The impacts of EU accession on the agricultural prices, production patterns and farmers` income in Bulgaria

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Abstract
Accession to the European Union is expected to intensify the competitive pressure and substantially alter the political-economic condition in Bulgaria. This contribution provides a quantitative assessment of the impact of implementation of the Common Agricultural Policy (CAP). It is based on results which are calculated using EISM (European Simulation Model). The model covers the supply of eighth primary agricultural commodities (wheat, maize, barley, sunflower seed, beef, pork and poultry meat, milk) and demand for food products from Bulgaria. The paper consists of short description of the modeling approach then the assumptions which have been made regarding the preliminary negotiations for accession are explained. Subsequently the evaluation of the impacts of accession focused on change in producer prices, production and incomes from farming.

1. Introduction

Integration of Central Eastern European countries (CEECs) has been one of the main political priorities of the EU since the earlier 1990s. In 2004, the first 8 countries from CEECs and two others Malta and Cyprus were accepted. According to the preliminary negotiations, Bulgaria together with Romania will be integrated in the beginning of 2007. Accession of Bulgaria to the EU will fundamentally affect the Bulgarian agricultural sector. Integration into the EU will give Bulgarian's agricultural and food processing sectors access to a huge market but at the same time increase the competitive pressure and substantially alter the macroeconomic conditions for farming in Bulgaria.

This study concentrates on the producer impacts of the introduction of CAP in Bulgaria. It simulates mid and long-term developments of agricultural markets for the main agricultural commodities in Bulgaria base on the different alternative assumptions about the conditions for accession. The results of the simulations are compared with those obtained under the assumption of unchanged policies and non-accession scenarios, which is assumed to be the reference scenario.

2. The agricultural situation in Bulgaria

2.1 Macroeconomic background and importance of agriculture

During the last decade Bulgaria pass a rather difficult and painful process of reform and transition to a market economy. Due to the delay privatization escalating domestic dept and budget deficit the GDP growth rate decline extremely and even reach a negative value (-7 % in 1997). At the end of 1996 and the beginning of 1997 Bulgaria, experienced a series shock and financial system was practically blocked. The index of inflation in this period reached 491% during the first two months in 1997 and the Bulgarian leva was devaluated more than six times.

After the political changes in March 1997 emergency measures were taken. In July 1997 when the currency board was introduced and the national currency was connected to the DEM at the rate 1 DEM= 1 LEVA. As result of this measures the recovery of the Bulgarian economy was observed: there was positive growth of the economy in 1998, inflation was suppressed to the lowest level during the whole transition period, there was stabilization of the banking and financial system, substantial reduction of the budget deficit, reduction in the internal debt of the government, and a fast process of privatization.

Despite partial economic recovery in the period after 1997, wages and income remained very low. The presence of high social security taxes provides strong incentives to under- report wages or resort to forms of non-wage compensation. Low incomes, a high level of unemployment and a depressed economy resulted in a high percentage of agricultural employment, a strong tendency towards self- sufficiency and a general tension in society.

Agriculture has always been an important sector in the Bulgarian economy. Prior the reform it provided 11- 13 % of the total GDP and employed are more than 20 % of the labor force. Agriculture has undergone significant structural transformation since 1990. From an organization based on large- scale agro- industrial complexes, it has been transformed into one based on private operated co- operatives and private individual farmers and farming companies. Due to the specific procedures used to privatize state assets and restitute private ownership, the relative instability of the overall economy until 1997, and the crisis in the Russian market, the farming sector in Bulgaria has been disrupted. As a result, agricultural production has declined both in terms of output and yields of main products. Output of the major livestock products declined even more than crop production. In 2003, according to the official figures of Bulgarian national statistic, overall agricultural production was only about 58 % of its 1989 level.

Table. 1 Bulgarian main macro- economic indicators and the importance of agriculture in economy

	1996	*1997*	*1999*	*2003*

Population (000)	8427.4	8384.7	8340.9	8283.2
GDP growth rate (%)	1.8	-6.9	3.5	4.3
Private sector contribution (%)	44.7	45.9	57.1	59.5
Inflation rate (%)	33	311	6.2	5.6
Unemployment rate (%)	10.8	12.5	16.02	18.4
Budget balance (% of GDP)	-11.0	-2.7	2.0	4.01
Export (million US$)	4890.2	4939.7	3934.6	3858.6
Import (million US$)	5073.09	4932.0	5426.0	5743.2
Trade balance (billion US$)	-0.2	0.0	-1.5	-1.8
Share of agriculture and forestry in GDP	15.4	26.6	17.3	10.9
Share of capital investments in agriculture as a % of total investments	24.3	24.3	25.9	27.5
Share of agriculture in employment	23.4	24.3	24.7	25.5

