



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

# **Implications of EU Enlargement for Agricultural Markets in the New Member States**

MYRNA VAN LEEUWEN \*, LUBICA BARTOVA\*\*,  
ROBERT M'BAREK\*\*, EMIL ERJAVEC\*\*\*

\* Agricultural Economics Research Institute LEI B.V., Netherlands; E-mail: [myrna.vanleeuwen@wur.nl](mailto:myrna.vanleeuwen@wur.nl)

\*\* Joint Research Centre, Institute for Prospective Technological Studies, European Commission, Sevilla, Spain; E-mail: [Lubica.Bartova@ec.europa.eu](mailto:Lubica.Bartova@ec.europa.eu)

\*\*\* University of Ljubljana, Biotechnical Faculty, Dept. of Animal Science, Ljubljana, Slovenia



**Paper prepared for presentation at the 104<sup>th</sup> (joint) EAAE-IAAE Seminar**

**Agricultural Economics and Transition:**

**„What was expected, what we observed,  
the lessons learned.“**

**Corvinus University of Budapest (CUB)**

**Budapest, Hungary. September 6-8, 2007**

*Copyright 2007 by Myrna van Leeuwen, Lubica Bartova, Robert M'barek, Emil Erjavec. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.*

## **ABSTRACT**

The paper presents an analysis of the impact of the Common Agricultural Policy implementation on the agricultural markets of the eight new EU Member States. The study is based on the AGMEMOD (AGricultural MEMber states MODelling) national econometric models. Two scenarios are simulated for each country. The "Baseline" scenario assumes the implementation of the Single Area Payment Scheme until 2008 and the subsequent introduction of the Single Payment Scheme from 2009 onwards. Complementary national direct payments would remain in force until 2013. The second scenario assumes the full decoupling of direct payments from 2007 and the introduction of modulation from 2013 onwards in the 2004 enlargement new Member States (EU-8). The baseline scenario projections suggest that the introduction of direct payments would expand EU-8 aggregate production, mainly of oilseeds, grains, sheepmeat and cheese, while beef and veal production would also increase. Consumption of more expensive beef and veal meat would be substituted by poultry and pigmeat. Full decoupling of direct payments will have only a moderate impact on the balance of supply and use for crop and animal production.

**Keywords:** commodity markets, CAP reform, new Member States, econometric model

## **1 INTRODUCTION**

The Central and Eastern European countries which joined the EU in the 2004 enlargement formed a diverse group as regards their agriculture and food processing industries. During their transition to a market-oriented economy, the restructuring of agriculture and food industries in most of these countries went successfully. Nevertheless, the competitiveness of their agriculture before EU accession was generally much lower – particularly in the livestock sector - than the average level in the "old" EU Member States.

The implications of the 2004 EU enlargement for the agricultural markets and their projections have been analysed in several studies, using approaches based on partial or general equilibrium modelling (e.g. EUROPEAN COMMISSION, 2002, 2006; FABIOSA ET AL., 2005; TOKOZ, 2004; BROCKMEIER ET AL., 2003; BINFIELD ET AL., 2005). This paper focuses on the projections for agricultural markets of the new Member States at national and aggregated level using AGMEMOD modelling approach (ERJAVEC - DONNELLAN, 2005; EUROPEAN COMMISSION, 2007).

The aim of the paper is to present the results of a study financed by the European Commission (EUROPEAN COMMISSION, 2007), emphasizing: (i) market projections for the aggregate EU- 8 of the main agricultural commodity markets in the eight new Member States (the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia) based on the latest developments in agricultural and trade policy and (ii) assessment of the impact of further CAP reform (introduction of decoupling and new direct payment schemes) on the main EU-8 agricultural commodity markets.

## 2 THE MODELLING APPROACH

AGMEMOD – a partial, multi-market equilibrium modelling system - was applied to supply, demand, trade and price projections at national and at aggregated level in this study.

AGMEMOD takes a bottom-up approach based on national models, which considers specific national situations (Chantreuil – Levert - Hanrahan, 2005; Erjavec – Donnellan, 2005). The AGMEMOD approach, developed in projects under the EU Framework Programme (FP), can provide details at agricultural sector level for each EU Member State, on the aggregates of the selected countries and on the EU-25 market<sup>1</sup> as a whole. This paper analyses the projected aggregates for the eight new Member States (2004 enlargement).

