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Is it becoming more difficult to research EU agricultural sector policies?

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2010

*Vortrag anlässlich der 50. Jahrestagung der GEWISOLA
„Möglichkeiten und Grenzen der wissenschaftlichen Politikanalyse“
Braunschweig, 29.09. – 01.10.2010*

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Is it becoming more difficult to research EU agricultural sector policies?

This paper examines the idea, sometimes expressed by agri-economic policy researchers, that it is becoming increasingly difficult to analyse and evaluate the agricultural sector policies that are operating or being considered for implementation in the EU. It discusses some of the reasons why this perception may have arisen, and tries to find reasons for it in particular developments and features of the current policy environment. No unambiguous answer is offered for the question posed in the title, but nonetheless the paper concludes on a note of cautious optimism.

1. Fundamental changes due to EU legislation

The last two decades have seen rapid evolution of the EU agricultural policy context originating from changes in EU legislation. Two changes in particular – EU expansion and successive reforms of the CAP – have changed the ‘landscape’ of agricultural sector research in the EU, significantly increasing the dimensions of the research task and confronting researchers with unfamiliar policy instruments, some of which are new also to the policy literature.

1.1. Expansion of the European Union

EU enlargement expanded the number of member states to 15 in 1995, with the accession of Austria, Finland and Sweden, to 25 in 2004, with the accession of eight former communist bloc countries and two small Mediterranean islands, and to 27 in 2007 with the entry of Romania and Bulgaria in the extreme south east. These successive enlargements have added to the heterogeneity of agro-climatic conditions within the EU, and to the range of farming types and technologies found across its territory.

In addition, expansion means that data sets and data quality are less homogeneous across Member States than was the case before these last three expansions. Indeed, for many variables of interest to policy researchers, time series are still short for the newest 12 entrants. This means that, in these cases, econometric methods still cannot robust elasticity estimates. Of course, longer time series for the newest entrant countries would bring other problems: since most of the new entrants were, during the decade of the 1990s, moving along their transition paths from centrally planned systems to market economies, institutions, structures and behaviour were not stable or representative enough to generate data suitable for deriving reliable 21st century estimates of behavioural parameters.

Moreover, even now, there are still differences between EU15 and EU12 in the way certain CAP instruments are implemented, although these differences are disappearing with time.

As a result of this large increase in heterogeneity and dimensionality, it is much harder for a single researcher or research team aiming to conduct policy research at EU level to have a good working knowledge of conditions in all Member States. This implies the need for larger research teams, bringing with them problems of coordination and extra challenges in harmonising the approach and the quality of the research. These problems are often successfully solved, but the cost may be that it takes longer to finalise projects. A benefit is that networks are put in place that can be exploited for more efficient EU-level research in the future.

1.2. Evolution of the CAP¹

Since the MacSharry reform (1992), the CAP has been steadily moving away from market measures (principally market price support and stabilisation by means of border controls and intervention mechanisms) towards non-market measures that impinge directly on farmers. In the Fischler reform (2003), not only was another major sector (milk) brought under the discipline of lower prices plus direct payments, but it was also agreed to merge the milk payment (converted to an area equivalent) with the existing area payments for cereals, oilseeds and protein crops². Commodity-specific justification for these payments, redefined according to a historic reference year, was dropped, thereby creating the Single Farm Payment and underlining the intention that this payment should be considered as fully decoupled. These payments accounted for about 56% of expenditure in the agricultural budget in 2008.

There has also been a sizeable shift of policy support out of Pillar 1 of the CAP into Pillar 2 (nearly 25% of expenditure in the 2008 agricultural budget). The main difference between Pillar 1 and Pillar 2 measures is that, whilst the former are fully financed from the EU budget and apply to all farmers in the target category, the latter are co-financed by Member States and are discretionary at two levels: Member States choose and design their own projects (which must satisfy guidelines as set out under the four axes defined in Regulation (EC) 1698/2005) and then individual farmers may opt to take part in projects offered by their national government (subject to their satisfying the eligibility criteria specified by the project).