Sources: National statistic institute Bulgaria,

The performance of the agricultural sector in the transition period is quite controversial. Table 1 gives the main macro-economic indicators and the position of agriculture in the macro-economy. During the transition period a substantial drop in gross agricultural output occurred, but due to the decline in production in the economy as a whole, the share of agriculture and the food industry in GDP, after the initial decline at the beginning of the period, remained approximately the same. The agricultural share of gross value added during this period was between 14.6 % in 1996 and 10.9 % in 2003. Employment in the agricultural sector increased from 23.2 %(as a share of total employment) in 1996 to 25.5% in 2003.

The importance of the agricultural sector in the overall economy has remained high throughout the transition. By European standards, agricultural employment is very high and increases its share during the transition. Food and agriculture are still essential components of Bulgaria's foreign trade. At the same time, agricultural and food products among imports amounted to only 8-10%, which is important for the trade balance of country.

2.2. Agricultural policy

During the transition period Agricultural policies and instruments have been changed frequently. In general, policies in this time tended to be more reactive to immediate problems than to follow a clear and consistent strategy for the development of the agro-food sector. This inconsistency between policy goals and measures applied led to delays reform in agro-food sector, and contributed to the sharp decline in production.

The reform agricultural policy consists of a wide range of instruments such as minimum prices, ceiling prices, export bans, taxes and quotas, licensing, as well as preferential credit subsidies.

The main change in Bulgarian Agricultural policy is the price liberalization (in the pre- reform period all prices at all level in Bulgaria were centrally fixed). This process was gradual, often sporadic and can be divided into four distinct phases:

- 1989- 1991. Price and margin control were maintained, while there was some freeing of prices for certain products.
- 1991- 1995. Almost full liberalisation of price and trade policies economy- wide, but continued control of consumer prices for basic food products, imposed due to macroeconomic instability.
- 1995- 1997. Attempts at price support and continuation of margin control.
- 1997- 2003. Complete liberalisation of prices at all levels of the food chain, with the exception of prices for raw tobacco.

Until 1997 agricultural and food products have been subject to different regulations, such as temporary export bans, quantity restrictions on export and imports, exemptions from import duties or reduced import duties, export taxes, and up to 1994 minimum export or import prices in some cases.

After introduction of currency board in Bulgaria accession to the WTO, the direct government intervention in agricultural input and output markets was removed and only envisaged in the event of market failure.

Since the beginning of the reforms, the Bulgarian government has made many attempts to improve access to credits for agricultural producers. The provision of subsidized credit and loan guarantees to farmers has been an important part of the overall agricultural policy framework. Most of the preferential credits have been in the form of short- term credits for spring and autumn planting and to facilitate harvesting, with the aim of increasing liquidity for the funding of working capital during seasonal agricultural campaigns. The preferential short- term credits were granted mainly to grains and oilseed producers. In the case of livestock producers, credit subsidies were mainly given for medium and long- term credits. The credit subsidies were channeled by the State Fund for Agriculture (SFA), a specific institution for financing agricultural development established under the Law for the Protection of Agricultural Producers, which was adopted in mid- 1995.

Another basic instrument for supporting agriculture in the transition period has been tax concessions. Since 1991 farm incomes are exempt from income tax. All entities involved in the production of non- manufactured agricultural goods are exempt from corporate tax. Agricultural lands and forests are not liable to property taxes.

Bulgaria currently has an aggregate level of support for agricultural production which is quite low compared to that in the either current level of low support is part of the macroeconomic policy framework but it creates difficulties for farmers.

3. Model description

Policy options for Bulgaria- EU agricultural accession are evaluated with a partial equilibrium model – a single country version of the ESIM (European Simulation Model) the model used is based on Tangermann and Josling (1994). This is a price and policy driven comparative static agricultural model with rich cross- commodity relations and the possibility to model price and trade policy instruments in great detail.

3.1 Structure of the model

The model covers supply and demand of eight primary products which contribute 68 percent of the agricultural production in Bulgaria. Namely, they are wheat, maize, barley, sunflowers, milk, beef, pork, and poultry.

The main variables used in the model are divided into two categories Endogenous and Exogenous variables.

Endogenous variables included in the model are: area for each crop, Production yields (crops), rates of feed use (livestock), food demand, feed demand (crops), exports and imports.