Individual models cover a detailed set of agricultural policy instruments in each country, thus allowing projections and simulations of different national policy scenarios to be generated. Key EU prices and other variables relating to other countries are determined exogenously in individual stand-alone models. Stand-alone national models for the new Member States provide 10-year projections up to 2015 for the main agricultural commodity markets:

- soft wheat, durum wheat, barley, maize, rye and other grains;
- rapeseed, sunflower seed, soybeans, vegetable oils and meal;
- milk, butter, skimmed milk powder, cheese and whole milk powder;
- beef and veal, pork, poultry, sheep and goats.

The models were calibrated and validated by country experts and have been further developed and improved as part of the ongoing EU FP project.

The major differences between national NMS AGMEMOD models are the macroeconomic assumptions, the components of policies under the Single Area Payment Scheme (SAPS) and the distribution of direct payments among agricultural activities. Apart from Slovenia, all the new Member States in our study adopted the CAP in the form of the simplified SAPS involving direct payments. Slovenia applied the standard CAP schemes. The SAPS have been mostly decoupled and are based on farm area and flat-rate payment of aid at national level. The national models also reflect different assumptions about the impact of direct payments on agricultural production (degree of decoupling).

The macroeconomic assumptions are based on the macroeconomic projections of population, inflation, per capita economic growth and national currency exchange rates obtained from national statistical services. The assumptions about the US dollar/euro exchange rate and projections of world market prices for commodities were taken from the FAPRI 2006 U.S. and World Agricultural Outlook.

The links between world, national, and other Member States' agricultural commodity markets are covered by equations which reflect the influence of those markets on prices. For each commodity, the EU key market is identified and the EU key price is set as the price observed in the most important national market for that commodity. Agricultural income is calculated at sector level.

The projections for the NMS aggregates were obtained using the individual stand-alone models for the new Member States, with exogenous key prices delivered by the AGMEMOD EU-15 combined model.

---

<sup>1</sup> Cyprus and Malta are not included.

Two scenarios were simulated. The first scenario – or “Baseline” scenario - assumes the implementation of the SAPS in the new Member States until 2008, which is followed by the introduction of the Single Farm Payment Scheme (SFP) from 2009 onwards. Complementary national direct payments (CNDP) remain in force in the NMS until 2013. In the case of the old Member States and Slovenia, it assumes additional milk quotas, a cut in intervention prices and the national implementation of the Single Farm Payment Scheme introduced under the Luxembourg Agreement.

The second scenario, known as the “Further CAP reform” (FCR) scenario, assumes the full decoupling of direct payments from 2007 and a doubling of the modulation rate from 2007 onwards in the old Member States and Slovenia and from 2013 onwards in the other NMS.

Decoupled payments under the SFP, SAPS and CNDP schemes are modelled in a similar manner. SFP, SAPS and CNDP payments (if decoupled) are also assumed to have some supply-inducing impact on agricultural production, although less than the impact of coupled payments or prices. The supply-inducing impact of different types of payment is reflected by deriving synthetic premiums in the country models. Producers’ supply decisions are therefore a function of market prices and synthetic premiums based on the SFP or SAPS and CNDP payments. Countries use different multipliers to allow for possible differences in the supply-inducing impact of SFP, SAPS and CNDP payments.