Pillar 2 measures are intended to provide incentive payments to producers to undertake actions to modernise their farms and otherwise improve the competitiveness of the agricultural and forestry sectors, or to enhance the environment³. Although these payments are targeted to farmers, they come under the general heading of ‘rural development measures’, which denotes an implicit objective that the payment will be recirculated in the local economy. There are also payments (under Axis 3) to non-agricultural businesses, aiming to stimulate the quality of life in rural areas and diversification of the rural economy, with a specific focus on micro-enterprises and tourism.

The shift from Pillar 1 to Pillar 2 has greatly increased the heterogeneity of policies within the CAP, and created differences in the incidence of support between Member States and between farmers within a member State, even after farm-size differences are taken into account. Equally important in the context of policy research, Pillar 2 measures have explicitly introduced new aims and objectives – principally, enhancement of the environment and countryside, and development of the rural economy. As in the general case, evaluation of these policies requires an analysis of their impacts on the targeted objectives. However, unlike the targets of the pre-reform CAP (farm incomes, market prices, commodity production), the new targets are multifaceted clusters of desired outcomes, many of which (such as landscape quality, biodiversity) are difficult to quantify. Other impacts, like development of the local rural economy, are very difficult to identify in a rigorous way, because rural economies are

1 For more details, see Burrell (2009).

2 The same occurred for the sugar sector in the 2005 sugar reform.

3 Although the Fischler reform introduced environmental cross compliance conditions to Pillar 1 direct payments, we do not include monitoring cross compliance impacts under the heading of ‘agricultural policy research’ here. This is because virtually all the cross compliance items are statutory requirements for farmers, which they should comply with in any case, and they do not originate within the CAP. One would expect them to be evaluated under an environmental policy heading, although this is not ideal either given the real possibility of their interaction with the economics of agricultural activities.

influenced by a multitude of other time-varying factors whose effect is difficult to separate out from those of a stimulus via a CAP rural development measure (see section 2 below). In both cases, time lags between policy stimulus and impact are diffuse and uncertain.

In summary, it is clear that new challenges now face the policy researcher, due to: increased heterogeneity of the EU agricultural sector (farm conditions and farmer behaviour) and policy instruments; greater potential differences between Member States in the policies actually applied and the take-up of those policies; new policy objectives that are more difficult to measure and with respect to which policy impacts are more difficult to identify unambiguously. The virtual removal of commodities as links between policy measures and impact variables (like resource use or farm incomes) means that the CAP is increasingly territorially-defined (through payments to land) rather than commodity-defined, although commodities are still relevant for analysing market stabilisation measures and trade outcomes. Although it *is* sensible to analyse market activity at national level⁴, policy impacts on the rural countryside or rural economies ideally require a more disaggregated, spatially precise analytical framework, well below national level in all but the smallest countries.

2. Research approaches to the assessing new policies⁵

Researchers have been grappling for a decade or so with the challenge of assessing policies (whether targeted to farms or to non-farm activities) intended to stimulate development in rural areas. A first task is that of determining the appropriate territorial units for the analysis: is a 'rural economy' the same as a region, and if so, at what level of disaggregation should regions be specified? Or is a rural economy not only a relatively small (sub-national) area but also one without any very large towns or cities falling within it? Clearly, the closer one comes to an intuitively satisfying definition of a 'rural economy', the less likely one is to find data sets isolating the economic activities within that area and specifying their inter-linkages, as well as their backward and forward linkages with other areas.

A major question concerns the causal chain: so-called 'rural development measures' → rural economic performance → longer-term rural development target variables like population change, new enterprise formation and employment growth. The Dynamics of Rural Areas (DORA) project (Bryden and Hart, 2003) looked for evidence on the second of these links, using a series of case-studies across the EU, and concluded that, at local level, differences in rural economic performance were associated statistically and by interviewees' perceptions, with a number of longer-term development indicators. However, there was enough regional specificity to prevent a standardised explanation of regional economic development.

In the United States, Porter *et al.* (2004) found that competitiveness based on rival firms and institutions located in clusters (concentrating specific forms of social capital that are appropriate for their activities) is as important for rural development success as it is for regional economies. The study concluded that, aided by the relative attractiveness of the countryside in terms of quality of life and improvements in communications, the spread of external economies should also favour the development of internationally competitive *rural* clusters, and that investment in human capital can accelerate the process. A major implication of this study is that structural characteristics of rural economies, like accessibility to new

⁴ Even if, despite the Single Market, one still does not observe an effective EU-wide market for commodities where prices differ *only* by costs of transport between producing and consuming centres.

