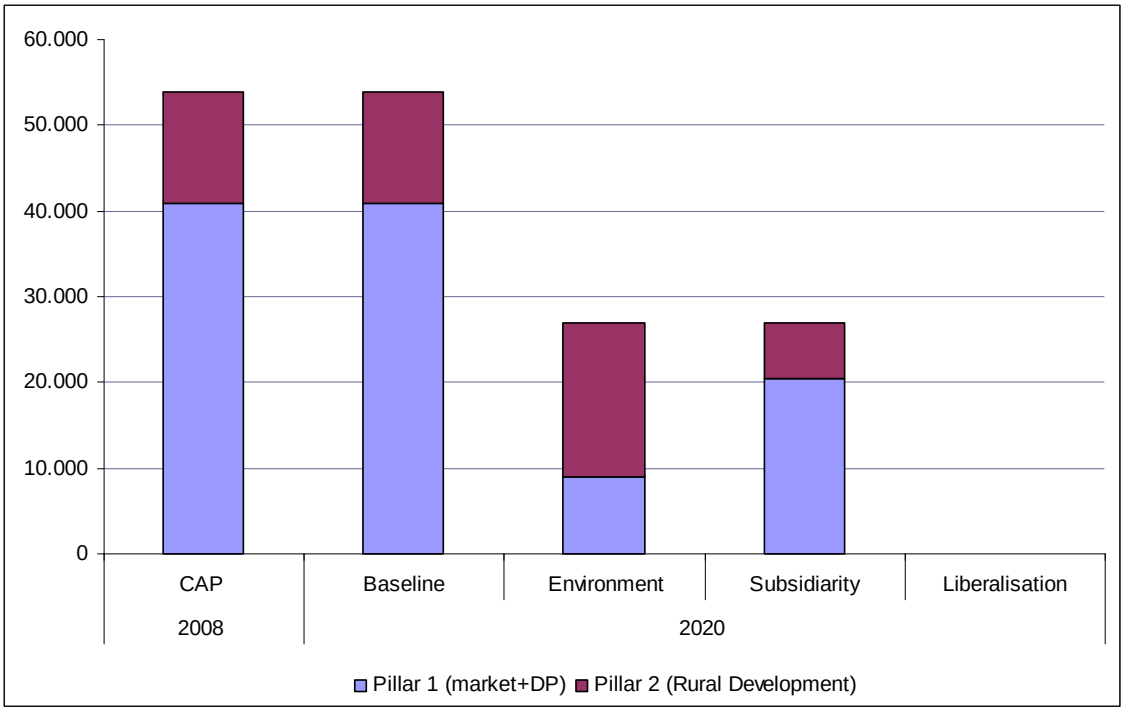
2 Project summary

2.1 Summary of the main policy scenarios

The three main policy scenarios used for the analysis of the during the CAP-IRE project "Environment", "Subsidiarity" and "Baseline". "Liberalisation" is a counterfactual scenarios which assumes the complete abolishment of the Common Agricultural Policy and is used for methodological purposes only. The assumed budgetary allocation is summarised in Figure 1 below:

Figure 1 Budgetary Allocation of Funds in CAP-IRE Scenarios



While the "Environment" and "subsidiarity" scenarios have in common a cut of the overall budget, the are to be distinguished along the allocation of resources between the both CAP pillars (Pillar I: market and income support; Pillar II: rural development). In the Environment scenario, two thirds of the budget is allocated two rural development, underlining the public

goods nature of the CAP. In the Subsidiarity scenario, two thirds of the budget is allocated, reflecting increased flexibility given to the Member States to allocate resources.

The main assumption for the environment scenario is the increased importance of environmental services and public goods as will be described in the next chapter.

The main assumption for the subsidiarity scenario is the increased importance of taking into account regional differences and strengthening socio-economic components of the CAP.

2.2 Application of the Scenarios

The scenarios have been applied to the following thematic and cross-thematic issues, allowing analysing reaction to CAP-reforms using under different perspectives, and applying different methodologies and approaches. The thematic issues are the following.

1 Farm structural adjustment, investment and innovation, aims at assessing the impact of the CAP on present trends in structural change and technological innovation. The Specific objectives are to identify trends of changes in the structure of farms, technology adoption and innovation and to assess the impact of CAP on such trends.

2 Chain interactions between agriculture and related economic sectors; aims at assessing the impact of the CAP on agri-food chain and related sectors. The specific objectives are: to identify trends in the agri-food chain and related sectors; to analyse the nature and extent of integration of farming-related activities within local rural economies; to analyse assess the dependence of the rural area on agriculture and farm households and to assess the impact of CAP on the linkages that exist between farming and the wider rural economy.

3 Environmental sustainability aims to assess the impact of the CAP on present trends in environmental sustainability in a spatial perspective. Specific objectives are to identify trends

of changes in the rural environment and interconnections with farm household and farming activities.

4 social sustainability aims to assess the impact of the CAP on present trends in social sustainability (employment, gender, migration and social capital) in rural areas. The specific objectives are to identify trends of changes in employment, gender, migration and social capital and rural areas and to assess the impact of CAP on such trends.

5 Governance aims at developing an institutional-economic framework for considering governance in rural areas and its relationship with the CAP. Specific objectives are to get insights in current and future policies and their effects on changing governance in rural areas and to provide an institutional-economic insight on the effect of the newly initiated CAP policy (e.g.) decoupling and single farm payment) on the choice of governance structures for realizing welfare and sustainability in the rural areas.

The above thematic issues and methodologies along with the questionnaire were applied to case studies in nine European countries as illustrated in the following map:

Figure 2 : Case study areas of the project

The different methodologies applied were:

- Mathematical programming model simulating technology adoption (Emilia Romagna (IT))
- Spatial tracking analysis (North East Scotland (UK))
- SAM-based analysis to capture linkages between farm household and the regional economy (North East Scotland (UK))
- Indicator-based analysis (DPSIR) (Andalusia (SP))
- Scenario analysis based on multi-criteria decision making in order to measure the impacts of different policies on social indicators (Macedonia (GR))
- New institutional economics and Resilience to represent connections between different households and governance (Noord-Holland(NL))
- Identifying typologies of farm-households based on strategic reaction to policy changes (CAP removal hypothesis) (Multiple correspondence analysis)
- Modelling and simulating multiple cross-thematic issues and interconnections (Bayesian models of CAP effects)

The next chapter elaborates the rationale behind the scenarios and discusses the results of the CAP-IRE project in light of current discussions about the future of the Common Agricultural Policy, introducing the concept of public goods in general and its application to the improvement of environmental quality through supporting agriculture, driven by climate change and its consequences as new rationale of the future Common Agricultural Policy. The concept of public goods and environment is related to the "environment" scenario", the other drivers identified are related to the "subsidiarity" or "baseline" scenario since it considers issues of competitively and regional differences.

