COULD THE RADICAL CHANGES OF DIRECT PAYMENTS POLICY DESTROY AGRICULTURAL MARKETS IN THE EU NEW MEMBER STATES?

E. Erjavec[1], Guna Salputra[2]

Abstract. The form and scope of direct payments under the Common Agricultural Policy are controversial for several reasons: high budgetary costs, unfair distribution between old and new Member States and weak argumentation of payments; consequently, they will have to be redefined for the period 2013-2020 and this calls for a need for policy impact assessment. The paper presents an analysis of the impact of different direct payments policy scenarios on the agricultural markets of the ten new EU Member States (NMS). The study is based on the AGMEMOD (AGricultural MEmber states MODelling) EU-27 dynamic econometric partial equilibrium models. The Baseline Scenario assumes that from 2013 on, the Single Area Payment Scheme would continue, dairy quotas would be abolished and some other policy instrument changes would take place as agreed in the 2008 Health Check policy conclusions. Preservation of the current policy would lead to further growth in production of most agricultural markets, resulting from accelerated technological development and the opportunities provided by the EU common market. The only exceptions are dairy and beef sectors, where NMS would face a drop in competitiveness. The Scenario Abolish implies total abolishment of the Pillar I direct supports and according to the Reduced EU-Wide Flat Rate Payments Scenario, payments at the entire EU area would be made more uniform, but would be – owing to the expected overall reduction of budgetary funds for Pillar I of CAP – at a substantially lower level. According to the model simulations, reducing the level of payments or their abolishing would not result in any dramatic medium-term changes on agricultural markets in NMS by 2020, which could serve as an argument for the future CAP reforms.

Keywords: CAP reform, new EU Member States, commodity markets, partial equilibrium model

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1. Problem description

Accession to the EU has significantly changed the economic environment for agriculture in the Central and Eastern European countries (Erjavec et al., 2006). Commodity price convergence towards EU-15 levels, driven by the abolishment of market barriers and introduction of price-support mechanisms and followed by the introduction of the Single Area Payments (SAPS) are experienced across the CEEC agricultural sectors. Although these payments are de-coupled, they still induce production to some degree. The CAP reform of 2003 and an increase of direct payments in line with the Accession Negotiation Agreement are a further step towards integration of these countries into the CAP.

The CAP reform in 2003 changed the form of CAP direct income-support payments by introducing decoupled direct income supports, though it largely preserved the scope and distribution of funds across old Member States and types of agricultural holdings (Swinnen, 2008). Policy modifications under the CAP Health Check (HC) agreement of 2008 followed the direction established in 2003 by further decoupling direct payments, increasing the rate at which payments are modulated and allowing Member States to switch from historical to regional flat area payment regimes.

According to the HC agreement, the new Member States (NMS) are still allowed to use the transition support system – Single Area Payment Scheme (SAPS) – one of the advantages of which is the flexibility to provide additional national funding to agriculture from the national budget in coupled and decoupled forms, while the EU support within SAP scheme must be totally decoupled. Thus, the accession of NMS in 2004 and 2007, when combined with the Fischler reforms of 2003, introduced a considerable degree of policy heterogeneity to the CAP in comparison with Agenda 2000 policy framework.

The SAPS is actually used by all NSM except Slovenia and Malta. SAPS is determined by a uniform value per ha of utilised agricultural area across the country, calculated by the division of national direct payments envelope with the appropriate land. In economic terms, the effects of SAPS are similar to the regional flat-area payment model.

In 2010-2011, the direct payments concept of the CAP will be intensively discussed in line with other issues of the new frame for agricultural policy after 2013. The decisions on direct payments will also largely depend on the post-2013 EU budget debate (Zahrnt, 2009). Any prediction as to the nature of the long-term changes to the CAP is speculative, as such changes will largely depend on the division of power between the reformist and more conservative Member States (Garzon, 2006; Swinnen, 2008) and possibly external factors, such as the WTO negotiations (Daugbjerg and Swinbank, 2007).

Contributions by Member State to the post-2013 EU budget are unlikely to increase significantly, but the pressure from net contributors to reduce CAP spending is set to increase (Begg et al., 2008; ECORYS, 2008). There is also a realistic possibility of a re-nationalisation of Pillar I of the CAP, i.e. that all Member States will be required to co-finance supports from national funds, a provision which has also been publicly discussed by the budget Commissioner (Grybauskaité, 2008).

The pressure for greater uniformity of the level of direct payments across Member States will increase. In addition, average payment amounts will probably decrease due to the pressure for their abolition from some Member States, as they account for two-thirds of the CAP budget. The continued existence of direct payments may hinge on reducing their redistributive nature (Cipriani, 2007) and on the search for a new rationale for their existence, such as ensuring public goods provision by agriculture (OECD, 2003; Buckwell, 2007, Begg et al., 2008; Bureau and Mahe, 2008, RISE, 2009, Cooper et al., 2010). The following main changes to direct agricultural payments could be considered:

1. A reduction in the national envelope for direct payments: this solution is realistic but retains the main negative distributional effects of the CAP and does not provide a justification for the continued existence of the CAP.

2. Use of modulation "savings" for other purposes outside of Pillar I of the CAP. This solution again retains the unequal distribution between Member States and would therefore be controversial.

3. The introduction of a new form of direct payment supports, such as an *EU-wide flat area payment* or other more regionally uniform types of payments could make the CAP more targeted in terms of payments for non-commodity outputs related to agriculture.

Reductions in Pillar I CAP funding by the EU could also be achieved if a part of these payments were co-financed from national budgets (re-nationalisation of Pillar I of the CAP). Different levels of co-financing could also address the problem of the price of public goods, which are not valued to the same extent throughout the EU. Incentivising voluntary co-financing and the prevention of policy inconsistency could be achieved by setting upper and lower limits for co-financing of Pillar I. If the CAP is to target the provision of public goods, co-financing would be the logical next step (OECD, 2003; Buckwell, 2007, RIZE, 2009)).

