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Agricultural policy in Europe: an experiment on economic, social and ecological sustainability

1. The Changing Face of Agriculture

In peasant society, agriculture was the main economic activity, but the farmers also performed many other tasks: farming was multifunctional by nature. But, with modernization, farming has become 'just' one occupation amongst many others. At the individual level, this structural differentiation is visible in the growing specialization of labour and scale enlargement. Many smaller farms have had to close down, while the size and productivity of the remaining farms has increased. Higher yields, efficient management, and increasing external inputs have all contributed to an increase in productivity (Luttik and van der Ploeg, 2004). However, after a period of only focusing on output levels, the so-called productivism period, now a more balanced way of agricultural production is sought. The new farming context, with a variety of goals and actions, is bringing about a more diversified use of rural areas, somewhat similar to the use of rural areas before the productivism period, but with a less significant role for the agricultural sector (see Wilson, 2001). Increasing leisure time and greater mobility of residents is generating a higher number of visits to rural areas. As well as that, environmental quality attracts residents who want to live in the countryside. The renewed awareness of the value of nature, culture, and landscapes is encouraging the conservation of these elements. However, it is mainly in the developed regions, that much of the debate about the agricultural sector focuses on agriculture's ability to produce joint products. In developing countries, it is much less an option to enjoy non-production benefits from the agricultural sector. The most important reason for this is food security and the role of agriculture in alleviating poverty (van Leeuwen, 2010).

All in all, we can distinguish between three main tracks of agricultural development:

1. Modern, large scale agriculture: an industrial way of agricultural production in which the focus is on producing food and fiber in an efficient way. This requires a high level of technological innovation and knowledge.
2. Modern, small scale agriculture: a more balanced way of producing high quality products and additional (environmental or social) services. It is a knowledge intensive and often also ICT intensive way of producing.

3. Traditional (small scale) agriculture: a traditional way of producing agricultural products for personal use or for commercial purposes, often in an ICT and knowledge extensive way.

All three tracks have their own positive and negative sides. However, the most important negative side of traditional agriculture is that, due to a lack of social and technological resources, it is often difficult, if not impossible to bridge the gap with more modern ways of farming. This way, it is very difficult to receive any funds for enlargement or modernization, resulting in a vicious circle.

2. Emerging Megatrends

As mentioned above, the agricultural sector has gradually changed: agriculture has become a modern industry subject to the forces of globalization. There is a variety of background trends that have been critical in reshaping the positing of agriculture. We distinguish here the following megatrends:

- *The rise in world population*
  Recent population projections show that in some 40 years time our planet may have to accommodate some 9 bln. people, which puts a heavy claim on our agricultural resource system. Not only because it requires more food and fiber, but also bec ause less space remains for agricultural activities.
- *A stable demographic development in Europe*
  The world-wide rise in population shows a different pace for Europe, population projections indicate that Europe will have a stable population volume in the order of magnitude of 500 to 600 million inhabitants (depending mainly on migration movements).
- *Shifts in the geography of markets*
  A rising demand for foodstuff – and for all other industrial goods – is to be expected in markets outside Europe. The domestic European market will shrink in relative size forcing European agriculture to be oriented towards global production and marketing.
- *Emerging economies outside Europe*
  Not only will the population increase in regions outside Europe, but also welfare will increase significantly, witness the current economic successes of countries like China, India and Brazil. Thus growth markets are to be found outside Europe.
- *Transitions towards a high-tech and footloose agriculture*
  Agriculture is no longer a traditional sector, but a modern high-tech sector in which ICT, biotechnology and marketing play a critical role. Agriculture used to be a resource-dependent activity largely determined by the physical geography of an area, but modern technology has made agriculture also a rather footloose sector, which means a challenge for traditionally strong agricultural regions.
- *Environmental decay and climate change*
  Agriculture is no longer an environment-friendly sector; the use of pesticides

and herbicides as well as the distribution of ecological landscapes have turned agriculture into a sustainability threat which may be difficult to convert into new environmental opportunities. In addition, climate change may incorporate new challenges for agricultural sustainability.