⁵ A large part of this section is loosely summarised from work done by the author for OECD in 2009, and appearing as chapter 5 in OECD (2009).

markets, opportunities for diversification, and quality of local capacity to adapt and respond to economic change will determine the degree of success in engaging with the opportunities provided by policy measures.

The emphasis of these findings on regional specificity highlights the need for a counterfactual scenario that would isolate the *ceteris paribus* impacts of rural development policy intervention. Unfortunately, cross-section analysis based on regions that aims implicitly to use regions with different levels of rural development spending as counterfactuals for each other (e.g. McGranahan and Sullivan, 2005) falls into the trap of selection bias. Economists favour the use of formal simulation models precisely because the ‘no-policy’ scenario serves as a *ceteris paribus* counterfactual scenario for the ‘with-policy’ simulation. It is very difficult, however, to construct such models at an appropriate regional scale because of data needs, imperfect understanding of causal pathways and lack of reliable response parameters.

Currently, policy researchers favour two other approaches: Social Accounting Matrix (SAM) multiplier models, which embed an I-O model of the production sector and extend the coverage to household consumption and income distribution, the functions of other institutions contributing to demand⁶, and CGE models, which overcome the demand-driven nature of I-O models by adding behavioural equations and elasticities to reflect resource constraints, and which take into account feed-back from other economic sectors⁷. Given the large data requirements, however, both approaches have tended so far to focus on only one or a few regions. For example, Roberts (2000) explored the interaction between rural areas and their urban pole in a region of Northeast Scotland, using a bi-regional SAM that depicts inter- as well as intra-local economic interactions, and finding stronger spill-over effects from the urban to the rural locality, relative to the other direction from rural to urban. Psaltopoulos *et al.* (2006) examined inter-linkages between two rural localities and an urban centre in Crete, and the diffusion patterns of economic impacts of three elements of the CAP: commodity support, investment to improve farm structures, and promotion of economic diversification. By contrast with Roberts' findings, the benefits of rural support were found to flow substantially into the urban economy; high-income households were the main beneficiaries of commodity support; whereas middle-income households benefited most from measures to promote economic diversification⁸. By contrast, CGE models usually indicate smaller effects of demand changes than SAM approaches.

A formal modelling approach can produce insights into policy impacts only when the relevant causal pathways are well understood and can be realistically parameterised. In the case of new policies, primary research is often lacking to determine how agents react to the policy and to provide data on the strength of their responses. The same problems hold when models are used to trace the impacts of ‘rural development’ measures on environmental targets (although here the need for a counterfactual to isolate the *ceteris paribus* effects of the policy may be less strong). For both types of policy, when primary empirical research is lacking, modellers often fall back on general assumptions from economic theory (of how rational agents *should* react) and on ‘best guesses’ about likely response parameters and environmental impact coefficients (sometimes labelled ‘expert knowledge’).

⁶ For example, Roberts (1995, 2003), Kilkenny (1999) and Psaltopoulos *et al.* (2006).

⁷ For example, Kilkenny (1993), McDonald and Roberts (1998), Olatubi and Hughes (2002).

⁸ For studies examining the links between forestry activity and rural economies, see Munday and Roberts (2001), Eiser and Roberts (2002).

The challenges of measuring either the impact of Pillar 2 measures on rural development or that of agri-environmental payments specifically on environmental targets have in common that they involve long, complex causal linkages that may partly cross disciplinary boundaries. The scope for using linked models to explore such long causal chains is discussed in Burrell (2008).

3. New policy issues due to exogenous developments

Apart from changes in the context and the requirements placed on the agricultural policy researcher due to EU legislative decisions, a number of new policy issues have arisen due to exogenous changes not triggered by EU decisions. Some of these new issues are already the object of new EU policies, whilst in other cases policy makers are deliberating whether a policy response is needed and, if so, what form it should take.

