

DIFFERENT CAP SUPPORT SYSTEMS – EVALUATION OF THE IMPACT ON SUPPLY OF AGRICULTURAL PRODUCTS

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Summary

A unified methodological approach is required in order to perform within the policy harmonization process the quantitative evaluation of the impact of various elements of the CAP direct support systems upon the supply of agricultural products and its structural changes. Possibilities of formalization have been assessed on the basis of the econometric model of agricultural and food products AGMEMOD, which is used and developed for all Member Countries incl. Latvia within the Framework 6 Programme Project „AGMEMOD 2020”.

The AGMEMOD models mainly focus on the effect of direct payments and responds on changes in key European market prices as a factors incentive for production development. For taking into account the impact of a new support unrelated to volume of production, presumptions are made for the present regarding it’s formalization via supply inducing coefficients – multipliers, or incentive price. It is assumed that the support related to a product or to the resource for its production has direct impact upon the volume of supply. The support granted for the land irrespective of the type of obtained product can act as an additionally stimulating factor, however, it should be evaluated as negative if the payment rate constitutes the economic bases for alternative business activity.

Results of the research show that in order to improve policy analysis in the AGMEMOD model, it should be taken into account that both the policy systems and the fiscal envelopes are variable by 2013. To make the models capable to incorporate the switches in agricultural policy regimes implementation of the envelopes for all types of direct support and direct support measures currently not included should be similarly applied for all countries. The multipliers measuring the weight of impact of the direct support on production are crucially important for the calculations. Consequently, for future evaluation of compliance of the values of these multipliers, the analysis of econometric coherences is required.

Key words: Common agricultural policy, direct support system, policy harmonization, modelling.

Introduction

The current Common agricultural policy (CAP) of the European Union is focused towards reformation of the support system with a view to facilitate increase of competitive capacity of the producers of agricultural products. The diverse social and economic structure and production structure in the rural areas of the Member States determines the selection of the applied policy within the framework of the direct support schemes established by the EU legislation. The new Member States can use at least until 2009 the transition period support system, one of advantages of which is a flexibly applicable assignment of additional national funding from the national budget. The old Member States on their part, are supposed to change over to a new system by 2007, either preserving the historical amounts of the support on farm-level or developing a regionally diverse support policy through support for a certain or a special quality product, or through full decoupling taking no efforts in stimulating the supply of certain products.

It is expected that by 2013, the policy harmonization process will take place, and such diverse policy systems will be equalized to the utmost. In view of different types of support applied in various Member States on the level of both sectors and farms and regions, there is challenge to develop an analytical approach, which would enable evaluation of the impact of policy upon the supply of agricultural products and the changes in its structure and which would be methodologically well-grounded.

From the point of view of policy evaluation, formalization of the policy harmonization process is

required in order to determine by quantitative methods how do the different types of agricultural support systems affect production.

The aim of the report is to show the possibilities of quantitative assessment of the impact of the various elements of the direct support systems proposed by CAP upon the supply of agricultural products within the context of the policy harmonization process.

The possibilities of formalization will be evaluated on the basis of the econometric, dynamic model of agricultural and food products AGMEMOD, which was developed for all Member Countries incl. Latvia within the Framework 5 Programme Project, and is used and adapted in compliance with the CAP being developed within the Framework 6 Programme Project „AGMEMOD 2020”.

1. Current Policy modelling – based on policy factors impact evaluation in pre-reform period.

The AGMEMOD models [5] used for assessment of policy impact on supply of agricultural products are mainly focusing on the effect of coupled direct payments and responds on changes in key European market prices.

In the time period starting from 1992, where the Common agricultural policy was implemented generally via production related direct support (payments per area and animal head), it was possible to evaluate direct payments as incentive factors for production development (see Table 1). The modelling approach elaborated according to the EU agricultural policy under “Agenda 2000” in reference period until 2004 is in general appropriate also for New Member States (NMS) as the pre-accession support was granted mostly coupled to agricultural production, crop area or animals.