### **3 RESULTS**

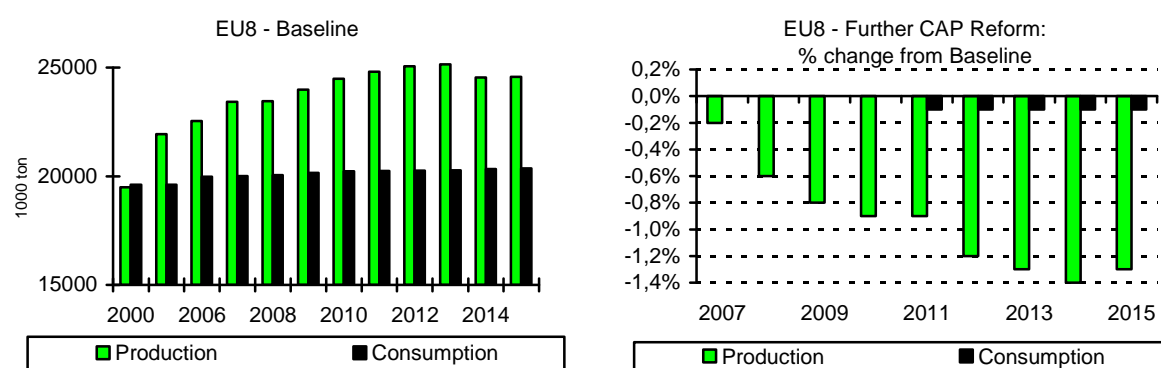
The NMS projections represent an aggregation of eight new Member State (EU-8) which were involved in the 2004 enlargement. Although the agricultural markets of the individual countries have differing levels of development and the country models are being further developed, the projections presented in this paper provide insights into the general trends of the agricultural commodity markets of the new Member States after their accession to the EU.

Although results differ from country to country, the baseline scenario projections suggest that - compared to the production level in the year 2000 - the introduction of direct payments is likely to expand the aggregate EU-8 production mainly of oilseeds, grains, sheepmeat and cheese, and that beef and veal production would also increase. The domestic use of oilseeds is projected to expand; consumption of more expensive beef and veal meat would be substituted by poultry and pigmeat.

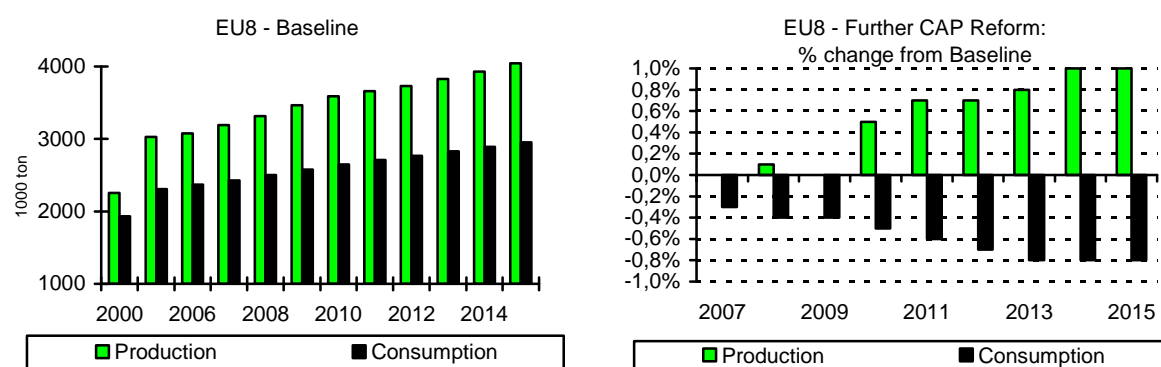
The baseline projections suggest a rise in cereal production in the EU-8 (especially Hungary, Slovakia, Poland, Slovenia). Production in Hungary and Poland, in particular, will grow due to rising yields. EU-8's share of EU25 production and consumption is likely to increase. The domestic use of maize will increase despite the rise in price, while the consumption patterns for soft wheat will change only marginally over the period 2005-2015 compared to the baseline ([Figure 1](#)).

In the Further CAP reform scenario, the introduction of the SFP from 2008 - and thus the full decoupling of direct payments - will reduce production and consumption of soft wheat compared to the baseline. The increase in the maize price will affect the domestic use of maize, while its production is assumed to increase ([Figure 2](#)).