Although the model is a partial equilibrium model, some macro-economic variables are included as exogenous variables and their impact on the agricultural sector is taken into account. Such exogenous variables used in the model are GDP growth, the rate of income growth, changes in population, changes in the real exchange rate, and inflation. They are used in the analysis of the agricultural developments under different scenarios. Income growth is specified as a separate variable due to the structural imbalance in the GDP structure in the base year, resulting from the dramatic transition process undergone and particularly from the macro- economic shocks which occurred at the end of 1996 and beginning of 1997.

Other exogenous variables used in the model are those characterizing the CAP. They may be used not only where accession is concerned, but also to simulate the impact of different elements of CAP- like policy on Bulgarian agriculture. Subsequently the effect of the policies on production is measured on one side by the price impacts. These policy parameters are used to simulate the application of such policies to Bulgarian agriculture.

A various shifters are included in the model. These shifters are used in order to achieve a more correct simulation of the pre- accession development.

Since the model is designed to analyze the impact of the policy changes on production and income in a small country case, the prices in it also constitute exogenous variables. They play an important role in assessing the impact of different policy scenarios. The parameter "tariff" is included to transform world prices into domestic ones in an appropriate way, according to the policies adopted. It expresses the relative difference between the world and domestic price in the absence of any government interventions or liberal foreign trade regime and should not be understood

according to its literal meaning. This relative difference is a result of the price transmission mechanism between the world and domestic market and is added or subtracted from the world price, according to whether the product is importable or exportable.

The direct payments and supply quotas directly affect supply. These instruments are closely modeled to actual EU regulations as well as those proposed for the CAP.

In the model, farmers' income is determined by the difference between revenues from the sale of agricultural produce and tradable input costs and by any non-price-related direct monetary transfers provided to farmers (for example, per-hectare payments to crops or per-head payments to livestock). Any change in agricultural policies that affects input prices, output prices, or direct monetary transfers (such as CAP direct payments) translates into changes in the value-added of agricultural production (that is, farmers' income). In the medium to long term, the level of production of the various commodities is responsive to the level of profitability of each commodity. Therefore, changes in value-added will also lead to changes in total output, further compounding the initial changes in farmers' income. For each commodity the extent of the medium- to long-term supply response is reflected.

The main assumptions used for the construction of the model are the following:

Erogeneity of prices: world prices cannot be influenced by domestic policies, due to the fact that Bulgaria is a small country; the effects of agricultural policies are transformed into domestic prices, which are the result of these policies and are exogenous to the model.

Partial equilibrium: markets are at equilibrium in the base and the following periods; other commodity markets outside the agricultural sector are also at equilibrium, and changes in these markets having no direct influence on agricultural markets. The latter effects are brought about by the macroeconomic variables. Therefore, the developments of the other sectors of the economy are implicitly included.

Market behavior is determined only by the real, not nominal, changes in the values of the variables concerned.

Every individual product market is cleared through the foreign trade.

Price and income elasticity's of supply and demand are constant.

Technological progress is a spill-over from overall economic development, and is therefore dependent upon GDP growth.

Liberal exports and imports if no specific agricultural policies are assumed, the price of each product equals the world price, corrected with the relative discrepancy assumed as due to the price transmission.

3.2 Functional description of the model

The model consists of three main equation blocks representing i) supply, ii) demand, and iii) price transmissions. The parameters of the

supply and input demand equations are calibrated to reproduce the base year 1998.

The model uses a database on price subsidies, output and input quantities, and income. These data originated from various statistical services and publications, e.g.

FAO (2001), Agrarian report republic of Bulgaria (1998, 1999, 2000, 2001, 2002. 2003), and The European commission (1998, 2003).

Supply activities are modeled for agricultural commodities as well as for selected processed goods. Crop and livestock supply functions are separated into two parts: a capacity (area, herd) and a yield part. This basically assumes separable supply activities.

Crop Production

Domestic crop production is determined by the area and yield response functions. Harvested area is specified as a response to the crop's own price, the prices of other competing crops, and the projected rate of exogenous (non-price) growth trend in harvested area (equation 1). Yield is a function of the commodity price, the prices of labour and capital), and a projected non-price exogenous trend factor reflecting technology improvements (equation 2). Annual production of commodity *i* is then estimated as the product of its area and yield (equation 3).