The effects of different potential changes of direct payment regimes depend on the selected direct schemes. The supply inducing impact of decoupled payments is differentiated on the basis of whether or not the payment is paid on a historical basis or a regional payment basis. The supply-inducing impact of an euro of

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production-decoupled support that is paid on an historical basis assumed to be greater than the supply-inducing impact of an euro of decoupled support that is dispensed on a flat area payment (SAPS) basis.

The assumption that production-decoupled payments have at least some supply-inducing effects is widely used in the partial equilibrium policy modelling literature. Economic theory suggests that lump-sum payments have no effect on production when markets are complete. However, under imperfect labour, credit, or insurance markets, decoupled payments could influence supply (Burfisher and Hopkins, 2003; Chau and de Gorter, 2001; Roe et all., 2003). An OECD review (2006) suggests that, in addition to the effect which imperfect markets have on the production impact of decoupled payments, decoupled payments that are associated with conditions on the use of land, cross-compliance conditions and the creation of expectations about future payments, can affect the degree to which direct payments induce production.

In this paper, possible post-2013 CAP reform scenarios are outlined and its effects on the EU agricultural markets are analysed using the Agmemod model for combined EU-27 agriculture. The main target of this work is NMS and impact assessment of three different options of direct payments. Additionally to the baseline scenario, two main alternative policy scenarios (significant reduction and gradual abolishment of direct payments) that could arise after 2013, related with the changes of the form and scope of direct payments, are analysed. The main hypothesis in this research exercise is that the changes in direct payments, even the most radical ones implying the abolishment of the payments, are not leading to any dramatic changes in the production and trade at the EU-27 and NMS level, however, they could change significantly the market patterns of some individual sectors within NMS.

2. Methodological concept

The AGMEMOD model is an econometrically estimated, dynamic, multi-product partial equilibrium model. The modelling strategy is to build an EU-aggregate model by combining separate country models, where commodity market sub-models are the basic components in each country-level model. The commodity market sub-models endogenously determine supply and demand, international trade and prices. Each country model captures the behavioural response of economic agents (farmers/producers and consumers/users) to changes in prices, exogenous macroeconomic variables and policy instruments, as well as the response to the previous years' outcome according to the dynamic structure of the model. Using the model's parameters, exogenous data and lagged endogenous data, it is possible to generate projections for the model's endogenous variables over a

set of alternative policy scenarios, for a given projection period. The model is solved with endogenous prices balancing supply and use of each modelled commodity at both member states' and EU-27 levels. Price linkage equations are used to capture the relationships between market clearing prices in Member States and EU markets, and between the EU market and the Rest of the World market. Greater detail on the AGMEMOD modelling approach can be found in Agmemod partnership (2008) and Salamon et al. (2008).

As an econometrically estimated model, the AGMEMOD model's evaluation of policy change is based on the reaction of agri-food markets to other policy and market changes during the sample period over which the model's parameters were estimated. When the original AGMEMOD model was developed, the main analytic focus was on the responses of agricultural supply and demand to changes in the key European market prices and changes in the value of coupled direct payments. Beginning with the MacSharry reforms of 1992, the CAP evolved with a focus on production-related direct support (payments per area and per animal head). Up until 2004, the modelling approach used to examine CAP support under "Agenda 2000" was in general also appropriate for the evaluation of policies in the NMS. In these countries, the pre-accession support was mostly coupled to agricultural production, crop area or animals. Following the 2003 Fischler reform and the enlargement of the EU in 2004, direct income support to farmers was made available without an obligation to produce a specific volume of production. This necessitated some changes in how the effect of agricultural policy on production was modelled and led to the development of the policy harmonized evaluation approach.

As in a common market such as the EU, the motivation for production depends not only on the support system applied by an individual country, but also on the support system applied by other countries, all of the different types of direct payments that were allowed under the CAP were included in the structure of the AGMEMOD model through the implementation of the policy harmonization approach. Under the policy harmonization approach, these direct payments were recalculated in the form of policy add-ons to market prices and gross returns. The modelling structure used in the AGMEMOD model is reflected in Figure 1.

The importance of incorporating CAP instruments in a harmonized way across different country models is central to the analytical capacity of the AGMEMOD 2020 combined model. Such *Policy Harmonization* (PH) ensures that the AGMEMOD Partnership's analysis of the differential impact across the Member States of a common policy change reflects, in so far as possible, the likely real differential impact of any policy change rather than differences in how a common policy is incorporated within different AGMEMOD country models.