- *Transition of rural areas into eco-areas*
  Rural areas used to be the home base of agriculture, but many rural areas tend to lose their agricultural land use orientation and to be turned into eco-areas, for instance for leisure activities (tourism, recreation, nature). This tendency challenges of course the environment orientation of modern agriculture.
- *Declining support for agriculture*
  Since World War II, agriculture has enjoyed a great deal of public support, resulting in unprecedented financial subsidies for this sector. The disproportional subsidization of agriculture in a free market system has increasingly met criticism and, as a result, subsidies for farmers tend to decline drastically, as is witnessed by the decreasing share of agricultural subsidies in the EU structural funds.
- *Rising interest in human health, animal health, and foodstuff*
  Agriculture has to produce an increasing variety of agriculture-based products serving the variety of consumers' tastes on the world market. In addition, the demands of consumers on the quality of foodstuff are rising, partly as a result of economic wealth and partly as a result of human health conditions.
- *Need for strong social-institutional capital*
  The production and sales of agriculture-based products has become a multi-stage chain activity of a formidable logistic complexity. With much uncertainty on domestic and world markets, there is a need for cooperation in competition among all producers, which means essentially the development of institutional support and back-up systems and of strong social capital in the agricultural sector itself.
- *Knowledge-intensity of agriculture*
  Agriculture has made a drastic change towards a high-tech activity, a change that is only possible due to a strong knowledge orientation of this sector. Public-primate R&D and advanced educational facilities are increasingly becoming the backbone of a promising, vital and sustainable agricultural sector.

We may thus conclude that the transition of agriculture into a 'normal' industrial sector is induced by a variety of global and industry-specific background factors, which will leave behind profound footprints in the future of agriculture. This calls for strategic responses from the side of stakeholders in the sector. They will have to face important dilemmas in the decades to come. Some of these dilemmas will be discussed in the next section.

3. Agriculture at the Crossroads

Nowadays, agriculture in developed countries is faced with various strategic choices which will be decisive for the survival of this sector. We mentioned here the following dilemmas:

- *Agricultural policy vs. rural-regional policy*
  Agriculture may for political and economic reason need a support from local, regional, national or supra-national governments. This is a typical example of industry policy for a specific sector of interest. But agricultural production is undertaken at specific locations or regions, and these regions may be subject to broader regional development support programmes in which agriculture plays only a smaller role. The optimal combination of agricultural policy and regional policy has always prompted much debate, and will continue to do so. This has also implications for EU structural policy, as there is a tendency to favour broad regional development programmes to the detriment of less privileged sectoral programmes.
- *Large-scale agriculture vs. ecological agriculture*
  Agriculture has become a very competitive and globally-oriented sector due scale enlargements and its high-tech and knowledge-intensive character. This development has sometimes been at odds with ecological sustainable of rural areas has questioned the environmental feasibility of modern agricultural production. In contrast, an increasingly important interest has emerged, which calls for ecological sustainability, animal health and eco-friendly agricultural products (e.g., in the movement 'local for local' on minimization of the ecological footprints of agriculture). The latter movement has to take for granted that eco-oriented agriculture may be more expensive, so that at the end the market will decide what is a viable strategy. But it goes without saying that modern agriculture has to have an open eye for the environmental aspects of its production.
- *Domestic production vs. outsourcing*
  In the same vein as the dilemma large-scale vs. ecology, we may distinguish the force field domestic production vs. outsourcing. From the viewpoint of international trade and shifting world markets, it is an important and strategic question whether the world market has to be served by local production or whether outsourcing towards the areas where the big markets are found is a meaningful strategy. This is not only a matter of transportation costs and differences in local production costs, but also of knowledge support (brain drain) and logistic support systems. It is clear that the strategies pertain to this dilemma will have far reaching implications for foreign direct investments in the agricultural sector.
- *Market forces vs. government support*
  The goal of national autarky in food supply has traditionally been a strong argument in forms of financial support mechanisms for the agricultural sector. But this support system has in many countries discouraged innovations in the agricultural sector, while it has also disrupted the efficiency in international trade in agricultural foodstuff, often to the detriment of developing countries. For a vital agricultural development, it is therefore of critical importance to minimize governmental dependence and to limit subsidies only to those situations where there is an urgent need (e.g., in case of disasters) or a case of an infant industry situation (e.g., in case of a new branch of agricultural products).

- *Economic vitality vs. ageing rural areas*
  Economically healthy agriculture calls for land-use changes geared towards big markets on the basis of mass production. 'Local for local' may become an additional strategy, but still needs to prove that it will support a healthy development of the agricultural sector that is internationally competitive. At the same time, we witness not only an ageing process all over society, but we also observe an increasing tendency of retired people to move towards rural areas. Whether or not this will become a dominant trend, remains to be seen, but it is no doubt clear that the presence of 'healthy and wealthy' aged people in rural areas may support the development of eco-friendly and 'local for local' production modes.