Table 1

Direct support incorporation in AGMEMOD models

Sectors modelled	Direct support measures according to AGMEMOD modelling approach	Effect on use of production resources
Grains	Grain compensation payment	Grain area
Rapeseed	Rapeseed compensation payment	Rapeseed area
Beef	Sucker cow premium	Number of sucker cows
Pork	-	
Poultry	-	
Milk	-	

Source: AGMEMOD

Since the EU enlargement in 2004 NMS have implemented Single area payment (SAP) scheme (with the exception of Slovenia and Malta which joined to the Old Member states (OMS) classical “Agenda 2000” policy) while the new CAP reform with the four main measures – changes in market support, decoupling of support from production, cross compliance requirements and support modulation, was agreed. SAP for NMS is a transitional scheme to reformed policy where part of direct support funding became available for the first time without obligation to produce certain production [2]. That raises a question about appropriate modelling approach (see Figure 1).

In order to take into account the impact of the support unrelated to production upon the volume of produce, the block of the Latvian AGMEMOD model was supplemented with the new support measures, during the time period of which the variable rates are calculated inside the model taking into account the values of the sector envelope and the reference, as well with presumptions regarding it’s formalization via supply inducing coefficients – multipliers, or incentive price. The policies variables related to sectors which are analysed and included in AGMEMOD model and their conformity with the current agricultural policy measures implemented in Latvia are reflected in Table 2.

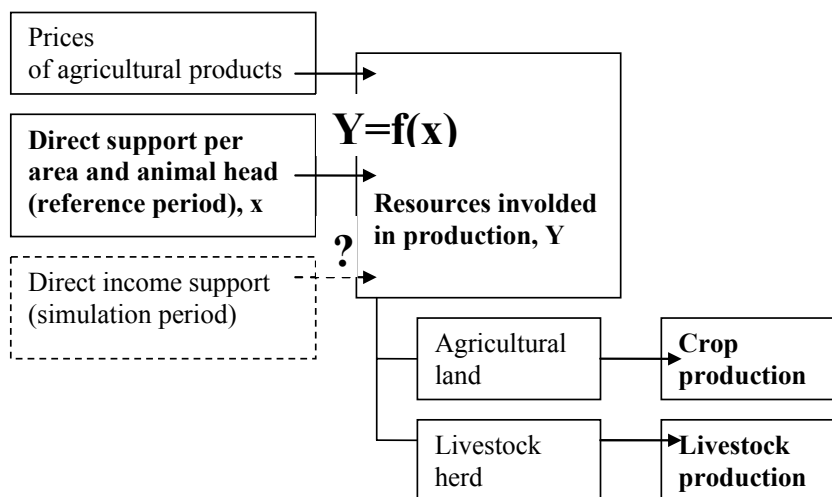


Figure 1. Modelling of direct support

Source: LSIAE

Table 2

Direct support implementation in Latvian AGMEMOD model

Sectors modelled	Direct support measures according to AGMEMOD modelling approach	Effect on use of production resources	Adjustments in Latvian model		
			Current CAP measures	Support rates calculated inside the model	Multipliers reflecting impact weight
1	2	3	4	5	6
Grains	Grain compensation	Grain area	Top-ups for arable crop area	Based on sector envelope, top-up rate, reference area for arable crops	1
		Grain area	Decoupled SAP	Based on national ceiling, phasing-in rate, eligible area for SAP	0.3
Rapeseed	Rapeseed compensation	Rapeseed area	Top-ups for arable crop area	Based on sector envelope, top-up rate, reference area for arable crops	1
		Rapeseed area	Decoupled SAP	Based on national ceiling, phasing-in rate, eligible area for SAP	0.3
Beef	Suckler cow premium	Number of suckler cows	Top-ups for suckler cows	Based on sector envelope, top-up rate, reference number of suckler cow	1
		Number of suckler cows, cattle slaughter weight through the incentive price for beef	Decoupled SAP	Based on national ceiling, phasing-in rate, eligible area for SAP, average livestock density threshold	0.3
			Top-ups for fodder crop area	Based on envelope for fodder crops, top-up rate, reference area for fodder, average livestock density threshold	0.6

Source: LSIAE according to Latvian AGMEMOD model

Columns 4 to 6 show adjustments done regarding introduction of the SAP scheme policy into the Latvian AGMEMOD model. All support available for arable crops is introduced in the model through the calculations of expected gross return per ha which affects the area allocated for certain crops. The direct support for cattle sector is built up from payments for suckling cows, decoupled SAP and fodder crops affecting the volume of beef. Single area payment and top-ups for fodder are added to beef incentive price increasing the margin between beef price and input costs. This means that part of decoupling effect is moved to the market effect, which occurs via changes of incentive prices for agricultural outputs or inputs – with a foreseeable responds of farmers [3].