Area response: $$AC_{ti} = \alpha(PS_{ti})^{\varepsilon_{ti}} \times \prod_{j \neq i}(PS_{tj})^{\varepsilon_{tj}} \times (1+gA_{ti});$$

(1)

Yeald response: $$YC_{ti} = \beta_{ti} \times (PS_{ti})^{\gamma_{ti}} \times \prod_{k}(PF_{tk})^{\gamma_{ik}} \times (1+gCY_{ti});$$

(2)

Production : $$QS_{ti} = AC_{ti} \times YC_{ti};$$

(3)

Where, AC = crop area
YC = crop yield
QC = quantity produced
PS =effective producer price
PF =price of factor or input k (labor, capital)
Π = product operator
i, j =commodity indices specific for crops
k = input such as (labor, capital)
t = time index
gA = growth rate of crop area
gCY = growth rate of crop yield
ϵ = area price elasticity
γ = yield price elasticity
α =crop area intercept
β = crop yield intercept

Livestock Production

Livestock production is modelled similarly to crop production, except that livestock yield reflects only the effects of expected developments in technology (equation 5). Total livestock population is a function of the livestock's own price and the price of competing commodities, the prices of intermediate (feed) inputs, and a trend variable reflecting growth in the livestock slaughtered (equation 4). Total production is calculated by multiplying the number of animals by the yield per head (equation 6).

Livestock herd: $$AL_{ti} = \alpha_{ti} \times (PS_{ti})^{\varepsilon_{ti}} \times \prod_{j \neq i} (PS_{tj})^{\varepsilon_{ij}} \times \prod_{b \neq i} (PI_{tb})^{\gamma_{ib}} \times (1 + gSL_{ti}); \quad (5)$$

Livestock Yield: $$YL_{ti} = (1 + gLY_{ti}) YL_{t-1,i}; \quad (4)$$

Livestock Production: $$QS_{ti} = AL_{ti} \times YL_{ti}; \quad (6)$$

Where, *AL* = number of slaughtered livestock
YL = livestock product yield per head
PI = price of intermediate (feed) inputs
i, j = commodity indices specific for livestock
b = commodity index specific for feed crops
gSL = growth rate of number of slaughtered livestock
gYL = growth rate of livestock yield
α = intercept of number of slaughtered livestock
β = price elasticity of number of slaughtered livestock
γ= feed price elasticity

Demand Functions

Domestic demand for a commodity is the sum of its demand for food, feed, and other uses (equation 12). Food demand is a function of the price of the commodity and the prices of other competing commodities, per capita income, and total population (equation 7). Population and income growth rates as shown in equation 8 and 9. Feed demand is a derived demand determined by the changes in livestock production, feed ratios, and own- and cross- price effects of feed crops (equation 10). The equation also incorporates a technology parameter that indicates improvements in feeding efficiencies. The demand for other uses is estimated as a proportion of food and feed demand (equation 11).

Demand for food: $$QF_{ti} = \alpha_{ti} \times (PD_{ti})^{\varepsilon_{ti}} \times \prod_{j \neq 1} (PD_{ji})^{\varepsilon_{tj}} \times (INC_t)^{\eta_t} \times POP_t; \quad (7)$$

where $$INC_t = INC_{t-1,i} \times (1 + gI_t); \quad \text{and} \quad (8)$$

$$POP_t = POP_{t-1,i} \times (1 + gP_t); \quad (9)$$

Demand for feed: $$QL_{tb} = \beta_{tb} \times \sum_{l} (QS_{tl} \times FR_{tbl}) \times (PI_{tb})^{\gamma_b} \times \prod_{o \neq b} (PI_{tb})^{\gamma_{bo}} \times (1 + FE_{tb}); \quad (10)$$

Demand for other uses: $QE_{ti} = QE_{t-1,i} \times \frac{(QF_{ti} + QL_{ti})}{(QF_{t-1,i} + QL_{t-1,i})}$;

(11)

Total : $QD_{ti} = QF_{ti} + QL_{ti} + QE_{ti}$;

(12)

Where, *QD* = total demand
QF = demand for food
QL = derived demand for feed
QE = demand for other uses
PD = the effective consumer price
INC = per capita income
POP = total population
FR = feed ratio
FE = feed efficiency improvement
PI = the effective intermediate (feed) price
i,j = commodity indices specific for all commodities
l = commodity index specific for livestock
b,o = commodity indices specific for feed crops
gI = income growth rate
gP = population growth rate
ϵ = price elasticity of food demand
γ= price elasticity of feed demand
η = income elasticity of food demand
α = food demand intercept
β = feed demand intercept