3 Provision of Environmental Public Goods – A New Rationale for the Future Common Agricultural Policy

One of the scenarios developed for the project, the "environment scenario" emphasizes that, the Common Agricultural Policy, within a changing socio-economic context, where global environmental concerns have become increasingly local, both in the sense of awareness of the interconnections between the local economy and global environmental challenges and in terms of policy responses requested by society at the local level, have led to an increasing integration of supporting the provision of environmental services through the agricultural sector, in particular through Pillar II measures.

This re-orientation, is justified through two concepts of public intervention: market failure of providing requested environmental goods and the public goods nature of environmental quality. Additionally, the Common Agricultural Policy seeks to mitigate the negative effects of structural change by supporting the farming activities in rural areas and the income of farm households. The latter has to be coherent with general environmental targets of the European Union. In the future, the Common Agricultural Policy will, as it has done in the past, e.g. through the introduction of cross-compliance and agri-environmental schemes, further integrate and emphasize environmental concerns, while maintaining its support to agricultural activities. The aforementioned concepts will be introduced in the following sections, starting with Market failure, public goods and finally discussing the provision of environmental public goods through agriculture.

3.1 Market Failure

In our case the observed market failure, which has to be compensated by public intervention is the under-provision of environmental goods and services requested by society.

In general market failure occurs when either product or use of a good is not efficiently assured by market, be under-provide, over-provide or completely fail to provide. Consequently, in absence of public intervention, a society's resources are not efficiently allocated. Market failure expresses itself, in the context of environment form of negative externalities (for a general introduction to market failure and externalities cf. Mankiw 2006), like pollution, deforestation, deteriorating water quality, etc… All these have in common that the source or cause are not connected with those who endure the negative effects. Public goods can be regarded as a special form of market failure, since by their nature and characteristics, they cannot be provided by the market and an under-provision of those public goods has to be compensated through public intervention. The following section briefly introduces the concept, while it will be applied to our context in the section about environmental services provided through agricultural activities.

3.2 Public goods

Public goods are by their nature non-rival and non-excludable. Non-rivalry, describes that the quantity or quality of the good is not reduced through consumption. Non-excludability refers to the impossibility to limit consumption e.g. through prices, where income is the limit) or to exclude groups or individuals to consume good provided (consequently the problem of "free-riders" comes up, e.g. another group taking advantage of the good without having contributed to its provision). Since no incentive is given to pay for the good, due to the above characteristics, the supply and demand functions of markets cannot enter into function. When this leads to an under-provision with respect to aggregate demand or a politically expressed

desire by society, it has to be compensated by public intervention. The public good concept serves us to compare functions of markets and collective action and their institutions.

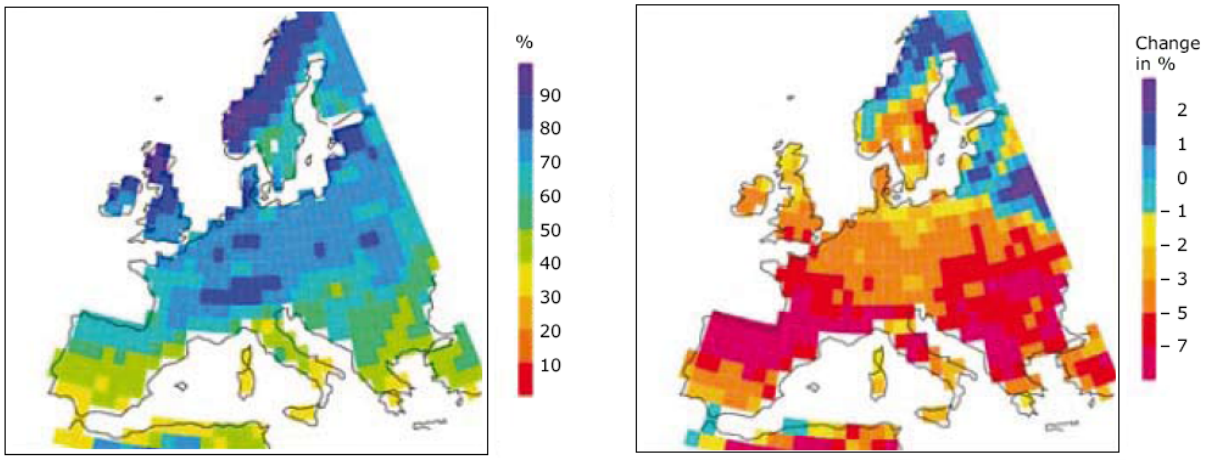
The above concept was first formulated by Samuelson (1954,1955) and then further developed for the environment by Peston (1972), Baumol and Oates (1998) and Tietenberg and Lewis (2009). Examples are air and water quality, biodiversity, landscape and quality of life in rural areas, but also other areas such as knowledge and security. In our context, agriculture can, stimulated by appropriate policy measures, provide a whole set of public goods to both society and the rural economy. The following section will discuss both policy-setting as well as current and potential examples of the provision of public goods in terms of environmental and socio-economic services to rural areas.

3.3 Environment and Agriculture

The exogenous environmental impact on European agriculture is mainly related to climate change. Climate change can broadly impact on three different ways on agriculture: a) increasing yield due to higher CO2 concentrations, b) increasing yield due to higher temperature and c) decreasing yield in some European regions due to decreasing water availability, in particular in Southern Europe.

According to the latest joint impact assessment of the Joint Research Centre, the European Environmental Agency and the Word Health Organization (2008) “Impact of Europe’s changing climate; an indicator based assessment”, the above effects of climate change can be, amongst other factor observed for soil moisture which is likely due to decrease in particular in Southern Europe and in yield changes further reflect the different effects in Southern and Northern Europe.

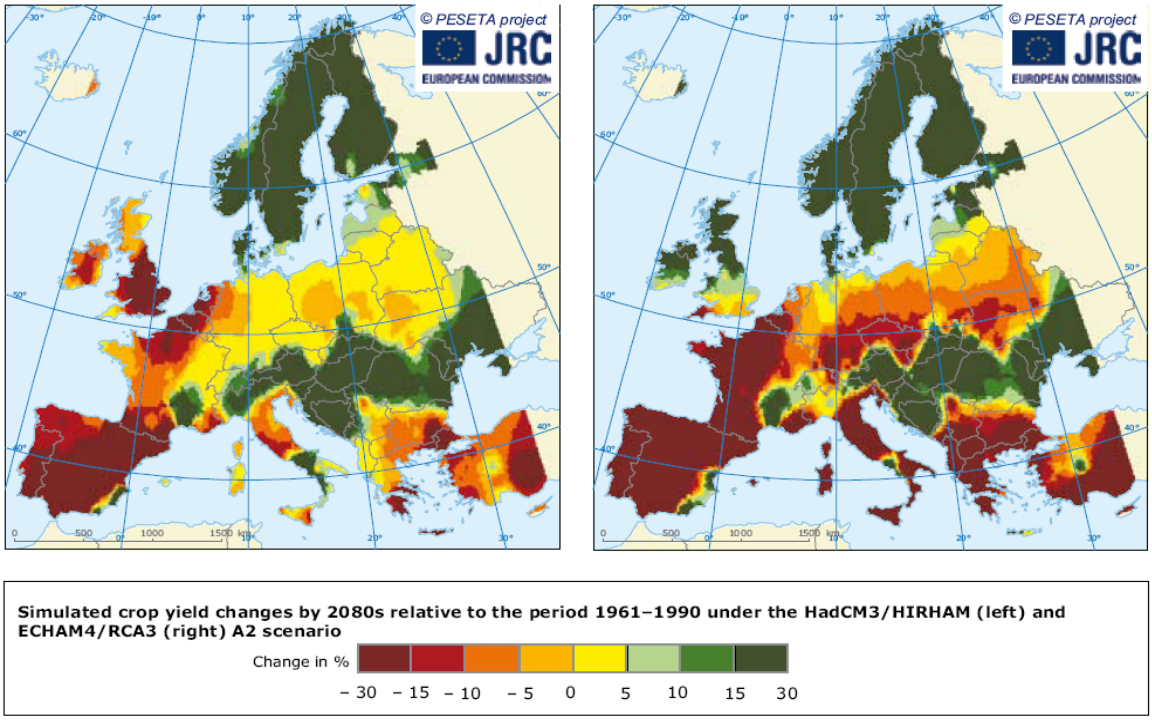
Figure 3: Modelled summer soil moisture (1961- 1990) and projected changes (2071-2100) over Europe increasing water stress



