CAP AND EU ENLARGEMENT

Martin Banse
Institute of Agricultural Economics
University of Göttingen, Germany

1 Introduction

With their accession to the EU, agricultural policies in the new member states (NMS) of Central Europe will change more or less dramatically as they are aligned with the Common Agricultural Policy (CAP). These policy adjustments clearly have significant implications for farmers and food consumers in Central Europe, for market balance and trade in agriculture, for budget expenditure and for macro-economic conditions. A quantitative analysis of these implications is a demanding task for economic analysis. For example, capital flows between the NMS and Brussels change fundamentally as 'financial solidarity' under the CAP as well as other EU budget mechanisms come into play. This may well affect exchange rates, which than at the micro-level of agricultural markets impact on price formation, which at the same time is also greatly affected by the introduction of the CAP. Such micro-level changes in the agro-food sector can then – considering the economic importance of this sector in the NMS – again produce significant repercussions at the macro-economic level.

A number of studies have made estimates of the quantitative implications of eastern enlargement in the area of agriculture. Tyers and Anderson 1993 and Weber et al. 2000, Czapla et al. 2002 used a partial equilibrium model. Financial implications of EU enlargement on the individual EU-27 member states' net contribution to the EU budget are analyzed in Weise et al. (2002). Other studies used agricultural focused general equilibrium models (Jensen et. al., 1998; Liapis and Tsigas, 1998; Hertel et al. 1997, Jensen and Frandsen 2003, Brockmeier 2003). While partial equilibrium models are richer in policy and commodity details, agriculture in the general equilibrium models interact with other sectors of the economy. Both aspects are of importance when analyzing NMS-EU accession effects.

The paper suggests that an appropriate analytical approach to studying the effects of such sweeping policy changes at both the macro-economic level and the level of individual agricultural markets is a combination of computable general equilibrium models and partial equilibrium models. This approach was outlined in general form by Münch and Banse (1999) and Banse, Münch and Tangermann (2000). The current paper summarizes the results of applying this approach to studying the impact of NMS in the sector of food

and agriculture. The paper starts with an overview of the model structures used and the scenarios studied (Section 2), turns to some major results achieved in the analysis (Section 3) and finally draw some conclusions (Section 4) .

2 Partial and General Equilibrium Analysis of NMS Accession to the EU

The partial equilibrium model used here, the European Simulation Model (ESIM), was originally developed by USDA/ERS in co-operation with Josling and Tangermann (Josling et al. 1998). It was first used in Tangermann and Josling (1994), further developed in Tangermann and Münch (1995), and expanded in country coverage by Münch (1997). More recently the model structure was further adapted to simulate NMS accession to the EU (Münch, 2002).

ESIM is a price and policy driven comparative static, multi-commodity agricultural world model with rich cross commodity relations and the possibility to model price and trade policy instruments in great detail. The model includes ten NMS (Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia)[1] and the EU-15. All other countries are aggregated into the ROW. The agricultural sector comprises 27 products, which include 3 dairy and 6 oilseed products. Trade is modeled as the residual of supply and domestic use.

The policy instruments in ESIM (minimum price, variable or fix export subsidies/import tariffs, productions quota, set aside, direct payments etc.) are modeled to closely match actual EU regulations as well as those proposed for the future CAP. For reasons of simplification, these types of instruments are assumed to be also applied in the NMS. When simulating EU accession, the levels at which the instruments are employed in the individual NMS approach those of the EU. In a second step the integration of the NMS into the Single European Market is simulated by applying these instruments to the extended EU, i.e. including supply and demand of all member countries.

Two alternative policy scenarios merit particular attention and will be analyzed. (i) NMS accession to EU with an adoption of the CAP as foreseen under the mid-term report proposal with a stepwise introduction of direct payments in the candidate countries (MTR). A second scenario analyses an accession under a reformed CAP with decoupled direct payments which are assumed to be reduced depressively until 2013 (REDDIRPAY). The continuation of the current agricultural policies in NMS without accession to the EU can serve as a reference base (NOMEMBER).

[1] Among these countries, eight are in the first wave of accession in 2004, namely the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.