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Figure 1 General modelling structure of AGMEMOD model
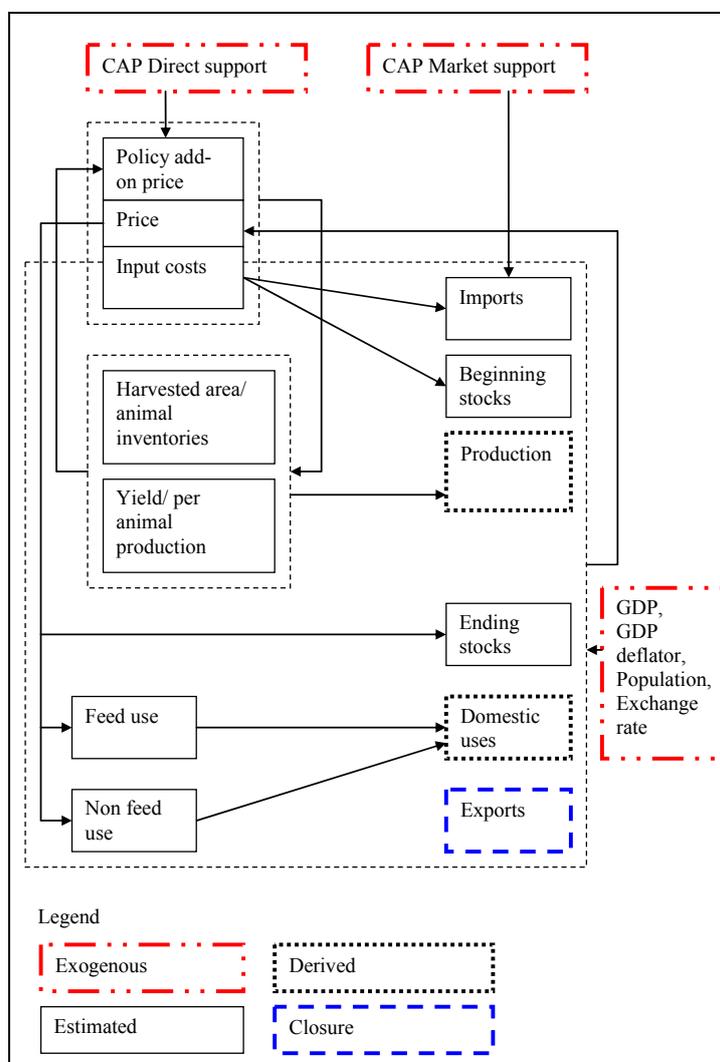
Source: AGMEMOD Partnership

In the implementation of the PH approach within the AGMEMOD model, all direct payments are recalculated as a policy price add-on to the relevant producer price to form a *reaction price* or *expected gross returns*. These policy-based price and gross market return add-ons are used in the assessment of the impact of total budgetary support on agricultural production. The reaction price accounts for the

effect of decoupled direct payments through the application of coefficients – *the multipliers*, which adjust the share of budgetary support in the reaction price of livestock products and in gross return per hectare for crop products. It is assumed that support related to a product or production factor associated with a particular product has a direct impact on production. Support granted to land, irrespective of the type of product produced, can also act as a stimulating factor. The magnitude of the multipliers applied to different types of decoupled subsidies depends on the nature of these support payments. The multipliers applied to decoupled regional or historical payments are in the range

$0 < (P_{i\_HPM}; P_{i\_RPM}) < 1,$

where: P_{i_HPM} – multiplier of historical payments for Product i,

P_{i_RPM} – multiplier of regional payments for Product i,

The value of the historical multiplier (P_{i_HPM}) is set lower than the value of the regional multiplier (P_{i_RPM}). The historical payment provides a greater production incentive than the regional payment since the appropriate production technologies have already been established on farms. If the payment is fully coupled to production, the multiplier used is set equal to 1.

For example, each EU Member State's cattle reaction price, when deflated by input cost indices is the economic variable that drives the supply decisions of farmers within the model's structure. Thus, the supply response of farmers to decoupled payment is positive and changes in the value of decoupled payments will lead to responses by farmers that are analogous to farmers' responses to changes in agricultural output prices. In a comparable fashion, direct support for the crop sector is added to market gross return per hectare to give adjusted expected gross returns variables, which incorporate both the policy and market based signals to producers. These adjusted gross returns deflated by input costs indices are the economic variables which affect the crop area allocation equations within the AGMEMOD model. The details of the calculations of adjusted expected gross return for grains and of the reaction price for beef are presented in Figure 2.

To make the AGMEMOD model capable of incorporating the switches in agricultural policy regimes, all applicable direct support measures that form part of the CAP (under the 2003 CAP reform and the more recent HC decisions) are implemented in the policy block through the envelopes which reflect the total amount of budgetary resources allocated to the sector (see Figure 2). The links between different policy measures in the model ensure that the evaluation of policy changes involving switches between policy schemes (historical to regional) and changes in the objects of policy, e.g. the switch from per animal direct payments to per hectare supports are feasible.

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Figure 2 Allocation of total direct support
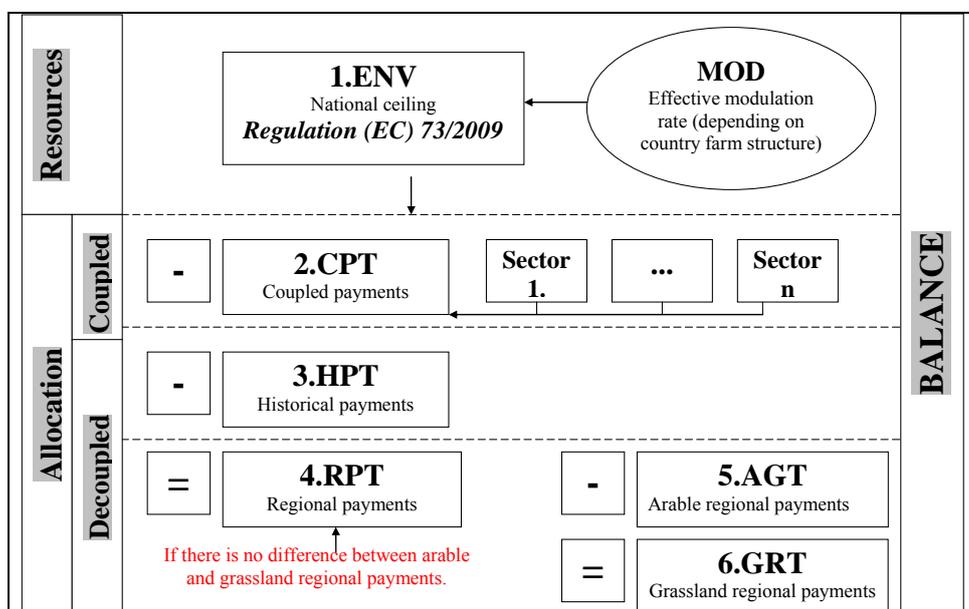
The PH approach in the combined AGMEMOD model and its constituent country models has been implemented in the following way: first, a set of equations that allocate budgetary envelopes between various policy schemes was added to the combined model. Second, in each country model equations were added that calculate the country-specific adjusted gross returns and reaction prices. Finally, the equations on the supply sides of each of the country level commodity sub-models, where the reaction prices and adjusted gross returns are used, were re-specified and re-estimated.