Note: Simulated soil moisture by ECHAM5/T106L31 for the baseline period (1961–1990) (left) and relative changes in % under the IPCC A2 scenario (2071–2100) (right).

Source EEA-JRC-WHO (2008). original source: Calanca, P.; Roesch, A.; Jasper, K.; Wild, M., 2006. Global warming and the summertime evapotranspiration regime of the Alpine region. Climatic Change 79: 65–78.

Figure 4: Projected crop yield changes between the 2080s and the reference period 1961–1990 by two different models



Note: Model calculations using a high emission scenario (IPCC A2) and two different climate models: HadCM3/HIRHAM (left), ECHAM4/RCA3 (right).

Source: JRC PESETA project (http://peseta.jrc.ec.europa.eu/docs/Agriculture.html).

In terms of land management, agricultural farmland and forests cover approximately 90 % of the EU's land surface and is also a major source of income of rural populations. In Southern and Eastern Europe, agriculture plays a more dominant role both in terms of employment as well as in terms of share of GDP. Consequently, lower yields will impact more heavily in those regions.

The above reasoning has been simplified and translated into the environmental scenario used during the project the general budget by cutting half of the overall CAP budget and allocating two-thirds of the remaining budget to the rural development pillar, assuming that the future Common Agricultural Policy integrates exogenous drivers into the policy reforms. However, measuring the direct influence of environmental factors on the rural economy or even predicting the future of such effects is extremely challenging due to the multitude of factors to be considered and due to the behaviour of environmental factors over time, requiring often decades to impact, both negatively and positively. At this point it can only be ascertained that policy-making does indeed consider the environment as recent CAP-reforms has shown, and that environmental concerns will more and more gain importance in policy-design. The importance of integrating the environment has been reiterated in the current Communication of the European Commission on the future of the Common Agricultural Policy towards 2020[1]: Climate change is seen as cause exacerbating market instability and active management of natural resources by farming is considered a contributor to the mitigation of climate change (European Commission 2010, p.2).

Both environment and climate change are further identified as future challenges of European agriculture, and the provision of environmental public goods is highlighted as objective of the

[1] European Commission (2010): The CAP towards 2020: meeting the food, natural resources and territorial challeges of the future.

future Cap along with green growth through innovation and climate change mitigation (European Commission 2010, passim.).

Additionally to the already mentioned environmental benefits and creating local employment and reducing the negative effects of economic crises on the rural areas, maintaining farming in rural areas has positive benefits on competitiveness and innovation. (European Commission 2010, p.2s).

Several of the thematic areas of the CAP-IRE project allowed shedding light on different effects of the CAP in terms of the socio-economic impact which will be discussed in the following chapter.

One of the most recent innovative technologies with great impact is the advent of new information technologies and internet which bears great potential also for rural areas.

4 Socio- Economic impact of the Common Agricultural Policy

4.1 Internet Connectivity

In order to measure to which extent rural communities are connected with non-rural areas and with non-EU economies, use of internet for both, selling products or purchasing required inputs can be considered a good measure of both modernisation of farming as well as connection to the rest of the world, since an internet connection is only used if the counterpart is distant and if one takes advantage of the possibility to compare prices. Internet finally reduces the remoteness of rural areas at least for connection to knowledge and markets.

In the case-studies of the CAP-IRE project, Noord-Holland had the highest rate of respondents using internet to buy inputs (38.7%), followed by the Ostprignitz-Ruppin Lahn-Dill (29,4%) district (28,2%) and Podlaskie the lowest (2.4%). For selling outputs, two

different regions stand out: the South East Planning Region (19.8%) for the highest rate and Emilia Romagna for the lowest rate (0.7%).

The below tables sum the responses of those accessing internet:

Table 1 : Use of Internet by all farmers interviewed

	To Sell output?			
To buy inputs?	Yes	No	.	Total
Yes	129	262	6	397
No	61	1.886	2	1.949
.	3	1	13	17
Total	193	2.149	21	2.363

Source: Deborah Roberts, University of Aberdeen

Table 2 : Use of Internet (all farmers) in percentage and across different regions

	Emilia-Romagna (IT)	Noord-Holland (NL)	Macedonia-Thrace (GR)	Podlaskie (PL)	North East Scotland (UK)	Andalusia (ES)	South-East Planning Region (BG)	Centre (FR1)	Midi-Pyrenees (FR2)	Lahn-Dill-District (DE1)	Ostprignitz-Ruppin (DE2)	Total
for buying production means	4.0%	38.7%	8.0%	2.4%	17.3%	4.5%	25.3%	20.0%	15.5%	28.2%	29.4%	16.8%
for selling products	0.7%	12.0%	3.3%	0.8%	4.2%	2.0%	19.8%	24.3%	10.3%	2.6%	15.6%	8.2%