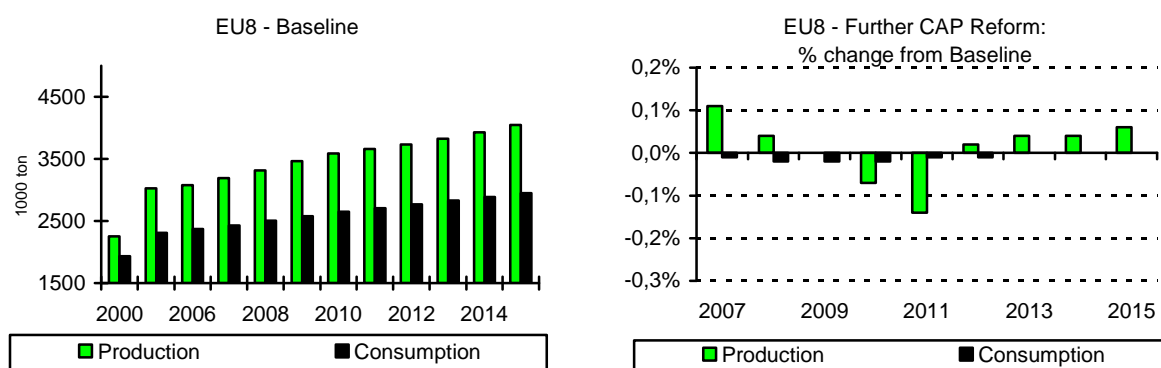
**Figure 1: EU-8 Projections for soft wheat under the baseline and FCR scenarios**



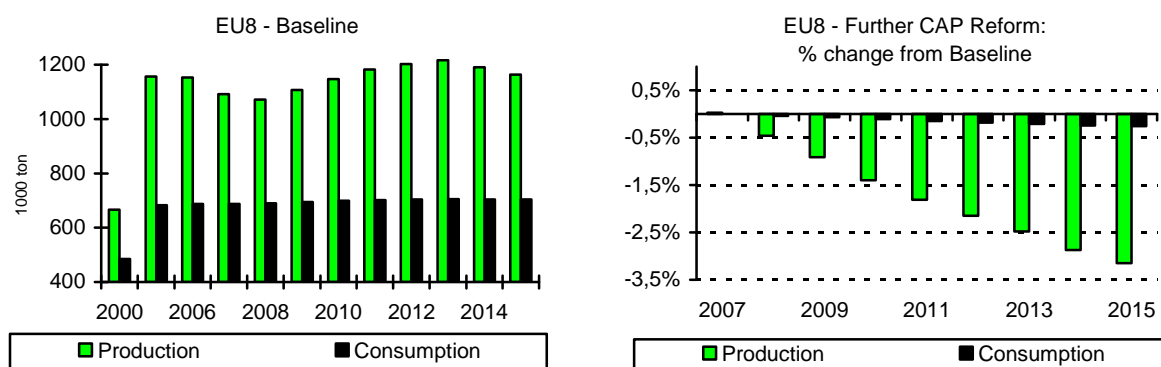
**Figure 2: EU-8 Projections for maize under baseline and FCR scenarios**



**Figure 3: EU-8 Rapeseed projections under baseline and FCR scenarios**



**Figure 4: EU-8 Sunflower projections under baseline and FCR scenarios**



Under the baseline scenario, both oilseed production and domestic use in EU-8 are projected to expand by around 11% over the period 2005-2015 mainly because of rising output levels in Latvia, Lithuania, Estonia and Slovakia. The EU-8 remains a net exporter of oilseeds and the EU-8 share of the EU-25 oilseed production is projected to increase. The production and domestic use of rapeseed is showing the largest growth ([Figure 3](#)). Domestic EU-8 use of oilseeds will grow despite the price increase because of the expectation of growing demand for oil for bioenergy. The FCR scenario will lead to lower production of oilseeds, mainly sunflower ([Figure 4](#)).

NMS have freedom as regards the extent to which their CNDP - topping up of direct payments, are decoupled from production. CNDPs in the EU-8 are linked to livestock, but are mostly coupled to production.

Baseline EU-8 beef production and prices are projected to increase, with a slight decline in production after 2012 ([Figure 5](#)). The increase in the EU-8 share in the EU25 beef and veal production following accession was mainly due to higher slaughter weights (technical progress of better beef breeds). In response to higher prices, pigmeat production will increase (Hungary is looking to explore a significant growth in the production of both meat types) as well as the EU-8 share of the EU-25 pork production. With higher beef prices and a change in consumer preferences, domestic beef consumption will be substituted by poultry ([Figure 7](#)). The traditionally high pigmeat consumption will remain more or less unchanged over the 2005 - 2015 period ([Figure 6](#)).

Beef production is projected to decline relative to the baseline from 2007 onwards under the FCR scenario, which assumes full decoupling. Regardless of any policy changes in the pig and poultry sector, pork production will continue to increase. Changes in poultry production will be negligible over the reference period compared to the baseline ([Figure 7](#)).