The first set of equations allocates, Member State by Member State, the Pillar I budget between different types of envelopes (coupled, historical and regional). This set of equations is formulated in the same way for all countries and is implemented at the level of the combined AGMEMOD model. The reaction prices and adjusted gross return variables for a product P (or activity A) in country C in year T1 –VPOL_SFP(P_A,C,T1) – are simulated as endogenous variables. The policy component of the reaction price and the adjusted gross return variables adjusts depending on the assumptions made concerning exogenous policy input variables. These exogenous policy variables include modulation and coupling rates, as well as variables controlling the allocation of budgetary envelopes between coupled payments, regional and historical payment schemes.

Policy scenarios

The use of the PH approach in the AGMEMOD model allows us to define and analyse detailed policy scenarios that involve changes to CAP policy instruments, coupled direct payments values, budgetary shares of regional and historical SP schemes.

Under the PH approach used in the AGMEMOD combined model, decoupled payments have supply-inducing impacts. In the analysed scenarios, the "reaction prices", that is the prices or margins in the case of arable crops that incorporate the supply-inducing impact of coupled and decoupled direct payments are lower relative to the Baseline. These reductions in reaction prices are caused by the extension of decoupling agreed under the Health Check, where only the suckler cow and ewe premiums can remain coupled, and only in those MS that had retained these instruments under the 2003 CAP reform. Additionally, reaction prices are reduced relative to the Baseline, as the model of the SPS implementation changes in the scenarios analysed. Under these scenarios, a changeover from a historical model in some Member States to a national or EU-wide flat area payment, leads to lower reaction prices. Significantly, in those Member States with implicit national flat area payments per hectare that is lower than the average payment in the EU-27, the changeover to an EU wide flat area payment leads to an increase in reaction prices.

To illustrate the potential changes of different direct payments options and the capacity of the PH approach as implemented within the AGMEMOD model, the Baseline and two alternative scenarios are specified as follows:

Baseline (Scenario BASE)

The Baseline scenario implies a continuation of the policy as agreed under the HC. Under the Baseline the mix of historic, regional, and dynamic hybrid direct aid schemes with coupled payments (where EU Member States have chosen them) will continue along with the mandatory elements of the Health Check decisions implemented through by the end of the projection period in 2020. The rates of modulation are increased, milk quota and set aside are abolished, and direct supports related to production are to be fully decoupled, with the exception of some beef and sheep payments. The additional funds raised through the increase in the rate of modulation are used to fund second pillar measures and thus reduce the effective National Ceilings. The CAP budget national envelopes remain at their current level.

Reduced EU-Wide Flat Rate Payments Scenario (Scenario EUFR)

There are several proposals in the literature (Bureau and Mahé', 2008) that the level of EU-wide area payments should be reduced significantly from the

existing level. In this scenario we set the EU-Wide Flat Rate direct payments at 100 euros per hectare and the eligible area as equal to the agricultural area on which entitlements under the SPS are set. The modulation rate is set at zero, with the Pillar I funds that are raised through this payment, as compared with payments under the SPS, used to fund Rural Development and other EU policy areas.

Direct Payments Abolishment Scenario (Scenario ABOLISH)

The final scenario examines the impact of a gradual abolition of the SPS and other direct payments policy instruments on the EU agriculture. In this scenario, direct payments defined as in the baseline scenario are reduced to zero in a linear fashion over a 7-year period beginning in 2013 and finishing in 2020.

3. Scenario results

3.1. Baseline results

The trends in grain production at NMS level in the period 2004-2020, simulated according to the conditions defined by Health Check agreement, draw a slight V-shape line, where soft wheat and barley production in 2012 is forecasted at 96% of the 2004 level and at 106% and 108% respectively in 2020 (table 1).

Maize may record an insignificant decrease until the middle of the simulation period and increase towards the end of the period by 10% in 2020 compared to 2004. At the same time, the rapeseed production simulations show a stable upward trend for an entire period both at NMS' level (one and a half times increase) and at each country's level. The share of direct payments in expected gross returns for soft wheat and barley are higher than for rapeseed and maize, therefore changes of subsidies have a stronger impact on grain production. As only 25% of the grain envelope can be paid as coupled since 2007 (in the form of top-ups in NMS with implemented SAP scheme) and according to the Health Check agreement all direct payments for grains and rapeseed must be decoupled from 2010 onwards, the policy becomes less incentive for grain production, and the increased production level in 2020 can be explained by constantly increasing yield per hectare, which will overcome the negative effect of policy during the simulation period.

NMS in total are grain and rape net exporters, and the trade in soft wheat and barley at NMS level follow the same tendency as production, however, it is also influenced by the price level and feed demand for livestock sector, which leads to barley net import for NMS in 2012. Maize net export is forecasted to increase during the simulation period while net trade of rapeseed in 2020 will remain at the 2004 level in spite of a huge increase of production due to higher capacity of domestic processing industry.