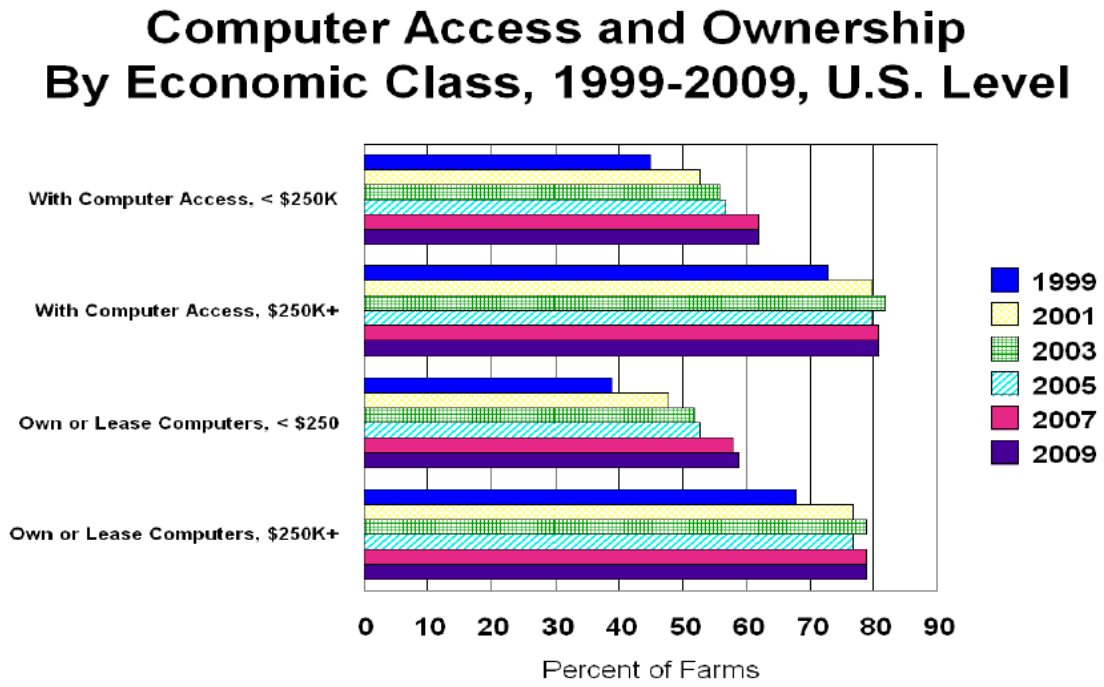
Source: B. Manos, P. Chatzinikolaou, Th. Bournaris, F. Kiomourtzi, University of Aristotle, Thessaloniki

Use of internet for buying inputs but not for sales is more spread than selling only, suggesting that internet provides advantages on the production side. Looking at the totals only inputs dominate again, confirming this impression.

While relatively recent, the use of internet (independently from whether for production or sales) can be considered beneficial for both farms as well as the rural area in general since it improves the flow of information towards relatively remote areas and improves accessibility to knowledge about the economy, but also about prices, new technology and products.

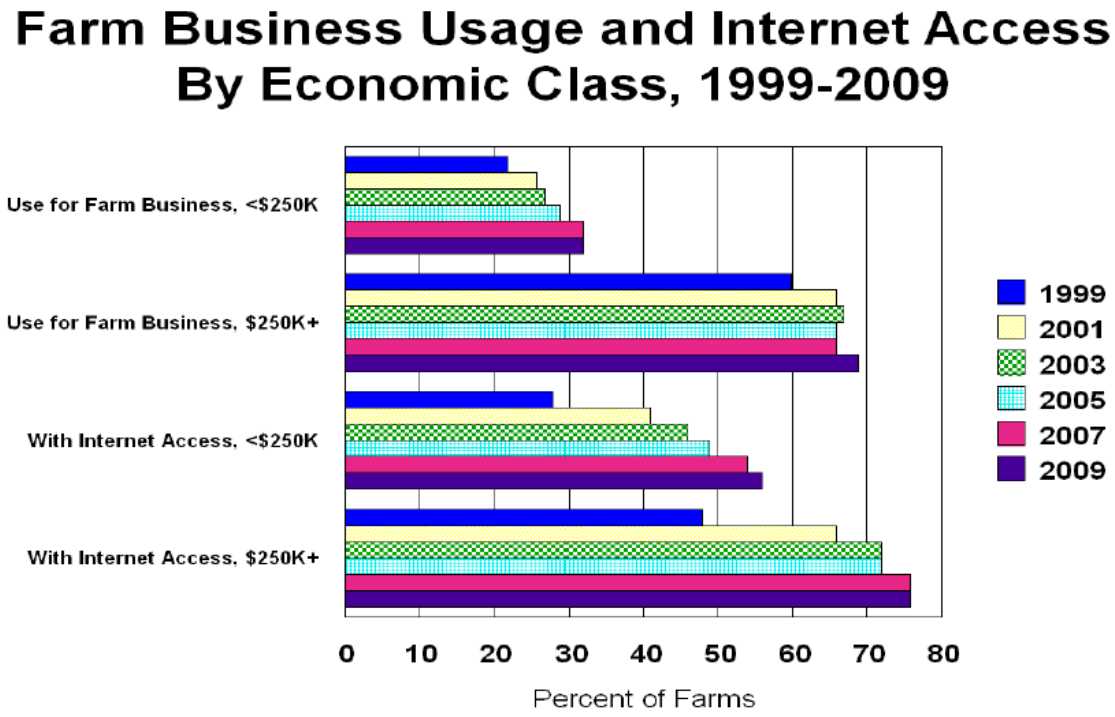
In the United States, where internet penetration is already very high, we can see that use of internet is related with income, since the higher the income the higher is internet usage and its usage for commercial purposes. However, a distinction has to be made between use of internet and use of internet for commercial purposes, the latter being less widespread and more visibly related to income. For all categories the trend is rising, and a similar effect can be expected in Europe, assuming a positive association of income and use of internet.

Figure 5



Source: USDA (2009)

Figure 6



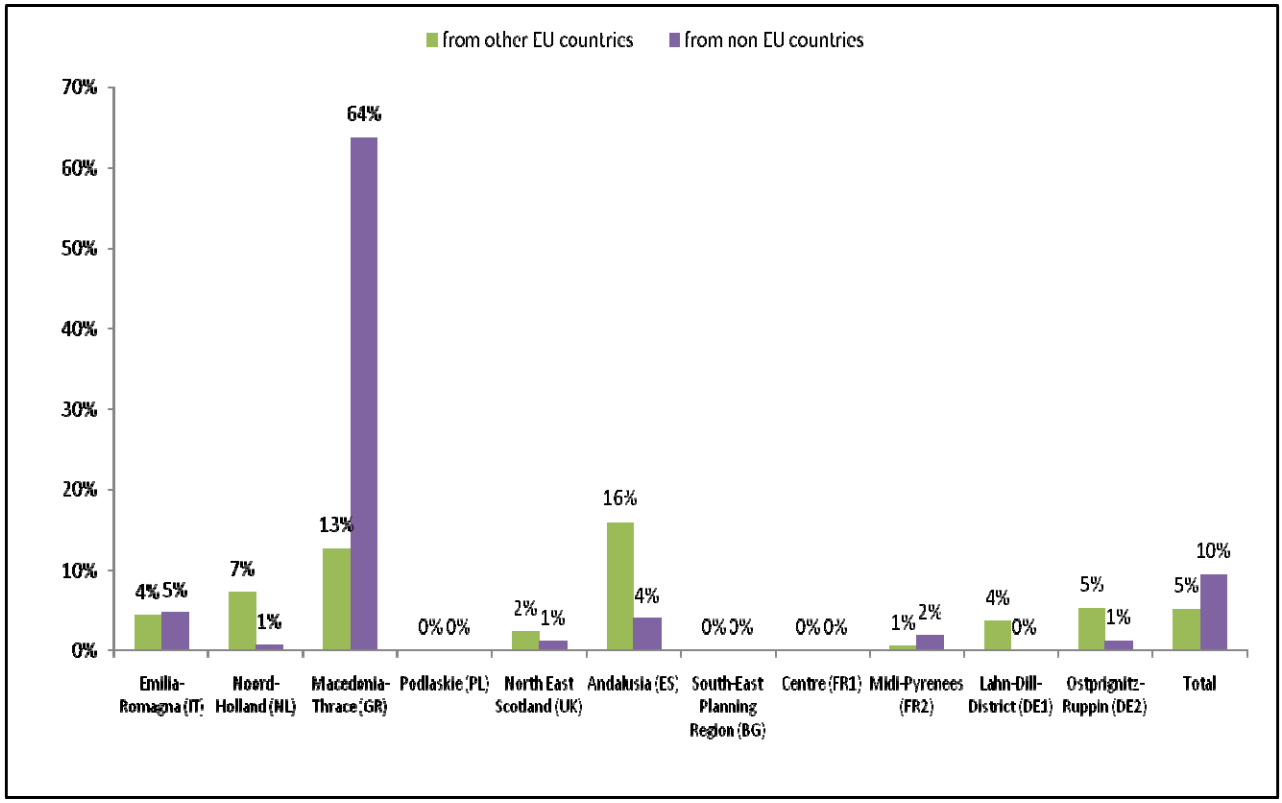
Source: USDA (2009)