The CGE models developed for Central Europe include all ten candidate countries from central Europe. They are based on a model structure originally developed by Adelman and Robinson (1978) and further extended by Banse (1997, 2002, and 2003) for the NMS. The models have a recursive-dynamic structure with a one period time lag for the installment of new capital, which is then assumed to be sector-specific within each period. They include two types of labor (low and high skill workers) where high skill workers are perfectly mobile across all sectors. Low skill workers, however, are not assumed to be perfectly mobile between agricultural and non-agricultural sectors.[2] Land is modeled as a specific primary factor in agricultural production. The models specify the behavior of optimizing consumers in two different types of households (a farm and a non-farm household). Private household demand in both types of households is presented by a linear approximated version of the 'Almost Ideal Demand System' published by Deaton and Muellbauer (1980) and Blanciforti and Green (1983). Aggregate domestic demand in the model has four components: private consumption, intermediate demand, government, and investment. The CGE models include the major macro-balances: savings, investment, government deficit, and the balance of trade. In the balance of trade equation, the value of imports at world prices must equal the value of exports at world prices plus exogenously set foreign savings and net foreign borrowing by the NMS' governments, and hence the real exchange rate adjusts to achieve equilibrium.

The partial and general equilibrium models are combined in this analysis to exploit their respective comparative advantages. In a first round of analysis, nominal rates of protection (NPRs) resulting from ESIM simulations of the alternative detailed policy scenarios are implemented in the CGE models for the NMS. The resulting developments of macro economic variables in the CGE models, e.g. real income, factors prices, prices for agricultural intermediates and real exchange rates, are reported as part of the analytical results. At the same time they are fed back into ESIM, which then generates information on detailed market developments.

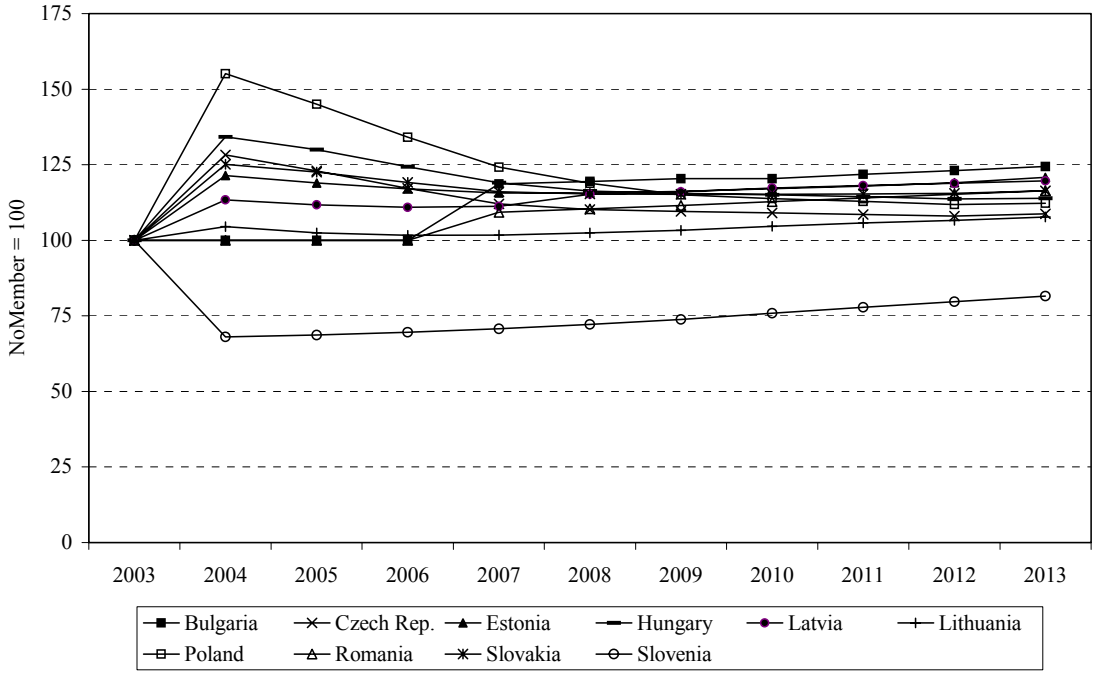
3 Selected Results

ESIM results show that the average level of agricultural protection increases in most of the NMS when the CAP is adopted in 2004 (Figure 1). The specific change of average protection in each NMS depends on pre-EU national policies and country specific production structures. Hungary exhibits the largest increase in protection, by more than 60% and Poland and 30% in Hungary. The other extreme is Slovenia where the crucial products almost match CAP protection at farm-gate level, but exceed it at wholesale and processing level (Bojnec and Münch, 2001). As a result the integration of Slovenia into