3.1. Market price volatility

During the period 2007-2009, and after many years of rather stable prices, there was strong volatility in EU commodity prices. This was due partly to the direct transmission of volatility from world market prices, and in part to a general weakening of demand following the global economic crisis, which the remaining floor-price mechanisms in the EU were unable to prevent from affecting domestic market prices. Other factors (financial market spillovers, price manipulation by the food chains and/or by speculative stockholders, and so on) are also cited by some commentators. Although EU farmers now receive (decoupled) direct payments as well as market-generated compensation, these sharp price movements had a considerable impact on farm incomes and gave rise to loud calls for assistance to the farm sector.

This recent experience opens up a new area for policy-related research. A first priority is for research to provide a rigorous scientific explanation of the recently observed volatility, which can objectively weight the contribution of – or rule out as contributory factors – the different explanations that are being put forward. This is a pre-requisite for deciding whether or not a policy response is needed, and if so, what form it should take. After decades of market insulation and internal stabilisation measures, the policy research arsenal on this topic within Europe is not well-stocked. There are many unanswered questions relating to basic transmission mechanisms as well as to producer perceptions and responses to volatility.

Should research show that the configuration of factors that caused the recent volatility is likely to be recurrent in the future, the question then arises as to whether current policy simulation models need to be adjusted to take this into account. If the interaction between farmer risk aversion and more volatile prices reduces supply responsiveness to price changes, this should be incorporated into our analytical models. But to what extent?

3.2. Price transmission in the food chain

Another current policy concern is the degree of price transmission within food chains. Although a number of relevant studies exist⁹, they tend to highlight that researchers still know relatively little about this issue in the EU, and that here too there is a large degree of heterogeneity both between Member States and products. Clearly, it is not necessary to have

⁹ See, for example, European Commission (2009a), Lloyd *et al.* (2006), Meyer and von Cramon-Taubadel (2004), and Peltzman (2002).

reliable empirical estimates about the situation for every commodity chain in all Member States, but a proper scientific approach would be at least comprehensive enough to establish a typology of the various situations in which price transmission is imperfect, as well as the characteristics of the imperfection and its underlying causes, in order to support policy decisions in the area.

Clearly, a major requirement for an in-depth analysis of what happens within supply chains – which are often characterised by several vertical intermediate stages between the supplier of the primary commodity and the consumer – is the availability of data, and – when transmission is imperfect – of objectively observed information about exactly how prices are formed at each stage along the chain and where the market power resides. Such information is generally very difficult to obtain. Relevant questions include whether market power is exercised in a symmetric way for both falls and rises of price in primary commodity markets, and whether price changes due to demand shifts in consumer markets reach farm prices.

Here also, once the full dimensions of the phenomenon are identified, the question is whether our existing policy simulation models need to be adapted in order to explicitly include supply chain behaviour. Many agri-economic simulation models in current use as decision-support tools for policy makers treat the market for agricultural commodities as if it is the market of final demand. In other words, demand elasticities used in these ‘first-point-of-sale’ markets are assumed to be the same as those of the final consumer. This gives valid simulations of market outcomes only as long as price changes are fully transmitted downstream.

3.3. *Climate change*

In 2007, the EU Council pledged to cut total greenhouse gas emissions by 20% from 1990 levels by the year 2020, and to boost the figure to 30% if the rest of the developed world adopts the same cut (an opportunity missed in Copenhagen in 2009). Two years later, the Commission’s White Paper (Commission, 2009b) stated: “Adaptation needs to be *mainstreamed* [bold in the original] into EU policies. This exercise has to be carefully prepared, based on solid scientific and economic analysis. In each policy area there should be a review of how policies could be re-focused or amended to facilitate adaptation”. A significant element in the proposed strategy is an increase in the resilience of European agriculture and forests, and “the CAP is well placed to play a central role in contributing to adaptation, not only by helping farmers to adapt their production to the changing climate situation, but also by helping provide wider ecosystem services dependant on specific land management”. So far, the only results have been several new measures that were created within Pillar 2 in the Health Check mini-reform. However, one can expect more incentive measures to come.