4.2 Changes in Labour

With respect to immigrant employment from outside the EU, the rates of migrants from non-EU countries to the EU are higher than intra-EU migration in all case study areas. The higher rates are however more marked in regions with high demand for low-skilled seasonal labour, as in the Mediterranean rural areas (Andalusia (ES), Macedonia and Thrace (GR) and Emilia-Romagna (IT)). While having been regions of emigration, over the last 15 years they have become a destination for outside EU migration. This can be seen as a result of convergence amongst EU countries, but also as a consequence of long-term structural effects.

The table below shows the distribution of farm households having at least one foreign worker on farm across the case study regions:

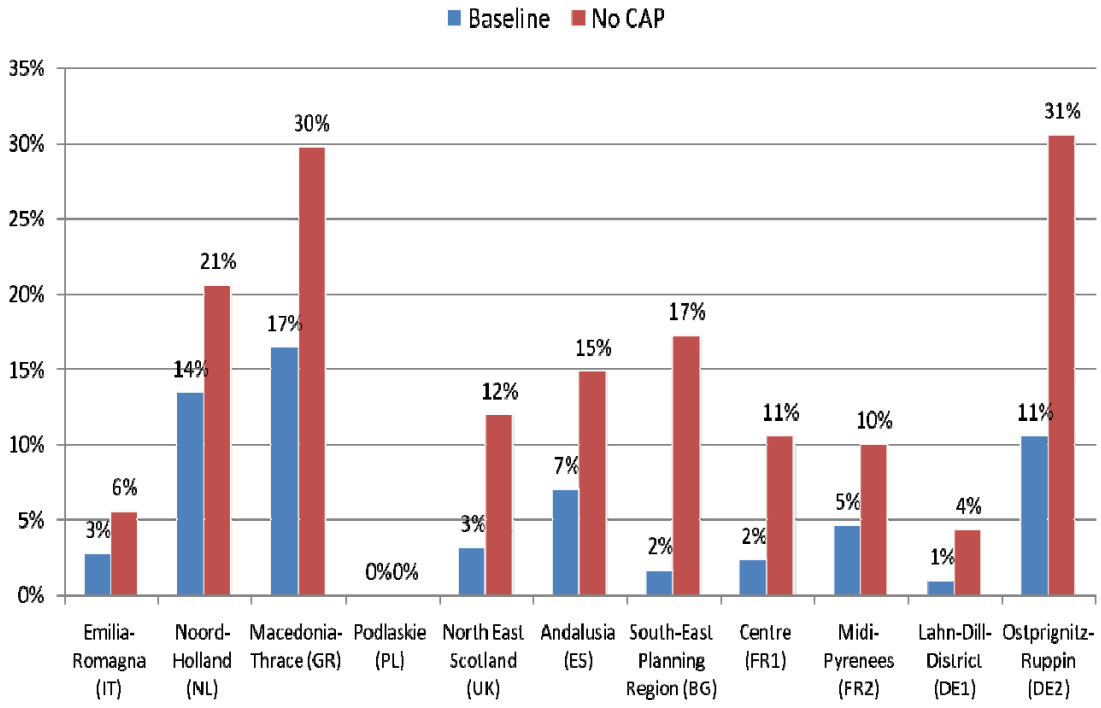
Figure 7: Agricultural holdings having at least one foreign employee working on farm (in percent)



Source: Basil Manos, Aristotle University, Thessaloniki

As the table clearly illustrates, Greece clearly stands out with 64% of the farms having at least one non-EU workforce on the farm, underlining the effect of convergence and structural change since greek workers prefer higher wages and urban employment and the lack of labour is substituted by non-EU migrant workers who accept seasonal employment and lower wages. The above observation appears to be independent from policy as the below figure indicates:

Figure 8: Changes in non-household labour used on the farm (total dataset) under CAP and No-CAP scenario



Source: Basil Manos, Aristotle University, Thessaloniki

As the table shows, the large majority of respondents would not change their behaviour under different policy scenarios if considering the total sample.

Isolating Greece, this impression changes, as one quarter of the farmers state to discontinue exernal labour if the CAP support would stop:

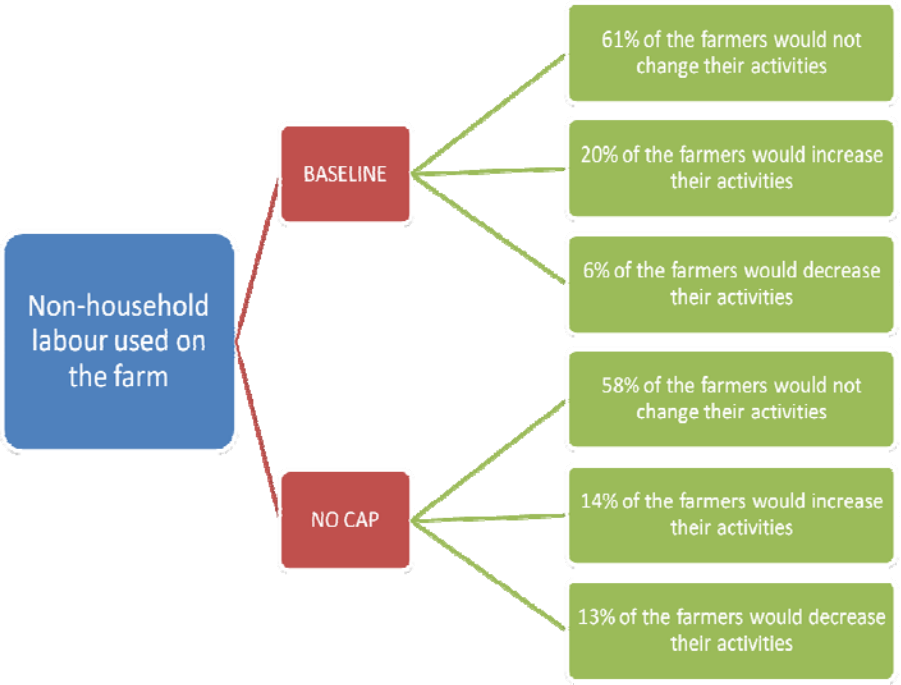
Figure 9: Change in Labour (Greece) under two scenarios