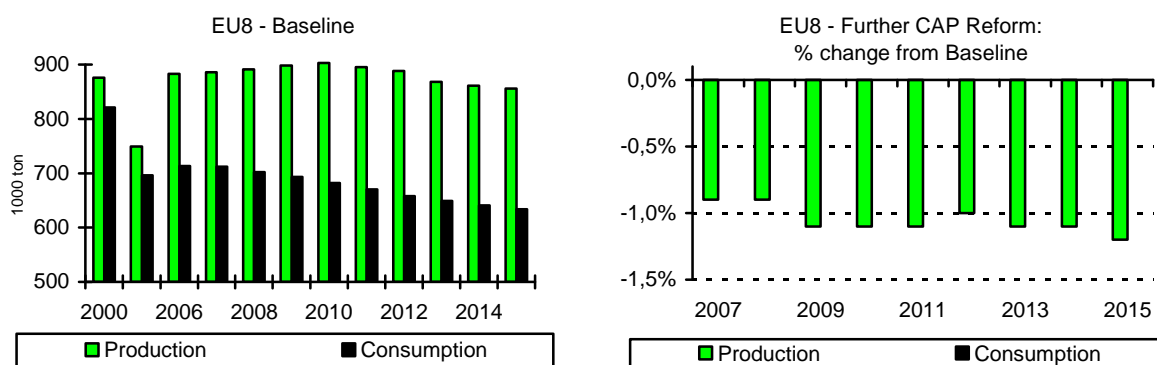
Milk prices in the EU-8 were below EU price level before their accession. However, the trend in milk production is determined by milk quota, irrespective of price convergence. After accession there was a rise in milk yields in the EU-8, which was accompanied by reductions in dairy cow numbers. Unlike the old Member States, where the reduction in the intervention price for butter will mean that milk is allocated to butter rather than cheese production, in the EU-8 the production of intervention commodities - butter, SMP and WMP - will grow at a higher rate than cheese production ([Figure 8](#), [Figure 9](#), [Figure 10](#)). Cheese consumption will increase in the baseline scenario and will decline in relative terms in the FCR scenario as a result of the cheese prices increase.

In the FCR scenario, further adjustments in price, production and consumption are likely in the absence of specific reform of the market organisations for dairy commodities.

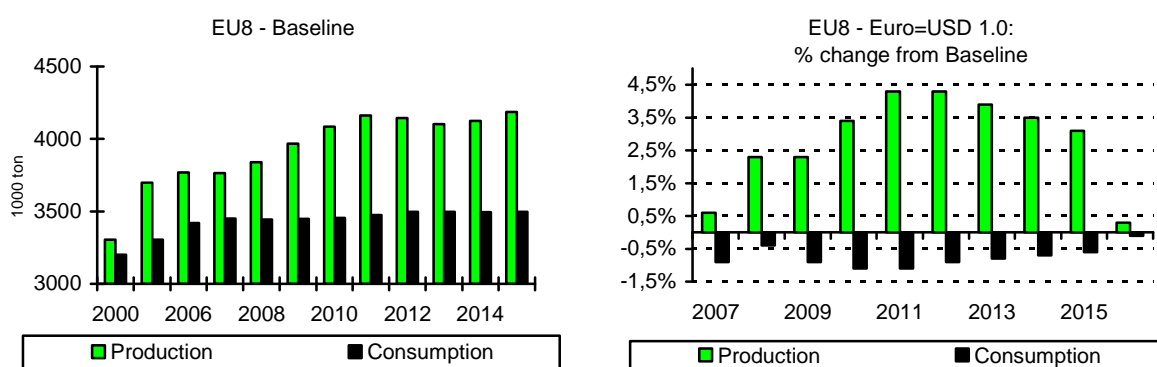
The agricultural output value, subsidies and agricultural incomes were projected taking into account only the commodities analysed in the study. From 2004 to 2015 the baseline agricultural output value in the EU-8 is expected to increase ([Figure 11](#)). Phasing in agricultural support in the EU-8 will increase the value of support granted between 2004 and 2013. In the FCR scenario, on the other hand, support is expected to decline from 2013 onwards.