Table 1 Baseline scenario results for grains and rapeseeds (2004-2020)

	Soft wheat (000 t)			Maize (000 t)			Barley (000 t)			Rapeseeds (000 t)		
	2004 STAT	2012 Base	2020 Base	2004 STAT	2012 Base	2020 Base	2004 STAT	2012 Base	2020 Base	2004 STAT	2012 Base	2020 Base
Production												
Bulgaria	3 805	4 135	4 540	1 938	2230	2748	1 102	1 133	1 293	0	0	0
Czech Republic	5 043	4 251	4 530	552	732	767	2 331	2 180	2 390	935	1 056	1 219
Estonia	197	282	318	0	0	0	293	481	562	69	157	287
Hungary	5 953	4 411	4 698	8 332	9 791	10 109	1 413	847	910	291	354	429
Latvia	500	630	723	0	0	0	284	289	336	104	249	363
Lithuania	1 430	1 441	1 732	3	5	5	860	1 091	1 387	205	372	557
Poland	9 892	9 786	11 183	2 344	2 745	2 878	3 571	3 429	3 672	1 633	1 809	2 068
Romania	7 798	8 272	8 658	14 542	11 956	13 609	1 406	1 454	1 469	99	175	175
Slovakia	1 765	1 503	1 990	862	836	1 099	916	768	1 045	263	333	375
Slovenia	147	204	231	358	297	341	60	85	99	5	5	5
CEEC Countries	36 530	34 894	38 555	28 760	28 592	31 556	12 236	11 757	13 163	3 604	4 510	5 478
Net trade												
Bulgaria	1 063	1 416	1 803	652	895	1 378	306	346	507	0	0	0
Czech Republic	1 798	735	1 017	75	308	335	536	273	500	247	111	103
Estonia	- 30	85	121	0	0	0	13	192	253	-25	34	83
Hungary	3 573	1 839	2 429	4 367	5 103	5 701	557	-205	- 120	233	273	346
Latvia	118	223	326	-13	-26	-26	-19	21	78	39	201	320
Lithuania	521	687	981	-47	-59	-59	140	259	484	156	-43	-21
Poland	1 539	192	629	79	-1 200	-1 952	119	-1 870	-1 948	393	-14	10
Romania	2 341	2 069	2 108	1 779	2 532	3 627	565	817	816	80	136	136
Slovakia	485	188	640	267	206	447	193	144	366	76	189	218
Slovenia	- 144	- 112	- 111	-155	-291	-285	-75	-63	-73	0	0	0
CEEC Countries	11 264	7 322	9 943	7 004	7 468	9 166	2 335	-86	863	1 199	887	1 195

Source: Agmemod modelling results

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Analysing production and net trade at individual country level some similar tendencies can be observed for regional groups of countries. They can be generated by two reasons – country specific policies implemented regarding direct payments and yield developments. Good potential for yield increase exist in Nordic part of the CEEC. Three Baltic states would show stable increase of grain and rapeseed production even if the level of direct payments will remain one of the lowest per ha of SAP eligible area. Improved production efficiency can be expected as well as for Bulgaria and Romania. The main grain producer countries in Central Europe – Czech Republic, Hungary, Poland, Slovakia would draw the common tendency as they have less yield improvement potential (quite high base level for yield) and the mandatory decoupling of relatively high payments for arable crops. The higher comparing with grains rape prices also might influence negatively the grain production simulated for 2012. The situation in grain net trade is closely linked to production and price level and especially to forecasted domestic demand for feed for pig and poultry sector. The simulated development of grain and rapeseed production is more unambiguous as there can be less variations in policy measures applicable comparing with cattle sector.

At NMS level milk production is forecasted to remain almost constant while beef production is forecasted to decline by 19% (table 2). Bureau and Mahé (2008) among others have identified the EU beef sector as particularly vulnerable to CAP policy reform, however the main reason for decreasing of beef production at aggregated level is that beef production is byproduct of dairy sector in CEEC and increase of milk yield lead to reduction of dairy herd and, consequently, to reduction of beef production with more or less lagged effect. According to Health Check agreement there still are complicated combination of a lot of policy measures related to cattle sector, however, the coupled payment effect can be substituted with the increased grassland payments that means, the effects in some cases can be compensating each other. NMS, allowed to grant national financed top-ups, have to reduce them until 10% point level in 2012 and phase them out in 2013. The major part of NMS currently have chosen to top-up cattle sector with the great variety of coupled payments. The exceptions are Poland, Romania and Bulgaria which have implemented only arable crop top-ups. Net export for beef might decrease as the food consumption patterns show increasing demand for beef. At the same time net export for cheese might increase for the most efficient milk producers between NMS. Pork and poultry production at NMS level is forecasted to increase by 10% and 46% respectively. That may bring NMS closer to self-sufficiency level in pork production and to change the net trade position from a net importer to a net exporter of poultry.

Table 2 Baseline scenario results for livestock and dairy (2004-2020)