Taking into account that the supply inducing impact of the direct support will be essentially decreased since introduction of SAPS, different multipliers are set based on expert assumption on how decoupled payments could affect the production decisions. The rates of multipliers applied for subsidies depend on the nature of support payment. The multiplier of value 0.3 is applied in the model to reduce fully decoupled support factor's impact on production. If the payment is kept coupled with production (product related top-ups for SAP scheme up to 2008) the multiplier is set to 1. For fodder crops the multiplier is set to 0.6 due to the reason that fodder payments are area based being more incentive factor for beef production. Recalculated per tonne of beef meat on the ground of assumption on animal density threshold these payments are added to the market price for beef in order to get the incentive price.

Assumptions regarding differentiated impact of support measures under different evaluation of multipliers are applied in AGMEMOD models of all countries and in Latvian model as one of NMS as well. According to the Latvian model results, the share of subsidies covered by the model and to be granted for producers of agricultural commodities modelled in the total envelope (national financial ceiling) in 2013 is expected to be only 54%. This calculation is done for baseline scenario, in which the maximum permitted coupling of subsidies to the production is assumed. A part of the rest of direct support is forecasted to be paid for sectors not included in Latvian AGMEMOD model (e.g., potatoes, green fodder areas) or distributed outside the agricultural sector for the land maintained in good agricultural condition. Comparing the actual gross agricultural income with the income level where support factors influencing production decisions are adjusted with multipliers, the first one is higher by 9%. These “adjusted” subsidies and incomes are shown in the bottom of Table 3.

Table 3

**Agricultural output value, subsidies,
feed costs and gross income in Baseline scenario, Latvia (2005=1)**

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Agricultural output value	1.00	1.03	1.10	1.18	1.20	1.23	1.26	1.29	1.33
Subsidies	1.00	1.17	1.26	1.27	0.84	0.95	0.98	1.00	0.99
Feeding costs	1.00	1.01	1.06	1.09	1.09	1.10	1.11	1.13	1.16
Gross agric. income	1.00	1.06	1.13	1.21	1.15	1.20	1.23	1.26	1.28
Subsidies *	1.00	1.17	1.24	1.20	0.49	0.56	0.57	0.59	0.59
Gross agric. Income *	1.00	1.05	1.13	1.20	1.10	1.14	1.17	1.20	1.23

Source: Latvian AGMEMOD model calculations; * - adjusted with multipliers

The modulation measure is not introduced in the model directly through the decrease of support rates; however, the threshold for farms subject to modulation is quite low and can be assumed with regard to all farms. There are no opportunities for analysis of the effect of cross compliance requirements on supply of agricultural products.

2. OMS and NMS different policy systems – demanding unified approach in AGMEMOD model for assessment of the effects on common market

In 2007 within the framework of CAP there are two direct support schemes applicable in Member states incorporating diverse forms of their implementation [1]:

- SAP scheme (according to current legislation - transitional to SP scheme only in NMS until 2009) -

diverse policy systems due to the quite flexible application of top-ups. Different complementary support measures for each country may result in different share of CAP support introduced and evaluated in model as incentive factor;

- SP scheme - diverse support systems (from fully decoupled to utmost coupled, with the prevalence of historical or flat rate regional payments in OMS and Slovenia and Malta) and different assumptions how to simulate them, may result in different assessment of similar support as incentive factor for each country.
- From 2013 when top-ups will be phased-out and fully reformed policy must be implemented agricultural policies in NMS and OMS are supposed to be harmonized. The development of policy harmonization process is reflected in Figure 2.