Without any doubt, the future of agriculture is fraught with many uncertainties. In the above expositions, we have tried to highlight some very important dilemmas. The policy response to these dilemmas – to be given by all stakeholders – will mainly centre around the central question whether agriculture has to serve national (including local and regional) needs for foodstuff and other services or whether agriculture is to be regarded as an industrial producer that serves the world market subject to various sustainability conditions. In other words; to develop agriculture more into a mono-output, or multi-output sector. This links back to the two desirable tracks of agricultural development we distinguished in the first section: modern large-scale and modern small-scale agricultural activities (with traditional agricultural activities as an undesirable development). Clearly, they have their own advantages and disadvantages. Modern large-scale activities are better suitable for out-sourcing and for an efficient way of providing the world with sufficient food and fibre. However, not all regions are suitable for modern large-scale activities, both due to economic or environmental aspects. Therefore, modern small-scale activities can be very important as well, not only providing agricultural products, but also different kinds of environmental and social services that become increasingly valuable.

4. Challenges to Agriculture

Agriculture is a sector in motion. A vital agricultural sector needs to offer proper responses to major challenges that impact on the future viability of the sector. In the light of the observations made in Sections 1 and 2, we will concisely outline now four challenges that seem to be a source of concern in most countries.

- *The future of rural landscapes*
  Agriculture and rurality are two interwoven concepts. Agriculture needs for its production operation the presence of rural areas, but this land use – in particular in case of intensive modes of agricultural production – challenges ecological sustainability of these areas, not only in a physical-environmental sense, but also in a socio-economic sense. But there is hardly a way out, as eco-friendly agriculture applied on mass scale will increase product prices and may weaken the international position of this sector. The 'new rurality' – with

a combination of sustainable land use for both agriculture and leisure activities – is a great challenge and calls for much policy interest and innovation in the agricultural sector.

- *New environmental resources*
  Agriculture is a typical example of resource extraction. In the past decade, we have also witnessed other applications of resource extraction from rural areas, for instance, in the form of solar energy and wind energy parks. Clearly, this land-use transformation has prompted heated debates on the beauty and visual aspects of these types of energy sources. In addition, we observe a rapidly increasing conversion of land use in rural areas into bio-ethanol, as a substitute for fossil fuels (see also Takahashi and Nijkamp 2010, Finco *et al.* 2011). Also this drastic shift in agricultural land use has led to heated debates, both on the sustainability of these land-use transformations and on the energy-efficiency of this new source of energy. It is clear that much research is still needed to come up with conclusive answers on the economic, ecological and energy feasibility of rural land as a new source of energy.
- *High-tech export sector*
  Modern agriculture with its mass production is increasingly oriented towards emerging global markets. Agriculture tends to move from a local orientation towards an international market orientation. This has far reaching consequences for the sector, as its marketing strategy and its logistic control and command of long chains of foodstuff have to be re-oriented towards the diversified needs of a great variety of international customers. If agriculture has to make a living from its global and high-tech character, it needs a drastic change in skills, technology, marketing expertise and logistic control.
- *Developing regions*
  Overall, Europe is a very fertile continent with relatively many areas extremely suitable for agricultural activities. However, in some of those areas, especially in the new-member states the level of technology and knowledge is so low compared to the rest of the EU, that special attention is needed to bridge the gap. If we want to benefit from those areas as well, more specific (agricultural) policies need to be developed to improve local circumstances and to allow for a competitive agricultural sector.
- *Idyllic ruralities*
  The call for a reduction of ecological footprints is not always supported by the findings from international trade theory, but has become an accepted claim in policy debates on future agricultural strategies. There are certainly many examples which demonstrate that selected 'local for local' production modes may be feasible, e.g., wines, beers, honey, olives, organic food, textiles, and so forth. This – in combination with the benefits of a healthy rural environment – makes up a clear argument for taking this trend serious. This trend is further supported by so-called 'hobby farming', party farms, spa's etc. This may of course bring with it a more urban orientation of rural developments (urban sprawl into rural areas) (see also de Noronha Vaz *et al.* 2006, 2009).

It is thus clear that the future of agriculture will not be a recti-linear trajectory. There are several forces at work, which may call for painful responses and solutions. This will concisely be outlined in the concluding section.

5. Retrospect and Prospect

In a world with globalizing markets and emerging new economies, agriculture will have to re-position itself. It will have to revisit the traditional position as producer of primary food resources (networks) and a provider of jobs in rural areas. It will also have to look for new land-use alternatives, e.g., as a new energy source (bio-ethanol). In addition, it has to envisage the option of a landscape protector safeguarding biodiversity, cultural values and ecological quality. And finally, it may also assume a new position under conditions of climate change (e.g., management of vegetation).

All these questions mean a major challenge for stakeholders (both private and public) in the agricultural sector. Much more sophisticated research is needed to map out the various uncertainties and dilemmas. This calls on the one hand for an advanced monitoring and information system of all variables at work (including advanced geo-science information) and on the other hand for an operational integrated model anchored in both terrestrial environmental systems and socio-economic response systems so as to highlight future trends on the basis of scenarios experiments, interactive envisioning think-tank exercises and meta-historical research.

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