	Beef and veal (000 t)			Cow milk* (000 t)			Pork (000 t)			Poultry (000 t)		
	2004 STAT	2012 Base	2020 Base	2004 STAT	2012 Base	2020 Base	2004 STAT	2012 Base	2020 Base	2004 STAT	2012 Base	2020 Base
Production												
Bulgaria	32	31	31	1 332	1 383	1 402	82	97	119	88	123	130
Czech Republic	96	94	91	2 602	2 644	2 715	426	341	367	233	263	265
Estonia	15	12	10	640	716	743	39	42	46	15	16	17
Hungary	52	45	37	1 895	1 777	1 866	334	294	294	447	481	472
Latvia	22	20	16	784	774	704	37	38	38	14	21	21
Lithuania	48	71	63	1 842	1 936	1 762	97	92	96	49	66	66
Poland	351	362	323	11 822	12 078	12 511	1 992	2 364	2 559	962	1 519	1 880
Romania	391	273	231	5 716	5 055	4 940	642	578	550	433	483	479
Slovakia	36	32	32	1 079	1 053	1 066	144	101	101	96	109	115
Slovenia	47	49	50	650	553	592	71	67	68	53	56	56
CEEC Countries	1 090	989	884	28 362	27 969	28 301	3 864	4 014	4 238	2 390	3 137	3 501
Net trade												
Bulgaria	-28	-27	-26	10	9	12	-28	-20	-0.7	-24	1	5
Czech Republic	14	-5	-12	-10	-14	-9	-13	-96	-69	-12	-26	-28
Estonia	-2	-3	-5	4	11	11	-5	1	1	-11	-8	-9
Hungary	10	-46	-43	1	-20	-1	34	-133	-109	121	274	234
Latvia	-5	-1	-3	3	1	1	-29	-29	-28	-29	-30	-30
Lithuania	5	45	28	45	59	56	-28	-61	-70	-15	-17	-17
Poland	74	171	120	61	133	156	50	261	512	50	508	736
Romania	59	17	-24	2	-5	-25	-200	-150	-174	-181	-57	-106
Slovakia	0	-4	-9	3	-8	-16	-28	-50	-49	-16	-12	-32
Slovenia	0	4	6	1	-1	2	-19	-21	-24	6	5	0
CEEC Countries	127	151	32	120	165	187	-266	-298	-10	-111	638	753

* Cheese in net trade

Source: Agmemod modelling results

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When analysing production and net trade at individual country's level, beef producer prices are important factors: the value of the beef policy add-on calculated according to the PH method described in Section 2 above; and the share of policy add-on in beef reaction price. The policy add-on to beef prices incorporates all of the different coupled cattle payments and decoupled historical and regional payments that affect cattle production in NMS – the coupled CNDP for suckler cows, slaughter premiums as well as decoupled regional payments. The decrease in the value of the reaction price component for beef in almost all NMS is due to the phasing out of the coupled CNDP, which in line with the ongoing increases in dairy cow yields leads to a decline in total beef production.

Pork and poultry are sectors driven by cost efficiency and trade measures. Projections for production and net trade levels show that Bulgaria might employ its improving grain sector to reach a self-sufficiency level for pork and poultry. The same projections have been simulated also for the Estonian pork. The rest of NMS market might be filled by the Polish pork, increasing production by 28%, which means ten times higher net export. Total NMS poultry export may also be dominated by Polish producers doubling their production of poultry in the period 2004-2020.

3.2. Direct payment changes scenario results

The first defined policy Scenario – EUFR (Reduced EU-Wide Flat Rate Payments Scenario) in fact shows the impact of policy change while the second Scenario – ABOLISH (SPS Abolishment Scenario) can characterize and quantify the impact of direct payments to market equilibrium. The policy effect on net trade will appear via price changes responding to the changes in market supply caused by Member States' reaction to policy change.

In the case of 100 EUR/ha payment, both EU-15 and almost all the NMS will reduce the national envelope, with exception of Latvia which should get an additional 19% to national ceiling. The other two Baltic States and Romania should lose around one-fourth of the national envelope, Bulgaria would get around one-third less and Poland and Slovakia around a half less. The most heavily influenced NMS under EUFR scenario in terms of budget will be Hungary and C. Republic.

The policy scenario results are simulated for NMS within the combined (EU-27) AGMEMOD model environment. In both scenarios, total supply of soft wheat and barley is decreasing – less in EUFR scenario, more in ABOLISH scenario; and less for NMS, more for OMS (table 3). However, the changes at aggregated level do not exceed 4% and cannot be defined as dramatic. In ABOLISH scenario, the reduction of direct support by 100% would reduce grain and rapeseed production in NMS and OMS by not more than 2.5% and 3.8% respectively. First, this points to the question about the efficiency of spending public money. Second, as the direct

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support level per product unit is relatively low in NMS, reduction of this support is less significant compared with the resulting price increase on the EU market.

Table 3 Scenario results for reduced EU-wide flat rate payment and abolishment of direct payments scenarios for grains and rapeseeds
(percentage changes from Baseline scenario)

