

## **Market Tendencies, Demographic Changes and Possible Consequences**

**Martin Banse, LEI (The Hague, The Netherlands)**

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### **Background**

The purpose of this project part is to identify what are, in fact, the long-term drivers in tendencies on world's agri-food markets. Some of these drivers are largely independent of policy influence, but others can be oriented by policy intervention. It is this possibility to inflect the course of reality that gives sense to the study of alternative scenarios that will accompany the formulation of different scenarios.

### **What is the problem?**

- Growing population
  - World population has grown with 1.4 percent a year over the 1990-2003 period.
  - Population growth in high-income countries was just 0.7 percent a year in the 1990-2003 period. The high-income countries in Europe and North America, as well as Japan, Australia, and New Zealand, are growing by less than 0.5 percent annually. Population growth rates are negative in many European countries, including Russia (-0.6%), Estonia (-0.5%), Hungary (-0.4%), and Ukraine (-0.4%).
  - Population growth rates are higher in developing countries. The population growth in the least developing countries and in the low-income countries was 2.4 percent and 2 percent a year, respectively.
  - In general is the rule the higher the income level of a country the lower is the level of its population growth.
- Development of GDP
  - World GDP is growing with 2.6 percent a year over the 1990-2003 period.
  - The GDP growth rate of the high-income countries 2.3% is lower than for the world (2.6%) in this period.
  - GDP growth is higher for the middle-income countries (3.5%) and highest for the low-income countries (4.5 %) in the period 1990-2003.
  - In general there is a process of catching up: the income growth rate is higher for countries with a lower initial GDP level. An exception to this rule is the lower income growth of the least developed countries relative to the low income countries.

- Increase in food demand, change in food consumption patterns
  - The demand for agricultural products is to a great extent determined by the development of the economy and the population. The size of the population is a particular determining factor for the volume, and the income level is a particular determining factor for the composition of the food demand.
  - During the last thirty years a billion people were added every decade. This led to major shifts in food production and consumption, including a surge in grain production, a spectacular rise in meat production and consumption and an increasing role of international trade.
- Scarcity of resources (land, water).
  - Agricultural production has to adjust according to growing scarcity of resources. Here the availability of new technologies becomes crucial continually offering new opportunities for responding to changing scarcity ratios, to environmental problems (such as problems associated with pesticides, greenhouse gases, minerals etc.) and to existing and new consumer needs.
- Emerging of new markets
  - Apart from the production of agricultural products for food and feed purposes there is a growing demand for fuel and fiber uses. Making good use of biomass - an important source of sustainable energy – will grow in importance over the coming years. Therefore, it seems to be important to assess a potential for a growing conflict in the use for agricultural land used for food, feed, fuel or fiber production.

## **Future**

The purpose of the WP3 in the AG2020 study is to identify the future trends and driving forces that will be the framework for the agricultural economy based on a foresight analysis. A set of scenarios based on an analysis of trends from 1990 to 2005, and these trends are projected forward to 2020. This trend analysis provides a substantiated basis for determining the long-term driving forces ('exogenous drivers') that is reflected in the reference scenario.

Under the assumption that agricultural, rural and environmental policies are able to inflect these trends, these policies are studied as a second-level set of driving forces ('endogenous drivers'). Several counter-factual scenarios to the baseline scenario will be defined, to demonstrate reasonable variations in policy during the coming fifteen years.

Foresight analyses have been achieved in various studies and most of them were focused on one of the above mentioned aspects, such as impact of changes in consumption patterns (EEA, 2005a) or an increase in bio-energy demand in the EU (OECD, 2006). Other studies such as the OECD-FAO Outlook (2005) studies or the

EEA report 'The Future of European Agriculture – An Updated Outlook' (2005b) analyzed the impact of different policy options and/or population and GDP growth scenarios on global agri-food markets.

In the Scenar2020 study (Nowicki et al, 2007) an integrated analysis of different economic and geographical model identified endogenous and exogenous drivers affecting the agricultural and rural economy in the EU. For AG2020 a similar analyses will be applied integrating different types (economic and geographical) at different regional levels (global, regional and local). For the Scenar2020 however, only three different policy scenarios have been analyzed; a baseline scenario and two alternative options (Liberalization and Regionalization).

Scenar2020 identifies demography as the strongest driver for the future of the rural world, and the trends observed are largely independent of the evolution of the agricultural economy. There is significant out-migration of young people from certain regions in the southern, northern and eastern rural areas of the European Union, and their destination is not only the urban centres at the national level, but also the major financial and service sector centres of the EU as a whole. Many rural areas elsewhere are, nevertheless, in a healthy state, both keeping and receiving population; some of the new populagtion is the residential relocation of persons with generally higher incomes moving out of urban centres in contrast to a contrary migration by younger persons seeking work or higher education. This seems to be a general trend of social mobility, which is picked up in inter-regional migration statistics. This trend is associated with an increasing mobility in the sources of employment, and the possibility for tele-working. Agricultural production will remain concentrated in the central regions of the EU, both in terms of gross yields and net returns; the growth in yields will increase rapidly in the eastern part of the EU, however. The relative importance among agricultural commodities will increasingly depend on factor markets at the world level. Beef and dairy herds are most likely to decrease in function of shifts in demand, price squeeze, and increases in production per unit of livestock; this will have an incidence in land area devoted to fodder crops and to extensive grazing, with a possibly significant regional impact in terms of land coming out of agriculture altogether.

Environmental pressure from agriculture will continue to lessen because of new technology (precision farming), driven by two incentives for a more exact use of inputs: compliance with environmental regulations and cost savings. Farm units will increase in size and decrease in number. An increase in organic agriculture will continue, in response to consumer demand and national and EU policy encouragement, although it is possible that demand will arrive at a ceiling. With regard to long-term patterns, both the agricultural labor force will continue to decline by 2.5% in EU-15 and by 4% in EU-12 per year and at the same time productivity will increase. With the advent of a technological shift in horticulture to green house production systems, the UAA will continue to decrease within the European Union. Even though it is probable that increased demand for biologically derived molecules for industrial use will occur, the capacity to progressively implement technologies that require only undifferentiated biomass and organic residues as a source of fuel and heat means that the agricultural sector per se will not necessarily be the major source of

biofuels feedstocks over the long-term. Also, there are already – and will continue to be – competing land uses that have their origin in improved transportation and increased leisure time, resulting in a progressive urbanisation of rural areas (in terms of residential patterns and economic activity) and the enhancement of the ‘natural’ features of landscapes for the benefit of recreational activities occurring either in proximity to metropolitan centres or further away for longer holiday periods.

In general, although agriculture remains a significant land use, with an increasing role to manage externalities such as landscape and biodiversity, its economic importance at the regional level will continue to decline. The added value that is generated by agriculture will be increasingly captured elsewhere in the commodity supply chain, a reality of vertical integration within the agro-industry, and the localization of the financial benefits will be distributed both in rural and urban areas, according to the industry’s logic concerning the purchase and transformation of primary commodities. Within the general context for the future of agriculture, it should nevertheless be remarked that the current policy of making the agricultural economy more responsive to market forces will strengthen the viability of the agricultural enterprises that will be present in 2020. However, this will not stop the structural change process of a continuing decline in farms that has been going on since the past half-century. There will be less farms than at present, their productivity will be higher, and also the average incomes of farmers as well. The restructuring of the agricultural sector that accompanies enlargement will stimulate the competitiveness of farmers throughout the European Union, and therefore will result in increased market opportunities at the global scale. The one factor that may influence agricultural land use to continue to decline in specific EU regions would be substantial out-migration from them, particularly along the eastern border.

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