[2] For further details see Banse (2002).

the Common Market in 2004 leads to a decrease of protection by more than 25%. The other NMS face an increase of protection between 26% in the Czech Republic and only 5% in Lithuania. The main reason for the different changes in agricultural protection amongst the NMS is due to the national composition of agricultural output, i.e. the higher the share of highly protected commodities the higher the increase in agricultural protection of under the CAP.

Figure 1: Ratio between NPRs in the MTR Scenario and the BASE Scenario



Source: Banse and Nölle (2002).

However, at the end of the simulation period agriculture in most NMS enjoy a protection level which is not higher than 25% compared to the NOMEMBER scenario. Note that the change between scenarios in NPRs is also affected by exchange rate developments in the base line scenario, which is one reason for the declining relative NPRs after 2004 as shown in Figure 1.

As a result of these developments in protection, production in the ten NMS on aggregate grows more rapidly than domestic use, which means that they increase their net exports of most products over time (see Table 1). There are, however, differences among countries. Net exporting countries like Hungary and for some products Bulgaria will expand their net-exports of agri-food products. Other countries, like Romania, which is only a small net exporters of agricultural and food products in the base period, turns into a significant net-exporter of arable crops. Other countries like Slovenia continue to import major products. Especially in markets for highly protected commodities under the CAP, like some coarse

grains, sugar and dairy, production expands significantly, which leads to mounting surpluses during accession, unless quotas severely restrict production.[3]

Table 1: Development of NMS Net Exports under Alternative Policy Scenarios (million tons)

		Base	MTR		REDDIRPAY	
	1997-99	2007	2007	2013	2007	2013
Wheat	1.31	1.81	11.47	15.57	11.23	16.56
Barley	-0.93	-1.07	0.18	1.37	0.43	2.14
Corn	1.22	4.67	8.78	10.62	8.67	10.93
Other cereals	-0.16	0.65	2.19	3.20	3.31	2.81
Sugar	0.13	0.29	0.51	0.23	0.51	0.23
Butter	0.05	0.04	0.14	0.11	0.14	0.11
Cheese	0.08	-0.04	-0.39	-0.57	-0.39	-0.57
Beef	0.00	-0.06	0.69	0.58	0.71	0.57
Pork	0.20	0.20	-2.06	-2.26	-2.13	-2.31
Poultry	0.20	0.20	0.31	0.35	0.31	0.35
Eggs	0.04	0.04	-0.50	-0.42	-0.53	-0.50

Source: Banse and Nölle (2002).

The results presented in table 1 also indicate that the NMS in total will expand their net-exports in arable crops after the phasing-out of direct payments (REDDIRPAY). Livestock production, however, will be negatively affected by a reduction of direct payments and net-import will increase.

As far as budget implications are concerned, ESIM generates projections only for net expenditure on trade measures, i.e. export subsidies minus tariff revenues, as well as compensation and headage payments. To make the model results comparable to FEOGA guarantee spending, conversion factors have been applied to include expenditure on administration and storage. These conversion factors are based on results for the EU-15 for the base period and the actual budgetary outlays for the model products.[4]

Table 2: Budgetary Expenditure on FEOGA Guarantee in the EU-15 and NMS under Alternative Scenarios, 2007 and 2013, in Mill. € (at 1999 prices)

	Base		MTR		RedDirPay	
	2007	2013	2007	2013	2007	2013
EU-15	34,854	30,745	34,516	30,231	30,172	12,181
NMS	0	0	7,262	11,653	7,503	6,106
EU-25	34,854	30,745	41,777	41,884	37,675	18,287

Source: Banse and Nölle (2002).

[3] A detailed description of scenarios and results is provided in Banse and Nölle (2002).

[4] Further details about the calculation of EU member countries' net contribution to the FEOGA-budget are outlined in Weise et al. (2002).