	Current Optimum	Baseline 2020	No CAP 2020
Total Labour	-2,3%	3,5%	-11,4%
Family Labour	-2,5%	2,6%	-7,7%
Men	-2,8%	2,7%	-9,3%
Women	0,3%	7,8%	-22,5%
External Labour	-3,5%	3,8%	-25,6%
Income	2,1%	3,8%	-6,7%

Source: Basil Manos, Aristotle University, Thessaloniki

Figure 10 illustrates the decision path of non-labour allocation in relation to increasing and decreasing farming activities:

Figure 10: Decision path for non-household labour in relation to farming actitivites



Source Basil Manos, Presentation

As shown, under both scenarios a majority would not change their activities, while for the NO-CAP scenarios those who would increase or decrease their activities are equally distributed, the share of those increasing their activity under the baseline largely exceeds those who would decrease their activity.

4.3 Exit of farming and related activities

Exiting farming activities in rural areas can have adverse effects on both the rural economy and the environment. On the other hand, in times of economic recessions, maintaining farming can help mitigate the negative social and economic effects of rising unemployment rates and slowing down of economic activities.

The below table 3 summarises how many farmers would exit farming, should the Common Agricultural Policy be completely discontinued:

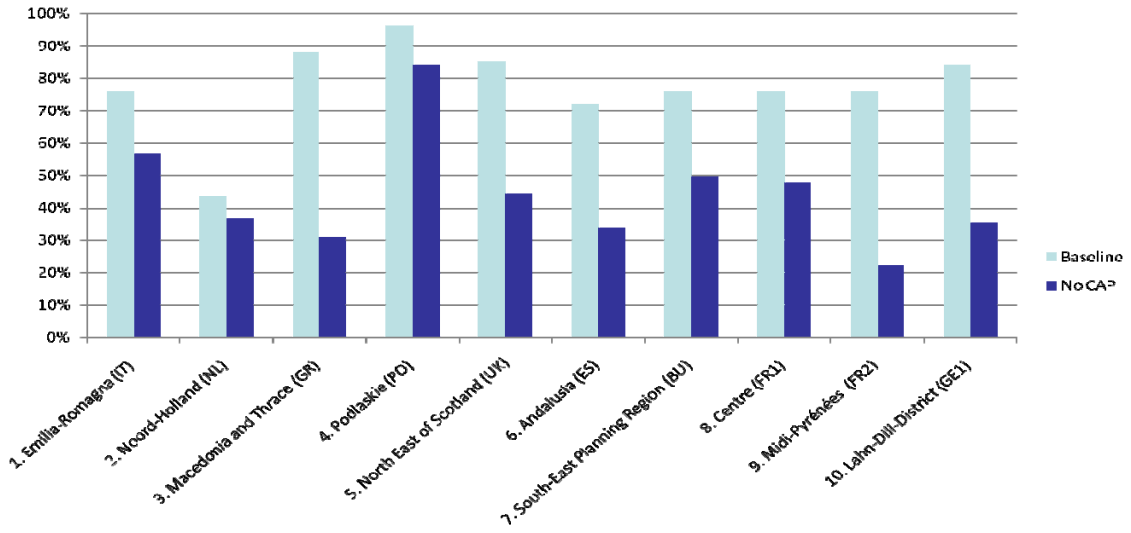
Table 3 : Exit farming if CAP discontinued

Country	CAP		NO-CAP	
	n.	%	n.	%
IT	46	15,3%	87	29,0%
NL	107	35,7%	120	40,0%
GR	27	9,0%	196	65,3%
PL	9	3,6%	37	14,9%
UK	11	6,5%	35	20,8%
ES	45	22,4%	114	56,7%
BG	37	13,6%	100	36,6%
FR1	17	12,1%	46	32,9%
FR2	28	18,1%	56	36,1%
DE1	17	14,5%	72	61,5%
DE2	19	11,9%	88	55,0%
Total	363	15,4%	951	40,2%

Source: Davide Viaggi, University of Bologna

Figure 12 shows the distribution of those who would continue farming under CAP and NO-CAP scenarios distributed amongst the case study regions:

Figure 12: Continue Farming under baseline and NO-CAP scenarios



Source: Davide Viaggi, University of Bologna

Those who would continue farming under the baseline scenario exceed largely those who would continue farming under the NO-CAP scenario, underlining the stabilising effect of the Common Agricultural Policy in terms of mitigating uncertainty through the support provided.

In terms of percentage stating to exit farming, Greece (65,3%), the two German regions (61,5%, 55%) and Spain (56,7%) have the highest exit rates. These regions would become more vulnerable to environmental degradation and socio-economic pressure without the support through the CAP.

Those farmers receiving support through Agri-environment Schemes or organic farming and would abandon this activity should the support be discontinued are summarised in the tables below:

Table 4: Abandonment of support activities (Agri-environment Schemes)

	BASELINE					
NO_CAP	Yes	No	Other	Do not know	Do not answer	Total NO-CAP
Yes	279	1		1	2	283
No	147	76	1	12		236
Other	3					3
Do not know	47	2	1	49		99
Do not answer	8	2			3	13
Total BASELINE	484	81	2	62	5	634

Source: Julio Berbel, University of Cordoba, Presentation

Table 5: Abandonment of support activities (Organic Farming)