	Soft wheat		Maize		Barley		Rapeseed	
	2020 EUFR	2020 ABOLISH	2020 EUFR	2020 ABOLISH	2020 EUFR	2020 ABOLISH	2020 EUFR	2020 ABOLISH
Production (% change from Base)								
Bulgaria	-2.8%	-4.9%	-0.2%	-0.4%	-2.5%	-4.9%	0.0%	0.0%
Czech Republic	-0.9%	-1.5%	2.1%	5.1%	-1.7%	-3.4%	2.4%	3.8%
Estonia	-2.0%	-7.4%	0.0%	0.0%	-2.0%	-7.4%	0.9%	-2.8%
Hungary	0.3%	0.4%	0.7%	1.3%	-1.9%	-4.3%	-3.0%	-7.6%
Latvia	1.13%	-3.79%	0.0%	0.0%	0.98%	-2.94%	1.39%	-0.99%
Lithuania	-0.3%	-0.8%	0.0%	0.0%	-0.3%	-0.8%	0.4%	-0.3%
Poland	-1.3%	-1.6%	5.0%	6.7%	-1.4%	-1.8%	1.6%	1.9%
Romania	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.0%	0.0%
Slovakia	0.0%	-0.8%	0.1%	-0.4%	0.1%	-0.5%	1.8%	2.5%
Slovenia	-3.4%	-5.1%	-2.6%	-4.3%	-2.8%	-4.5%	0.0%	0.0%
CEEC Countries	-0.7%	-1.2%	1.4%	2.3%	-1.2%	-2.5%	1.2%	0.9%
EU 27	-2.31%	-3.53%	-1.63%	-3.19%	-2.22%	-3.73%	-1.97%	-3.31%
Net trade (% change from Base)								
Bulgaria	-6.7%	-11.9%	-0.4%	-0.9%	-6.2%	-11.9%	0.0%	0.0%
Czech Republic	-3.6%	-6.1%	4.8%	11.5%	-7.8%	-15.8%	8.2%	12.7%
Estonia	-4.7%	-15.2%	0.0%	0.0%	-4.1%	-14.7%	1.1%	-3.6%
Hungary	-0.1%	-0.4%	0.8%	1.7%	13.0%	29.1%	-3.8%	-9.4%
Latvia	2.33%	-7.88%	0.0%	0.0%	3.62%	-11.21%	1.75%	-0.86%
Lithuania	-0.5%	-1.3%	0.0%	0.0%	-1.1%	-1.8%	-32.0%	-17.9%
Poland	-19.0%	-22.6%	-6.9%	-9.4%	7.1%	9.5%	-3.0%	11.4%
Romania	0.8%	0.8%	0.9%	1.1%	0.0%	-0.9%	0.0%	0.0%
Slovakia	-0.3%	-2.6%	0.4%	-0.8%	0.5%	-1.2%	3.9%	5.4%
Slovenia	6.6%	9.8%	2.0%	3.4%	3.0%	4.9%	0.0%	0.0%
CEEC Countries	-2.8%	-4.9%	4.6%	7.4%	44.5%	78.3%	1.6%	-0.8%
EU 27	-16.56%	-25.15%	-11.03%	-20.39%	-17.95%	-29.29%	-36.90%	-59.32%

Source: Agmemod modelling results

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Table 4 Scenario results for reduced EU-wide flat rate payment and
abolishment of direct payments scenarios for livestock and dairy
(percentage change from Baseline scenario)

	Beef and veal		Cow milk		Pork		Poultry	
	2020 EUFR	2020 ABOLISH	2020 EUFR	2020 ABOLISH	2020 EUFR	2020 ABOLISH	2020 EUFR	2020 ABOLISH
Production (% change from Base)								
Bulgaria	1.0%	0.9%	0.01%	0.03%	0.7%	0.7%	-0.2%	-0.3%
Czech Republic	0.7%	0.9%	0.3%	0.5%	0.1%	0.1%	-0.03%	-0.01%
Estonia	-0.6%	-4.4%	0.1%	0.1%	0.02%	0.01%	0.05%	0.03%
Hungary	-1.3%	-1.7%	0.01%	0.00%	0.30%	0.31%	0.02%	0.02%
Latvia	1.29%	-5.29%	0.46%	-0.68%	0.00%	-0.02%	0.00%	0.00%
Lithuania	0.7%	-1.1%	-0.1%	-0.7%	0.6%	0.6%	0.00%	0.00%
Poland	0.24%	0.15%	0.20%	0.31%	-0.09%	-0.11%	-0.05%	-0.08%
Romania	-1.0%	-0.9%	-0.02%	-0.02%	0.06%	0.03%	-0.02%	-0.04%
Slovakia	-0.2%	-0.4%	0.3%	0.5%	0.3%	0.3%	-0.02%	-0.03%
Slovenia	-5.3%	-8.2%	0.1%	0.1%	0.1%	0.1%	-0.1%	-0.1%
CEEC Countries	-0.2%	-0.9%	0.2%	0.2%	0.00%	-0.02%	-0.05%	-0.08%
EU 27	-2.40%	-2.77%	-0.25%	-0.42%	0.49%	0.47%	-0.11%	-0.14%
Net trade (% change from Base)								
Bulgaria	-3.6%	-3.6%	1.4%	2.3%	16.0%	25.9%	-23.4%	-26.5%
Czech Republic	-5.3%	-6.4%	-3.7%	-5.0%	-1.0%	-0.8%	0.21%	0.01%
Estonia	-0.1%	7.0%	0.4%	0.7%	-2.9%	-3.1%	0.4%	0.5%
Hungary	-1.7%	-1.5%	11.3%	14.0%	0.9%	0.9%	-0.04%	-0.04%
Latvia	-5.82%	24.60%	7.86%	4.25%	-0.02%	0.00%	0.00%	0.00%
Lithuania	2.9%	-1.0%	0.4%	0.3%	-0.3%	-0.3%	0.0%	0.0%
Poland	2.43%	2.22%	2.07%	3.31%	0.59%	0.47%	-0.82%	-0.93%
Romania	6.6%	5.4%	-0.8%	-1.0%	0.8%	1.0%	0.1%	0.2%
Slovakia	-1.1%	-0.5%	-3.4%	-5.3%	-0.5%	-0.5%	0.2%	0.3%
Slovenia	-35.9%	-58.2%	13.8%	19.8%	0.0%	0.1%	21.5%	34.3%
CEEC Countries	3.8%	-1.5%	2.3%	3.5%	1.9%	1.4%	-0.7%	-0.8%
EU 27	93.17%	107.98%	-1.19%	-1.58%	70.12%	66.62%	-4.56%	-5.71%

* Cheese in net trade
Source: Agmemod modelling results

The increased competitiveness of NMS grain and rapeseed producers in both
scenarios can be confirmed, especially by the results for maize and rapeseed where

production and net trade (with exception of net trade for rape in ABOLISH) projections show a positive change, which is opposite to OMS results. The results from EU-27 combined model shows that OMS are getting an opportunity to dominate on the EU market mostly due to higher support level which allows them to supply production at lower prices, especially in grain sector.