Regarding mitigation, farming groups in Ireland and Denmark have recently proposed introducing measures to reduce GHG emissions by cattle, and there has been discussion of including agriculture in the European Emission Trading Scheme. Carbon sequestration by agriculture is another lively issue. An IPTS study recently assembled available evidence on the scope for reduced tillage methods to play a role here (Louwagie *et al.*, 2009)(see also Izaurrealde *et al.*, 2001; Schils *et al.*, 2008).

The above facts and quotes suggest that, in the foreseeable future, policy makers will require researchers - almost as a matter of routine - to analyse impacts of economic policies targeted to agriculture on greenhouse gas emissions, along with their impacts on the usual array of

politically-relevant indicators. A conceptually different, but equally demanding, task is that of analysing the effects on agriculture of policies targeted on GHG emission reductions. In both cases, analytical models of economic behaviour will need to include linkages between economic policy instruments, producer decision making, specific GHG-emitting activities, and emission levels. Work is underway extending the CAPRI model to cope with this kind of policy request, but much more remains to be done.

3.4. Policy questions of global relevance

Various issues on the EU policy agenda concern repercussions of EU policies outside the Union. These issues tend to be raised by pressure groups or other critics of the policies. To make a decisive contribution to the policy debate, analysis of these issues requires the researcher to examine EU policy impacts on a global level. One example is the current controversy about the impacts of EU biofuel targets on indirect land use change in other parts of the world. The controversy centres on the assertion (see, for example, Searchinger *et al.*, 2008) that the GHG saving attributed to biofuels needs to take into account the relative carbon sequestration capacity of the land under the biofuel feedstock crop relative to its sequestration capacity when the land is in its most likely alternative use. If, runs the argument, land that was previously (for example) virgin forest or peatland (with a higher carbon storage capacity than an arable crop) is converted to arable land in order to accommodate demand for biomass, the loss of stored carbon when the land is cleared must be offset against any GHG saving from the biofuel. For example, should the EU biofuel target lead to an expansion of palm oil plantations in the Far East at the expense of rainforest, or of arable crops in Latin America at the expense of savannah, then GHG emissions would increase, at least in the medium term. Thus, to provide policy makers with the answers to this very controversial question, it is necessary to model the impacts of EU biofuel policies on crop production and the land used for that production globally and, ideally, identify the previous use of any increase in cropped land. IPTS, among others, have made some attempts to provide this information, but due to limitations of the models available, the evidence is still partial (see IPTS Agro-economic Modelling Platform, 2009).

A second example of a policy issue that involves global impacts of EU policies centres on food scarcity. Various farming groups are currently lobbying policy makers to recognise that the EU has a 'responsibility' to help feed the world's growing population, and that EU agriculture should not be pruned back simply to meet the needs of the relatively stable EU population (see, for example, COPA-COGECA, 2010). A full scientific research assessment of EU agricultural policies in relation to world food needs would require a global agri-economic model, preferably with some disaggregation of consumption according to household income thresholds within the poorest countries.

Research that contributes to the political debate on these new issues faces challenges of data availability, of significantly expanding or adapting existing tools – or possibly developing new tools - and of new methodological expertise. In addition, it may mean that policy researchers have to invest more time in discussing the new issues with end-users in a research perspective, and in familiarising them with the new research tools that are adopted in order to address them. In at least some of these cases, the new issues call for a more multidisciplinary approach than used hitherto, since the scope of the causal policy chains under scrutiny extends outside the boundary of conventional agri-economic policy analysis.

4. Looking ahead

4.1. What do policy makers want to know?

Casual observation suggests that, as well as the conventional analyses of *ex post* policy impacts, there has been an increasing demand for *ex ante*, prospective impact studies of new policies, or of existing policies operating outside the range of settings used in the past. This is understandable in a period of rapid policy evolution and re-instrumentation. It also, however, creates colossal challenges for policy researchers precisely because the policies are new and untried. The reasons have already been mentioned above – lack of data, lack of supporting primary research, poor knowledge of causal pathways that have not until now been required to transmit policy stimuli, and need for new tools.