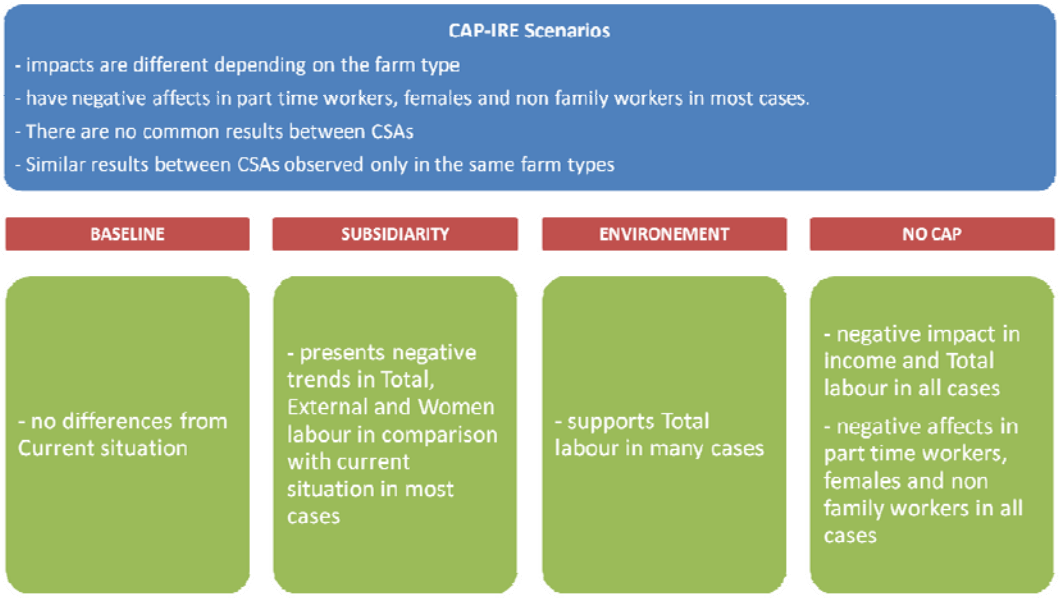
	BASELINE					
NO-CAP	Yes	No	Other	Do not know	Do not answer	Total NO-CAP
Yes	98					98
No	89	19		1	1	110
Other	3					3
Do not know	10		1	7		18
Do not answer	7		1		2	10
Total BASELINE	207	19	2	8	3	239

Source: Julio Berbel, University of Cordoba, Presentation

Abandoning environmental friendly farming practices, should the support be discontinued would increase the pressure on the environment.

The below figure 13 summarises the effects of the four CAP scenarios across all case study areas:

Figure 13 Effects on social sustainability



Source: Basil Manos, Presentation

As the figure shows, the Case study areas show different results and similarities have been only observed for the same farm types.

In general, the baseline scenario doesn't lead to differences from the current situation while the environment scenario, as far as social sustainability is concerned, has been observed to lead to positive effects concerning total labour.

The two scenarios for which negative effects have been observed are "subsidiarity" and "NO-CAP". Both Subsidiarity and NO-CAP seem to negatively affect labour allocation.

Additionally, the NO-CAP scenario has negative effects on income.

Similar to the previous results, the negative effects of an absent CAP show the stabilising effect of the CAP in terms of social sustainability. This function of the CAP has increased importance during economic crises.

Additionally to the effects on of social sustainability, the economic effects of the four CAP-scenarios have been analysed for the North Eastern Scotland case study region.

4.4 Economic effects in North Eastern Scotland

Table 6 below summarises the aggregate effects of the scenarios on output, gross regional domestic product and household income.

Table 6 : Aggregate impacts of the CAP-IRE policy scenarios on the North East Scotland economy.

	Policy Scenario			
	Baseline	No CAP	Regional-isation	Environment
Output (£m)	-21.47	-60.53	-41.00	-52.06
% change	*-0.11*	*-0.32*	*-0.22*	*-0.28*
GRDP (£m)	-9.22	-25.48	-17.35	-21.87
% change	*-0.10*	*-0.29*	*-0.20*	*-0.25*
Household income (£m)	-6.63	-18.34	-12.48	-15.75
% change	*-0.09*	*-0.26*	*-0.17*	*-0.22*

Source: Roberts, D., Pangbourne, K., Majewski, E., Sulewski, P. and K. Thomson (2010): Deliverable n.5.2, WP5: Chain Effects.

Due to exits, which would occur in any case, the output is predicted to decrease, including the reductions in output from agriculture as well as closely linked sectors. The reduction in total output value under the No CAP scenario is far higher (£60.53m) than under the baseline, but very small at a regional economy level (0.32%). Of the two remaining scenarios, the Environment scenario is estimated to produce the largest negative impact on the economy, due to the larger output impact of large specialist farms leaving the sector in the Scottish case.

The percentage changes in regional GRDP and household income as shown in Table 6 are smaller than the percentage changes in output value, reflecting the relative small direct contribution of agriculture to the regional economy in the Scottish case.

Table 7 shows the distribution of output effects across the region between urban and rural areas while Tables 8 and 9 shows the impact on agriculture by farm type (table 8) and farm size (table 9).

Table 7 Distribution of output effects across the region: Percentage changes in gross output value from 2005 level.

	Policy Scenario			
	Baseline	No CAP	Regional-isation	Environment
Urban Output (£m)	-6.75	-18.28	-12.52	-15.66
Rural Output (£m)	-14.72	-42.25	-28.48	-36.40
Total Output effect	-21.47	-60.53	-41.00	-52.06

Source: Roberts, D., Pangbourne, K., Majewski, E., Sulewski, P. and K. Thomson (2010): Deliverable n.5.2, WP5: Chain Effects.

Since farms are those firstly affected by the policy scenarios, the majority of total consequently impact far more on rural areas.

Tables 8 and 9 shoz that livestock farms are more affected in terms of output than other farm types, while the output of large farms falls more than that the one of small farms (in both absolute and percentage terms compared to 2005 levels).

Table 8 Distribution of output effects across farm types

	Policy Scenario			
	Baseline	No CAP	Regional-isation	Environment
Cereal farms	-2.13	-4.26	-3.20	-3.51
% change	*-3.13*	*-6.26*	*-4.70*	*-5.16*
Livestock farms	-6.80	-21.80	-14.30	-18.98
% change	*-5.81*	*-18.62*	*-12.22*	*-16.22*
Other Farms	-2.03	-5.95	-3.99	-5.13
% change	*-4.91*	*-14.40*	*-9.65*	*-12.43*

Source: Roberts, D., Pangbourne, K., Majewski, E., Sulewski, P. and K. Thomson (2010): Deliverable n.5.2, WP5: Chain Effects.

Table 9 Distribution of output effects across farm size

	Policy Scenario			
	Baseline	No CAP	Regional-isation	Environment
Small farms	-4.43	-12.60	-8.51	-10.85
% change	*-4.58*	*-13.03*	*-8.81*	*-11.22*
Large farms	-6.53	-19.41	-12.97	-16.78
% change	*-5.03*	*-14.96*	*-10.00*	*-12.93*

Source: Roberts, D., Pangbourne, K., Majewski, E., Sulewski, P. and K. Thomson (2010): Deliverable n.5.2, WP5: Chain Effects.

Table 10 illustrates the impact of the policy scenario across selected sectors beyond agriculture. The results show that would be affected to some extent due to the inter-linkages and feedbacks in the region, while the distribution and other services sectors have the highest percentage reductions in output value. The relative magnitude of impacts across the scenarios reflects as the previous tables the linearity of the Leontief model: The effects of No CAP are largest, with the environmental scenario giving rise to larger impacts than the regionalisation scenario.