In both scenarios, the total supply is decreasing for beef and poultry. The supply of beef is seen to decline more in OMS, as these countries will have to decouple all cattle payments. The switch to EUFR would generate positive effects on beef production in Latvia, Lithuania, Poland, Czech Republic and Bulgaria. The reduction of poultry production can be a result of an increasing grain price. The simulation results show that NMS might be more competitive in case of a fair support level and increased market price for a product. In both scenarios, dairy sector shows the opposite tendencies for NMS and OMS, as the reduction of decoupled grassland payment related to dairy sector is projected to be more painful for OMS than for NMS.

The market shares of pork production, however, can be slightly redistributed between OMS and NMS in ABOLISH scenario as the OMS are expected to be more cost efficient in case that grain prices are simulated to increase.

4. Conclusions

The paper attempts to assess the consequences of the potential scenarios of changes of direct payments policy for new Member States after 2013. We used a sectoral partial equilibrium model Agmemod, which allows a more detailed definition of various forms of direct payments. The scenarios present the three most extreme options of future reforms. The Baseline Scenario implies a continuation of the policy after 2013, the Scenario Abolish implies total abolishment of Pillar I direct supports, and the Reduced EU-Wide Flat Rate Payments Scenario includes an option often quoted in literature, i.e. that payments at the entire EU area are made more uniform, but are – owing to the expected overall reduction of budgetary funds for Pillar I of CAP – at a substantially lower level. According to this scenario, the presumed flat-rate payment would stand at 100 EUR per ha of utilised agricultural area. This scenario could be considered an option somewhere in-between the two other extreme scenarios and is most likely the closest to the actual solutions of the future CAP reform.

In case of the scenario of an unchanged policy after 2013, the production of most agricultural sectors is expected to increase by 10-15% in NMS. This would stem from presumably relatively favourable economic conditions based not only on

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budgetary supports but also possible expansion of the markets and above all, the expected technological development. NMS still record a relative deficit in terms of intensity and efficiency of agricultural production and consequently, have a potential for higher growth, which is no longer the case in most EU-15 states. Increasing production of grains and oilseeds will be largely compensated for by growing use (for feed and bio-fuels), so that it is not expected to lead to any significant changes in net trade positions of these countries. They would certainly remain net exporters for most grains and oilseeds. Also pork and poultry production is expected to boost. As these are the sectors undergoing marked structural changes, NMS could also become net exporters of pork and poultry.

In the baseline scenario, only dairy and beef markets deviate). Low competitiveness of this production in the NMS does not show any potential for production growth. Processing of animal products is expected to have difficulties in achieving any greater share on the European market also in the future. Abolishing quotas on milk production will not lead to increasing but just to preservation of production. Given the increased milk yields of cows, this will result in a reduction of herds and thereby fewer calves and smaller beef production. Beef production will apparently be the most hardly hit and the model results even point to a drop in production.

The results reveal certain differences among the countries, but the majority of them do not deviate from the presented result pattern. The largest increase as regards quantities of production, and consequently the impact on net trade was recorded in Bulgaria for grains, Poland for poultry and pork and Hungary for poultry.

Gradual abolishing of direct payments (Scenario Abolish) or their radical change will quite expectedly lead to cuts in production and changes in net trade positions. The changes, however, are not as dramatic as one would expect them to be, and can even have the opposite effects. The model results point to a drop in production in soft wheat, barley and beef at a range of about 1 %. Inter-sectoral impacts could even lead to a rise in production, e.g. of maize. As for milk, poultry and pork, where the impact of direct payments is less significant, the effects of changed budgetary transfers are negligible, according to model calculations. In all the products, the effects of introducing flat-rate payments are smaller than those of completely abolishing payments. Moreover, the effects are less pronounced in NMS than in EU-27 on the whole, which is understandable, as the relative scope of payments for NMS is considerably lower than that for old Member States.

There are considerable differences among the countries as regards the impacts of changes. In arable crops, the impacts are the most pronounced in Estonia, Bulgaria and Slovenia; in the beef production, which is the only sector of the analysed livestock and dairy sectors which feels the effects, the impacts are

obvious in Latvia, Slovenia and Estonia. In some countries, such as Romania and Czech Republic, the effects are negligible, which could also result from poor performance of models, regardless of the similar direction of results.

The overall conclusion would be that at least in the short-term, properly phased in radical changes of the policy would not result in any dramatic changes in production and trade of CEEC. According to the model results, the impacts of changes would be compensated for by the positive effects of accession to the common European market and technological development. There would also be some changes in competitiveness of agricultural markets within and among individual member states. CEEC would most probably benefit in crop production and in a part of meat production (poultry and pork) but lose in milk and beef production.

Although the results are rather logical, there are some restrictions of such analyses that need to be considered. They do not include potential faster adjustments of producers and markets or greater negative responses to economic changes, therefore the interpretation of the results calls for a relative caution. In particular, the interpretation of results for individual countries needs to be cautious. It seems that for some countries (e.g. Romania) – as a result of insufficient data or other possible problems with econometric estimations and model calibrating, the model response remains too weak to allow sufficiently relevant assessments. It also points to the limitations of the econometric approach to constructing so complex tools, which would require more attention in the future. Despite these reservations, some basic messages can be drawn from the results, i.e. that in new Member States abolishing of supports would not lead to dramatic drops in production.

The aim of the paper was also to emphasise the importance of an accurate and theoretically consistent modelling of variables and data related to direct payments. In the future, such models should be extended to include also budgetary transfers from the rural development policy, which are more target-oriented and de-coupled by definition, but have effect on the preservation of some productions, at least in some European regions. Besides, the cost-related side of the model should be strengthened to be able to obtain also the most accurate possible estimations of incomes; with the policy changes foreseen in this paper and expected in the future (it is only the question of the length of the time-span), the response of producers will in the first place depend on the available factor incomes at the level of individual activity and total agricultural holdings.

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