In the baseline scenario FEOGA spending for agricultural policies in the EU-15 gradually decline to EUR 30.8 billion in 2013 in 1999 prices. Integration of ten NMS into the CAP under the MTR scenario, i.e. with on phasing-in of direct payments, would result in an only limited expenditure increases in 2007 to EUR 7.3 billion. After complete introduction of direct payments in 2013, CAP expenditures in the NMS increases to close to EUR 11.7 billion. The largest part of the extra expenditure is for direct payments for arable crops.

Table 3: Development of Net-Budgetary Contribution to FEOGA Guarantee in the EU-15 and NMS under Alternative Scenarios, 2007 and 2013, in Mill. € (at 1999 prices)

	Base		MTR		RedDirPay	
	2007	2013	2007	2013	2007	2013
Belgium	-206	-189	-361	-474	-317	-45
Denmark	465	479	327	185	261	171
Germany	-3,693	-3,195	-5,007	-5,687	-4,827	-2,756
Greece	1,417	1,119	1,387	1,131	1,338	68
Spain	1,878	1,457	1,624	1,135	1,447	12
France	2,027	1,900	1,064	19	505	-358
Ireland	1,092	998	890	703	712	298
Italy	-762	-709	-1,407	-1,733	-1,251	-805
Luxemburg	-52	-45	-62	-65	-58	-31
Netherlands	-130	-70	-309	-433	-209	335
Austria	92	134	-33	-93	-42	122
Portugal	130	101	96	108	62	49
Finland	157	182	83	39	79	162
Sweden	-271	-225	-416	-518	-404	-243
UK	-2,144	-1,938	-2,974	-3,486	-2,849	-2,000
Czech Rep.	0	0	110	254	141	17
Hungary	0	0	562	931	568	449
Poland	0	0	1,472	2,436	1,679	1,737
Slovakia	0	0	101	179	113	52
Slovenia	0	0	-102	-82	-90	-66
Estonia	0	0	56	73	61	65
Latvia	0	0	166	256	185	196
Lithuania	0	0	345	540	364	360
Bulgaria	0	0	639	981	679	617
Romania	0	0	1,751	3,601	1,853	1,595
EU-15	0	0	-5,099	-9,169	-5,553	-5,021
NMS	0	0	5,099	9,169	5,553	5,021
EU-25	0	0	0	0	0	0

Source: Banse and Nölle (2002).

Depending on the scenario EU enlargement has different consequences for the various member states, see following table 3. This is reflected, for example, in the change in their net positions. In all scenarios, Germany has the largest overall net burden. This is no surprise given the size of the population, the above-average income and the small amount of agricultural transfers received. Based on their net positions in 2007, all the big member states of the EU-15 (Germany, France, UK, Italy and Spain) will have a - greater or

smaller - interest in reforms if the EU is enlarged. Apart from Slovenia, all NMS will turn into net beneficiaries in terms of their contribution to the CAP-budget. In total after full introduction of direct payments in the NMS the EU-15 net contribution for agricultural policies in the NMS will be € 9.2 billion (scenario MTR). Reforming the current system of direct payments to a decoupled and digressively reduced policy instrument will reduce the net-contribution of EU-15 for CAP in the NMS to € 5.0 billion.

In the CGE analysis it turns out that the net trade position in agriculture of the individual NMS is an important factor determining most of the macroeconomic consequences of introducing the CAP. For agricultural net importers, the mechanism of 'financial solidarity' under the CAP leads to an outflow of financial resources (visible or invisible in the form of higher price paid on imports from other EU countries) to Brussels (or a reduction in net inflow of money transferred from Brussels). Therefore net importers are negatively affected by an introduction of the CAP, while net exporters of agri-food products benefit from the mechanism of financial solidarity. Table 4 presents the results of an introduction of CAP with direct payments. The net transfers from the EU budget have a positive impact on all NMS' GDP. However, net exporters of agri-food products, like Hungary and Bulgaria enjoy the largest increases in GDP with 0.9% and 1.1. %

Table 4: Impact of CAP Adoption (MTR Scenario) on GDP and on Real Exchange Rates, relative to Member/NoCAP Scenario in %

	GDP		Exchange Rate	
Year	2007	2013	2007	2013
Czech Rep.	0.06	0.10	-0.38	-0.63
Hungary	0.11	0.92	-1.24	-1.46
Poland	0.04	0.14	-0.94	-1.90
Slovakia	0.10	0.16	-0.47	-0.52
Slovenia	0.03	0.04	-0.09	-0.20
Estonia	0.00	0.01	-0.44	-0.58
Latvia	0.10	0.17	-0.62	-0.93
Lithuania	0.40	0.51	-1.09	-1.07
Bulgaria	0.57	1.08	-1.82	-2.92
Romania	0.34	0.41	-1.41	-1.79

Source: Banse (2003).