The scenario of further CAP reform is not expected to have a significant impact on EU-8 agricultural output value and subsidies compared to the baseline; agricultural income, on the other hand, is expected to rise from 2013 onwards compared to the baseline.

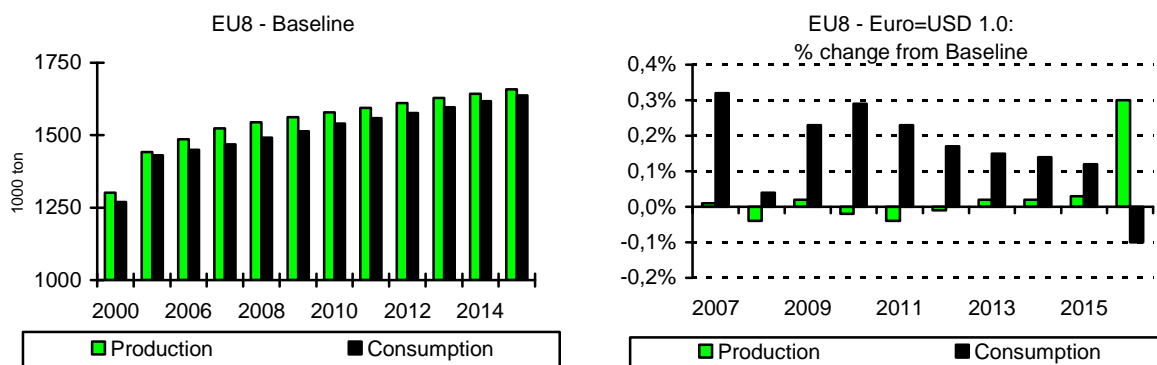
**Figure 5: EU-8 Beef and veal projections under baseline and FCR scenarios**



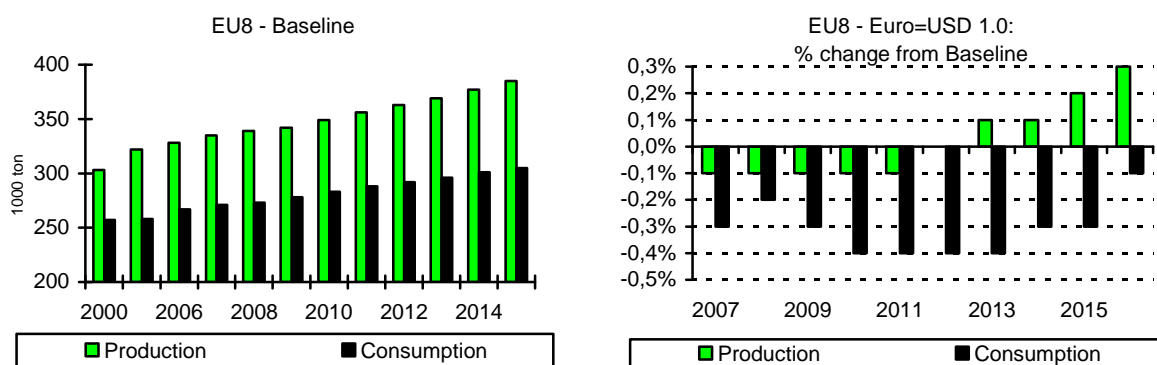
**Figure 6: EU-8 Pigmeat projections under baseline and FCR scenarios**