Moreover, as far as Pillar 2 is concerned, it is debatable whether an *ex ante* focus is always sensible for many of these measures. Since the commitment of funds to specific rural development projects is, by comparison with Pillar 1 measures, relatively small, the need for an *ex ante* study before money is finally committed to a particular project is far less compelling. What could well be more appropriate is rigorous and rapid *ex post* analysis of such policies, treating them almost as pilot studies, so that best-practice guidelines can be derived and Member States can learn in useful time from what has been done elsewhere. It is also worth pointing out that (a) the take-up rate of rural development measures may be very hard to estimate in advance and (b) the effects of rural development measures are often slower to act and with much more uncertain time lags than producer responses to annual commodity response changes. These characteristics create further difficulties for *ex ante* studies.

It is also clear from our quick review of new policy objectives (rural development, enhancement of the agri-environment) that the focus of the policy maker is often fixed well below national level. The fact that budget expenditure on these very targeted, locally implemented policies can be aggregated to EU-level totals may well create a perceived, reciprocal need on the part of policy makers for aggregate estimates of the impacts of these policies. I would argue strongly that this can often be inappropriate. Because of the voluntary, partial nature of Pillar 2 measures, and since Member States design their own policies, it follows that policies under the same heading in two different Member States, or tailored for two different regions in the same Member State, may be quite different from each other. Therefore, the desire to have a more aggregate, or EU-wide, impact estimate for each of these policies seems to be of minor interest, since the heterogeneity of the measures may render an aggregated measure uninterpretable. In these circumstances, a case study or a set of well chosen and contrasting case studies might provide better insights into how such a policy operates, and how its outcomes may be sensitive to features of the local situation.

The fact that many of the measures within the CAP, although funded from a common budget and according to common rules, are now in their design and operation rather specific to Member States or to regions within Member States, means that in these cases it makes little sense to measure their impact at the level of EU27. A full acceptance of this reality could take the pressure off researchers to present EU-level results that are hardly meaningful, or where a lot of guesswork and investment in collecting poor data imply huge (but unknown) error margins around the total figure. Having said this, the role for *ex ante*, EU-level studies of markets and trade flows remains unchallenged. Nonetheless, it seems clear that in this context more knowledge is needed about the lack of full transmission of commodity prices between Member States, and the reason for this.

4.2. Where should policy researchers invest new resources?

The discussion above indicates the need for (a) more primary research and less ‘making-do’ with established, general-purpose data collections, (b) a more vigorous effort to work out the theory (or track it down in the literature) of some of the new policy measures, rather than falling back too quickly on basic theory and empirics (c) some rebalancing between more detailed, more informative ‘micro’ or case studies and EU-wide, aggregate studies. Apart from this, EU agricultural policy researchers should be encouraged to carry on with their business as usual, with continuing emphasis on rigour, good communication and willingness to adapt.

This is now the season of crystal ball gazing, where researchers try to prepare themselves for analysing the post-2013 CAP. It seems clear that at least some of the ‘emerging issues’ discussed above in section 3 will be the object of new policy measures. A considerable amount of fairly basic research is needed, which could start immediately, in order to improve basic knowledge of these phenomena in the EU in preparation for the new policy challenges in the 2013 CAP.

The question also arises as to whether, now that co-decision with the European Parliament affects much agricultural policy decision-making, we should expect a greater demand for analysis of the *social* impact of policy measures. This could, for example, take the form of requests for a breakdown of aggregate impacts according to the distribution of the effect by socio-economic level, or for more emphasis on non-economic indicators such as health (of farmers, consumers, animals) and well being. In addition, the usual list of stakeholders taken into account in many agricultural policy research studies is surprisingly narrow, despite the potentially wide-reaching social effects of some policy measures. It may be time for policy researchers to give thought to new opportunities for analysis in these directions.

Finally, in answer to the question raised in the title, this rapid overview of current challenges reveals that demands and difficulties of researching EU agricultural sector policies have indeed been increasing and will continue to increase. However, it must also be said that the size and expertise of the European agricultural policy research community has also been growing strongly in recent years. What is needed now is a reappraisal by both policy makers and researchers of what is feasible and sensible in specific contexts, which may lead to some realignment of expectations about what kinds of research can yield the most usable insights in those contexts, what is of secondary or very short-term value only and what is unrealistic to expect even though it might appear to be highly desirable.

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