The effects of 'financial solidarity' and the inflow of direct payments are also mirrored in the development of real exchange rates. All currencies in the NMS show a tendency towards an appreciation of their real exchange rates. In Hungary and Bulgaria, the inflow of financial resources under the CAP makes the real exchange rate appreciate in 2013 by almost 1.5% for the Hungarian Forint and 3% for the Bulgarian Lei.[5]

[5] The exchange rate is defined such that a negative change (as shown in Table 2) means an appreciation.

Table 5: Impact of CAP Adoption on Sectoral Value Added and Private Welfare in 2007, Relative to MEMBER/NOCAP Scenario

	Value Added		Welfare in private households	
	Agriculture	Rest of Economy	Farm	Non-Farm
Czech Rep.	5.3	0.1	12.1	0.1
Hungary	2.7	0.4	15.8	0.6
Poland	1.7	0.3	8.4	0.2
Slovakia	8.5	0.1	24.9	0.2
Slovenia	-3.8	0.9	7.1	0.3
Estonia	0.3	0.2	7.6	0.1
Latvia	3.8	0.1	30.8	0.2
Lithuania	0.5	0.1	12.1	0.6
Bulgaria	3.6	0.1	12.8	1.1
Romania	0.7	0.2	6.9	0.6

Source: Banse (2003).

The increase in agricultural protection after EU-accession lead to an increase in agricultural value added in most NMS. However, in Slovenia the decline in agricultural protection followed by EU-membership has a negative impact on Slovene agricultural production. Here agricultural value added declines by about 4%.

In general the adoption of the CAP with an increase in agricultural protection in most NMS will have a negative impact on non-agricultural value added in those countries where agricultural support is expected to increase. However, the inclusion of direct payments reduces the negative impact of an increase in agricultural protection. The inflow of direct payments has a small positive effect even on non-agricultural value added.

The changes in agricultural value added and the introduction of direct payments are mirrored in the change in farm households' welfare (Table 5). Farm households' welfare in Poland with an introduction of direct payments would increase welfare in these households by more than 8%. All results in table 5 are for 2007, when direct payment will not be fully implemented in the NMS. Therefore, the increase in farm households' welfare will be higher in 2013 at the end of the implantation period.

4 Conclusions

The results of the quantitative analysis based on a combined approach of partial and general equilibrium models show, among others, that NMS accession to the EU leads to an increase in agricultural production and growing exports in these countries. This is likely to have a noticeable impact on total expenditure under the CAP, which will increase by almost € 12.0 billion after NMS accession. Eastern enlargement would then make

overall CAP expenditure increase by almost 40%. At the same time, farm incomes in the NMS would also increase noticeably.

Depending on the scenario, EU enlargement has different consequences for the various member states of the current EU-15. In all scenarios, Germany has the largest overall net burden. On the other hand, apart from Slovenia, all NMS will turn into net beneficiaries in terms of their contribution to the CAP-budget. In total after full introduction of direct payments in the NMS the EU-15 net contribution for agricultural policies in the NMS will be € 9.2 billion. Reforming the current system of direct payments to a decoupled and digressively reduced policy instrument will reduce the net-contribution of EU-15 for CAP in the NMS to € 5.0 billion.

The results also show that inclusion in the CAP may have major macro-economic implications and noticeable effects on non-agricultural sectors in all acceding countries. As a result of introducing the CAP, most NMS currencies may exhibit a tendency towards appreciation. In NMS with a net agricultural export position, inclusion in the CAP and in 'financial solidarity' is likely to have a positive impact on GDP, while GDP is reduced in net importing NMS. This effect is compensated by the transfers of direct payment which increases welfare in both farm and non-farm households. The scenario calculations presented here suggest that the new members will probably not become the driving force behind further CAP-reforms. Therefore future decisions on CAP-reforms, like the agreement in June this year, will become even more difficult in an EU of 25 or more members.

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