**Figure 7: EU-8 Poultry meat projections under baseline and FCR scenarios**

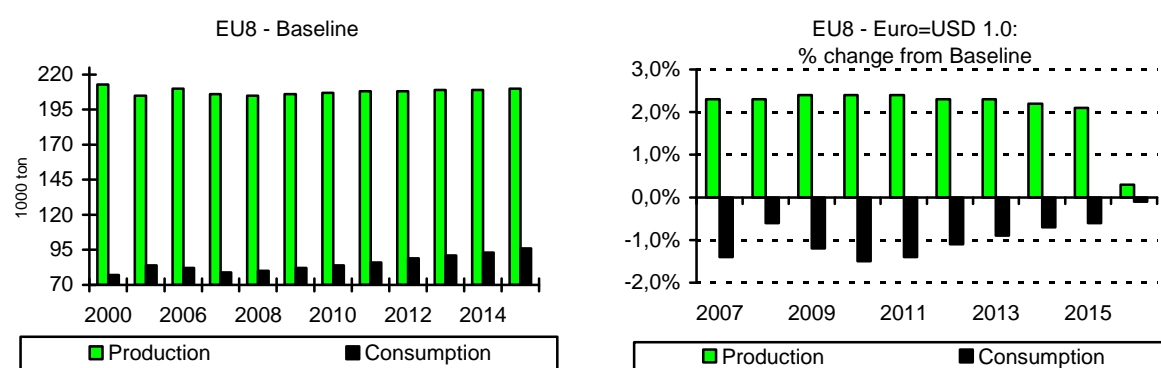


**Figure 8: EU-8 Butter projections under baseline and FCR scenarios**

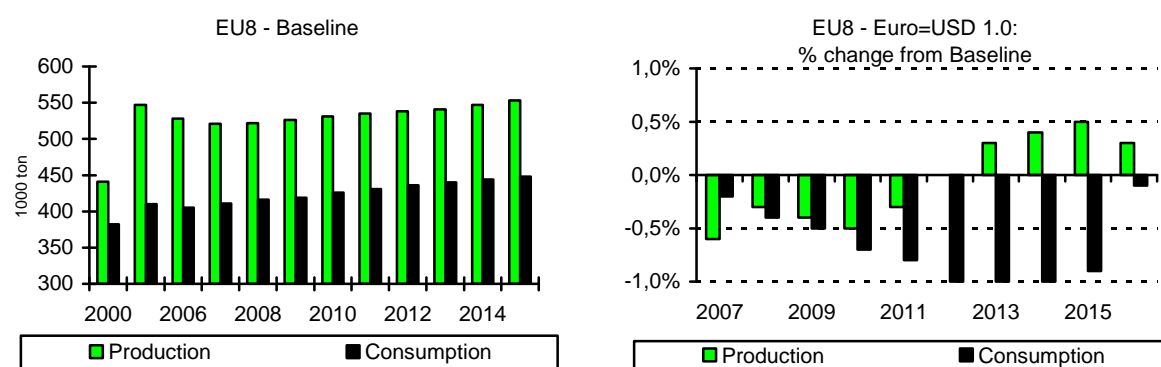




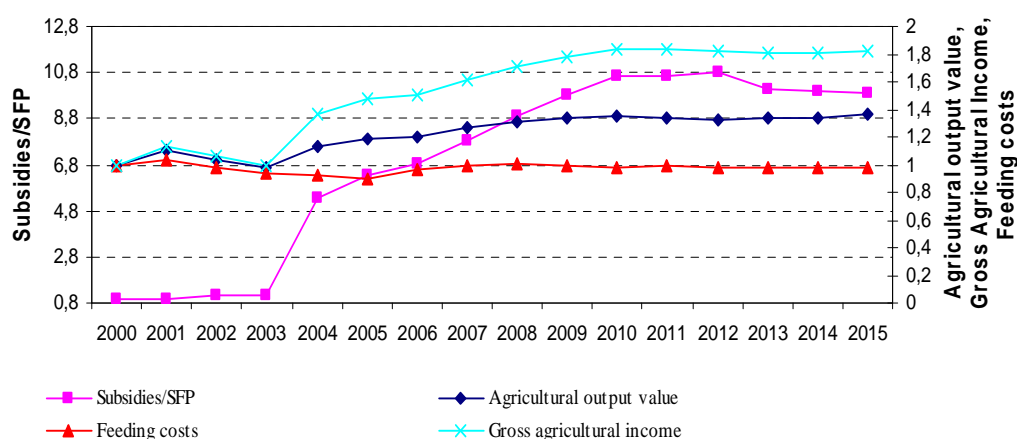
**Figure 9: EU-8 Skimmed milk powder projections under baseline and FCR scenarios**



**Figure 10: EU-8 Cheese projections under baseline and FCR scenarios**



**Figure 11: EU-8 Agricultural output value, subsidies, feed costs and gross income in the baseline (2000=1)**



Source: European Commission, AGMEMOD, 2007

#### 4 DISCUSSION AND CONCLUSIONS

The EU-8 results are driven primarily by changes in prices and technology. The majority of EU-8 agricultural prices were below EU price levels before accession, except for pigmeat and poultry. In the national models, domestic prices are assumed to converge with EU key prices. The negative effect of commodity price increases will be partially offset by an expected rise in per capita income in the EU-8.