Table 10 Output effects on selected non-farm sectors

	Policy Scenario			
	Baseline	No CAP	Regional-isation	Environment
Fruit and fish processing	-0.16	-0.39	-0.27	-0.37
% change	*-0.04*	*-0.10*	*-0.07*	*-0.10*
Other food processing	-0.62	-1.87	-1.24	-1.95
% change	*-0.11*	*-0.33*	*-0.22*	*-0.35*
Other manufacturing	-1.25	-3.41	-2.33	-2.92
% change	*-0.41*	*-1.11*	*-0.76*	*-0.55*
Distribution	-3.33	-9.41	-6.37	-8.09
% change	*-0.22*	*-0.63*	*-0.43*	*-0.55*
Other services	-2.35	-6.12	-4.24	-5.23
% change	*-0.05*	*-0.13*	*-0.09*	*-0.11*

Source: Roberts, D., Pangbourne, K., Majewski, E., Sulewski, P. and K. Thomson (2010): Deliverable n.5.2, WP5: Chain Effects.

Additionally to the specific results either in terms of thematic areas or case study regions, some general conclusions can be drawn and discussed.

5 Conclusions

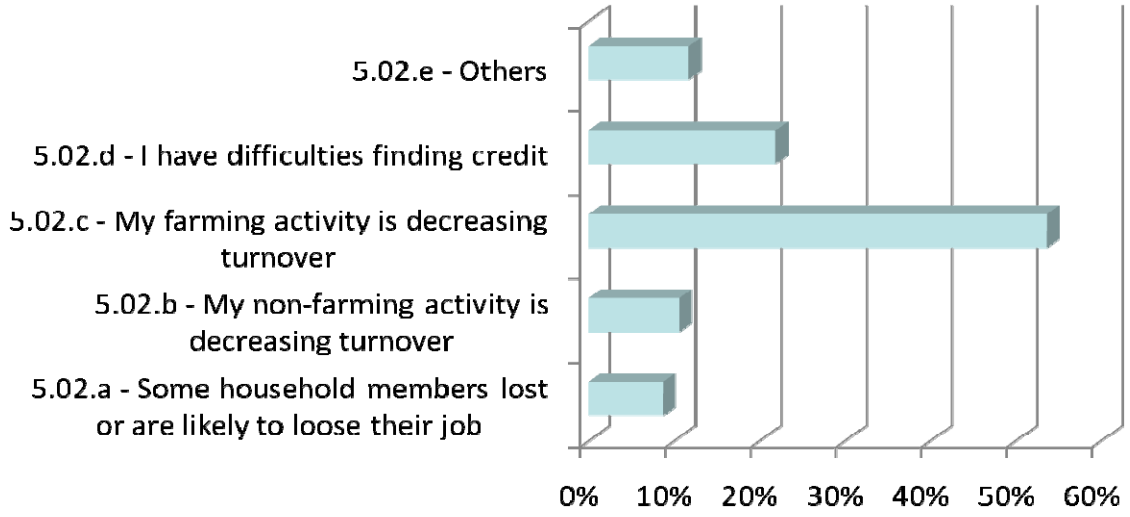
The main points, common to all observations and case study areas and not yet discussed are, that farms and farm household become increasingly heterogeneous within the regions observed, including social features and sustainability. Secondly, large farms tend to grow further and the CAP has been observed to play a relevant role in promoting growth and innovation.

Thirdly, the regional economy itself suffers little impact from the different CAP scenarios.

Exiting farming, in particular under the NO-CAP scenario, would have several negative effects, since the positive effects, in particular in socio-economic and environmental terms would be reduced.

In this context, figure 14 summarises the negative effects of the economic crisis on farming. Negative income effects are most marked, and the consequences in terms of exiting farming have been desrcribed above.

Figure 14 Effect of economic crisis



Source: Davide Viaggi; Presentation

Finally, beyond the socio-economic and environmental effects observed, the results of the CAP-IRE project are highly relevant to the current policy discussion since the three broad policy options as described in the communication (European Commission 2010), match in with the scenarios applied during the CAP-IRE project[2]:

Table 11: Correspondence between Communication and CAP-IRE Scenarios

The CAP towards 2020	CAP-IRE Scenarios
Enhanced Status Quo	Baseline
More balanced, targeted and sustainable support	Subsidiarity
Abolished market and income support	Environment

The remaining differences between CAP-IRE and the Communication are the following:

- The Baseline differs from "enhanced status quo" only in the discussion on the distribution of funds amongst MS, since this is not discussed in the CAP-IRE baseline.

- The subsidarity scenario; similar to the second communication proposal, emphasizes the important role of Pillar I

- The environment scenario matches the third communication proposal which phases out the first pillar and focuses on environmental measures. The CAP-IRE scenario however maintains some Pillar I funding.

Concluding, the CAP has been observed to have positive effects in for both the socio-eonomic fabric of rural areas as well as the environment. Both are factors highly influenced by the global context, due to climate change and globalization.

The CAP-IRE scenarios and consequently the results match well the current policy discussion and point at further research questions in terms of farmers expectations and how to reduce uncertainty, the multitude and the complexity of positive effects provided by the CAP.

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[2] See table 1 in Annex for a detailed description of the broad policy options as set out in the Communication.

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Annex

Table 1: Detailed Description of the Broad Policy Options in *The CAP towards 2020*

	Direct payments	Market measures	Rural development
Enhanced Status Quo	Introduce more equity in the distribution of direct payments between Member States (while leaving unchanged the current direct payment system)	Strengthen risk management tools Streamline and simplify existing market instruments where appropriate	Maintain the Health Check orientation of increasing funding for meeting the challenges related to climate change, water, biodiversity and renewable energy, and innovation.
More balanced, targeted and sustainable support	Introduce more equity in the distribution of direct payments between Member States and a substantial change in their design. Direct payments would be composed of: ▪ a basic rate serving as income support, ▪ a compulsory additional aid for specific "greening" public goods through simple, generalized, annual and non-contractual agri-environmental actions based on the supplementary costs for carrying out these actions, ▪ a voluntary additional co-financed payment to compensate for specific natural constraints, ▪ and a voluntary coupled support component for specific sectors and regions[3], Introduce support towards small farms. Introduce a capping of the basic rate, while also considering the contribution of large farms to rural employment.	Improve and simplify existing market instruments where appropriate	Adjust and complement existing instruments to be better aligned with EU priorities, with support focused on environment and/or restructuring and innovation, and to enhance regional/local initiatives. Strengthen existing risk management tools and introduce an optional WTO green box compatible income stabilization tool to compensate for substantial income losses. Some redistribution of funds between Member States based on objective criteria could be envisaged.
Abolished market and income support	Phase-out direct payments in their current form Provide instead limited payments for environmental public goods and additional specific natural constraints payments	Abolish all market measures, with the potential exception of disturbance clauses that could be activated in times of severe crises	The measures would be mainly focused on climate change and environment aspects

Source: European Commission (2010): Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. The Cap towards 2020: meeting the food, natural resources and territorial challenges of the future, Brussels, Annex.

[3] This would be equivalent to today's coupled support paid through Art 68 and other coupled aid measures.