Time	Policy measures	Policy systems	
		NMS* SAP scheme (different top-ups implementation)	OMS+ Slovenia and Malta SP scheme (regional, historic, static hybrid, dynamic hybrid moving to a flat rate model)
2007	Decoupled	40%	87%
	Coupled	30%	13%
	Support available (from national ceiling)	70%	100%
	Support envelopes →		
2013		OMS+ NMS SP scheme (regional, historic, static hybrid)	
	Decoupled		?
	Coupled		?
	Support available (from national ceiling)		100%

Figure 2. Policy harmonization

Source: LSIAE according to R1782/2003 [1], R118/2005 [2]; * - excluding Slovenia and Malta

Classification of direct support under different systems can be aggregated in two general groups:

- Decoupled support (according to OECD classification of PSE components – payments based on historical entitlements [4]).
- Coupled support (according to OECD classification of PSE components – payments based on output, the planted area or the number of animals [4]).

In case the support is related to a product or the resource for production of the particular product, it has a direct impact upon the volume of supply. The support granted for the resource of production – the land irrespective of the type of obtained product can act as an additionally stimulating factor; however, it should be evaluated what decoupled payment rate constitutes the economic bases for alternative business activity, and therefore should be assumed as a negative facilitator of production.

The approach for implementation of the policy selected by the state and the policy instruments, which should be classified as support for farmers' income, affects the supply of agricultural products; however, the competitiveness of such products in the EU market and the motivation for their production will strongly depend on the support system applied by other countries for their producers.

Therefore the weak point is modelling the direct payments without using all policy instruments applied and without the whole amount of available funds with market effects.

3. Improvement of policy modelling considering policy harmonization process

On the ground of comparison between the direct support systems in the old and the new Member States and their potential development, for improvement of the policy analysis in the AGMEMOD model, it should be taken into account that both in the old and in the new Member States:

- the policy systems are variable;
- the financial envelopes of the direct support are variable.

The old Member States have a variable structure of the envelope, which is gradually changed from historical farm payments into single-rate regional payments. The scope of the envelope gradually increases for the new Member States; consequently, the structure of the envelope also changes with gradual increase of the specific weight of decoupled payments and disappearance of the top-up payments related to production.

Regarding NMS, the model must be capable to incorporate the switches in agricultural policy regimes. If there are no links between different policy measures in the model, in case of switch between policy schemes, policy effect will not be evaluated correctly due to the changes in policy objects.

Scenarios cannot provide reasonable results if pre-accession support is omitted from the particular national model [6]. On the other hand, as the pre-accession support system was applied during transition period and was not consistent from year to year, it would be better to concentrate efforts on including more recent policy data (2004-2006) for estimation. Considering different topping-up rates applicable for different sub sectors (according to Council Decision 2004/281/EC) in order not to complicate transitional pre-reform policy block, top-ups could be exogenously calculated outside the model.

At the same time, funding from the EU budget and their distribution according to common rules should be calculated inside the model in order to build the policy block transparent as the different modelling approach between the OMS and NMS will be in general not relevant from 2009, and not relevant any more from 2013 due to the SP scheme implementation in all Member States.