Although results differ across countries, the aggregated baseline results indicate that EU-8 production will grow in several sectors from 2005 to 2015. In the cereals sector the introduction of decoupling will lead to an increase in maize production, while wheat production and overall consumption of cereals will decline. In the oilseed sector, the aggregate market projections point to rising prices and baseline production levels.

The “Baseline” scenario predicts a decline in beef and veal production. The Further CAP reform will prompt a further decline. However, the negative impact of decoupling will be mitigated by price increases. Domestic beef consumption will be substituted by poultry. Pigmeat consumption will be unaffected over the 2005 - 2015 period. Pig and poultry production are both projected to expand in the EU-8.

EU-8 milk prices were below the EU price level before EU accession. In the dairy sector, production of intervention commodities - butter, SMP and WMP - in the EU-8 will rise faster than cheese production.

In general, the outcomes of the “Further CAP reform” scenario match the *a priori* expectations. The policy measures under this scenario will have a limited impact, since EU-8 direct payments before accession and under the SAPS were mostly decoupled.

However, as the method of implementing decoupled payments in the AGMEMOD country models may not have fully reflected the impact of decoupling on the agricultural production of individual EU-8, this method will therefore need to be further developed.

The projections for new EU Member States presented in this paper were generated by aggregating the results of the national AGMEMOD models. Although the modelling approach and national models are still being developed, the results obtained in this study provide useful information about general trends on the main agricultural markets of the new Member States.

## 5 REFERENCES

- BINFIELD, J. - MEYERS, W. - WESTHOFF, P. (2005): Challenges of Incorporation EU enlargement and CAP Reform in the GOLD Model Framework. Modelling Agricultural Policies: State of the Art and New Challenges. *Proceedings of the 89th EAAE Seminar, Parma, Italy*, 3-5 February 2005.
- BROCKMEIER, M. - HEROK, C.A. - LEDEBUR O. V.- SALAMON, P. (2003): EU Enlargement - A New Dimension Paper prepared for presentation at the *25th International Conference of Agricultural Economists*, August 16-22, 2003, Durban, South Africa.
- CHANTREUIL, F.- LEVERT, F.- HANRAHAN, K. (2005): The Luxembourg Agreement Reform of the CAP: An Analysis using the AGMEMOD Composite Model. Modelling Agricultural Policies: State of the Art and New Challenges. *Proceedings of the 89th EAAE Seminar, Parma, Italy*, 3-5 February 2005.
- EUROPEAN COMMISSION (2002): Analysis of the Impact on Agricultural Markets and Incomes of EU Enlargement to the CEECs. Directorate-General for Agriculture, Brussels, 2002.
- EUROPEAN COMMISSION (2006): Prospects for agricultural markets and income 2006-2013. Directorate-General for Agriculture, Brussels, 2006.
- EUROPEAN COMMISSION (2007): Impact analysis of the CAP reform on main agricultural commodities. *Final report, ITPS*, unpublished 80 pp.
- ERJAVEC, E. - DONNELLAN, T. (2005): Development of the AGMEMOD Country-Level Agricultural Policy Analysis Tool in the New Member States of the EU. Modelling

Agricultural Policies: State of the Art and New Challenges. *Proceedings of the 89th EAAE Seminar, Parma, Italy, 3-5 February 2005.*

FABIOSA, J.F. - BEGHIN, J.C. - DONG, F. - OBEID, A. - FULLER, F.H. - MATTHEY, H. - TOKGOZ, S.- WAILES, E. (2005): The Impact of the European Enlargement and CAP Reforms on Agricultural Markets. Much Ado about Nothing? *Working Paper 05-WP 382*, CARD Iowa State University.

TOKGOZ, S. (2004): Can EU Enlargement lead to “Immiserizing Growth”? An Empirical Investigation Paper prepare for presentation at the American Agricultural Economics Association Annual Meeting, Denver, Colorado, August 1-4, 2004, 22 pp.