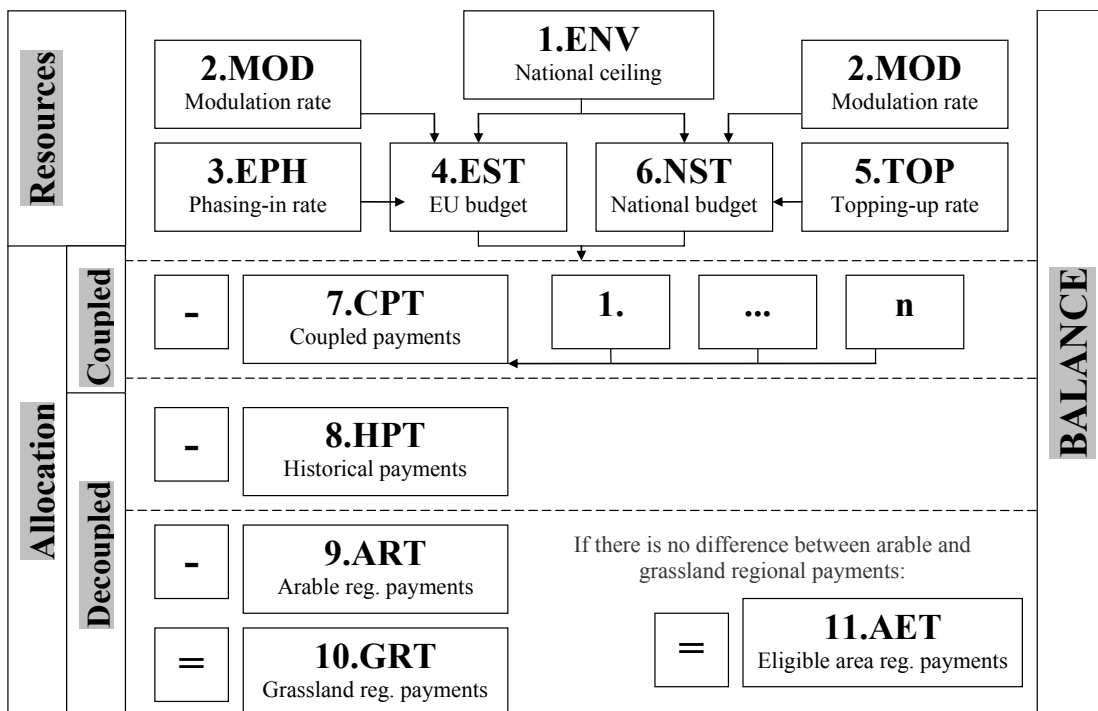


Figure 3. Allocation of total direct support

Source: LSIAE, [6]

Therefore regarding modelling of policy instruments in national models two essential points should be similarly applied for all countries:

- To calculate envelopes for all type of direct support (See Figure 3) providing the balance of amount of money granted to the sector,

- To add direct payments related to definite sub-sector and not included in model as a factor (e.g., slaughter premiums, payments for fodder areas and other policy measures which are not fully implemented yet) to incentive price in order to evaluate the impact of total support.

As a production of commodities has become more independent on the level of direct support since introduction of decoupled payments, the multipliers (coefficients) are crucially important (not any other approach has been developed) in the calculations measuring the weight of impact of the direct support upon production. In order to perform an adequate analysis of the values of these multipliers, analysis of econometric coherences should be done:

- relationship of the changes in the volume of support with the changes in the volume of production;
- relationship of the re-distribution of the support outside the agricultural sector with externalities.

In case the decoupled historical payments are applied along with the coupled payments in the same sector (e.g., historical payments in the beef sector and coupled payments for cattle breeding) in order to encourage continuation of the previous type of farming, a stronger weight of impact is expected. However, concerning historical payments, in general a gradual redistribution in agricultural sector is expected.

4. Conclusions

The research provides the bases to conclude the following:

1. The AGMEMOD modelling approach elaborated to evaluate support as incentive factor for development of certain production should be improved in order to tackle new regimes of CAP. Since supply inducing impact of the direct support is decreased, expert assumptions on how decoupled payments could affect the production decisions should be applied. The decoupling effect could be partially attributed to the modelling of market effect - via changes of incentive prices for agricultural outputs or inputs, in order to presume foreseeable responds of farmers.
2. In baseline scenario where the maximum permitted coupling of subsidies to the production is assumed, the share of subsidies covered by the model in the total national financial ceiling for Latvia in 2013 is expected to be only 54%. Part of the rest of direct support is forecasted to be distributed outside the agricultural sector for the land maintained in good agricultural condition.
3. Support related to a product or the resource for production of the particular product has a direct impact upon the volume of supply. The support granted for the land as a resource of production can act as an additionally stimulating factor. In case that decoupled payment rate constitutes the economic grounds for alternative business activity that should be assumed as a negative facilitator of production.
4. The competitiveness of agricultural products in the EU market and the motivation for their production will strongly depend on the support system applied by other countries for their producers. Therefore all policy instruments applied and the total amount of available funds with market effects should be implemented in the models taking into account that:
 - both the policy systems and the financial envelopes of the direct support in mid term period are variable and moving to harmonized policy systems in OMS and NMS until 2013;
 - links between different policy measures should be established for modelling the switches in agricultural policy regimes in order to evaluate policy effects correctly in case of changes in policy objects.
5. The multipliers important for measuring the weight of impact of the direct support upon production might differ in diverse schemes. In case the decoupled historical payments are applied along with the coupled payments in the same sector, a stronger weight of impact should be expected. In order to perform an adequate analysis of the values of these multipliers, econometric analysis based on the most recent data regarding changes in the volume of support, the volume of production, re-distribution of the support outside the agricultural sector and externalities provided should be done.

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