Prices

The world price (PW) of a commodity is the equilibrating mechanism, PW will adjust and each adjustment is passed back to the effective producer (PS) and consumer (PD) prices via the price transmission equations (equations 13 through 15). Domestic prices a function of world prices, adjusted by the effect of price policies, expressed in terms of the producer subsidy equivalent (PSE), and consumer subsidy equivalent (CSE), and the marketing margin (MI). PSE's and CSE's measure the implicit level of taxation or subsidy borne by producers or consumers relative to world prices and account for the wedge between domestic and world prices. MI reflects other factors such as transport and marketing costs. In order to calculate producer prices, the world price is reduced by the MI value and increased by the PSE value (equation 13). Consumer prices are obtained by adding the MI value to the world price and reducing it by the CSE value (equation 14). The MI of the intermediate prices is smaller because wholesale instead of retail prices are used, but intermediate prices (reflecting feed prices) are otherwise calculated the same way as consumer prices (equation 15).

Producer prices: $PS_{ti} = [PW_i(1 - MI_{ti})](1 + PSE_{ti})$;

(13)

Consumer prices: $PD_{ti} = [PW_i(1 + MI_{ti})](1 - CSE_{ti})$; (14)

Intermediate (feed) prices: $PI_{ti} = [PW_i(1 = 0.5MI_{ti})](1 - CSE_{ti})$;
(15)

Where, PW = the world price of the commodity
MI = the marketing margin
PSE = the producer subsidy equivalent
CSE = the consumer subsidy equivalent
i,j = commodity indices specific for all commodities

In the absence of policies and market distortions, domestic prices equal world market prices. Price and trade policies, however, drive wedges between world market and domestic prices. Additionally, they decouple domestic from world market prices to different degrees. Therefore, domestic price levels as well as development of price ratios differ from those on world markets.

4 Scenarios and main assumptions

To assess possible impacts, four different policy scenarios have been considered each of them describing a different evolution of agricultural production in Bulgaria as well as entry and integration into the single market:

(1) Base run scenario, which assumes no accession and unchanged agricultural policies in Bulgaria,

(2) EU-accession scenario, under the assumption that Bulgaria will apply CAP regulation as a reformed by the 2003 decision of EU council by introduction of the Single Area Payment Scheme (SAPS), and gradually phase-in CAP direct payments. Because of this the second scenarios is presented by two sub scenarios:

(2.1) The implementation of CAP without direct payments. Under this sub scenario there are not obligations for farmers to produces given products and respectively no quota system with exception for milk.

(2.2) The implementation of CAP by gradually phase-in CAP direct payments. The direct payments will start at 25 percent of the EU level in 2007, increase yearly by five percentage points until 2009, and then increase by ten percentage points.

The 1998 Base year marks the beginning of full price liberalization. The target years for which the results of EU accession scenario can be compared with the base run are 2009 and 2014. The development of border prices assumed for the period 2007-2014 is derived from world market prices, GDP, deflator projections by FAPRI.

The base run scenario assumes full price liberalization and perfect price transmission between world and domestic prices in other words the difference between domestic prices and world price is at the level the tariffs from the first simulation year (1998) onwards. It is assumed that the tariffs remain at the level of the base period.

Under the EU-accession scenarios Bulgaria is assumed to be integrated into the CAP and the single market for agricultural products by 2007. By then, a gradual increase in domestic prices to the level of the EU prices is assumed.

Key points of implementing the CAP in Bulgaria include application of the Single Area Payment Scheme (SAPS). The transitional provisions for introducing the CAP in Bulgaria are aligned with the latest overall reform of the CAP currently being implemented in EU15. As was the case in the new EU member states, Bulgaria will gradually phase- in CAP direct payments over a period of ten years. During this period, farmers in Bulgaria will receive only a percentage of the direct payments applicable in EU15. Assuming that Bulgaria accedes to the EU in 2007, direct payments will start at 25 percent of the EU level in 2007, increase yearly by five percentage points until 2009, and then increase by ten percentage points to reach 100 percent of the then applicable EU level in 2016.The minimum size for an agricultural holding to be eligible for support under SAPS is 0.3 hectares.

5 Results

The scenarios presented may be considered as frontiers for the future development of Bulgarian agriculture. The scenarios applied have differing impacts on the main outcome of agricultural policy, i.e. on production.

Agricultural prices

Since the prices play a substantial role in the model, the real price changes in the two basic scenarios are shown in Figures 1 and 2.

Figure1 Price changes under Base Run scenarios

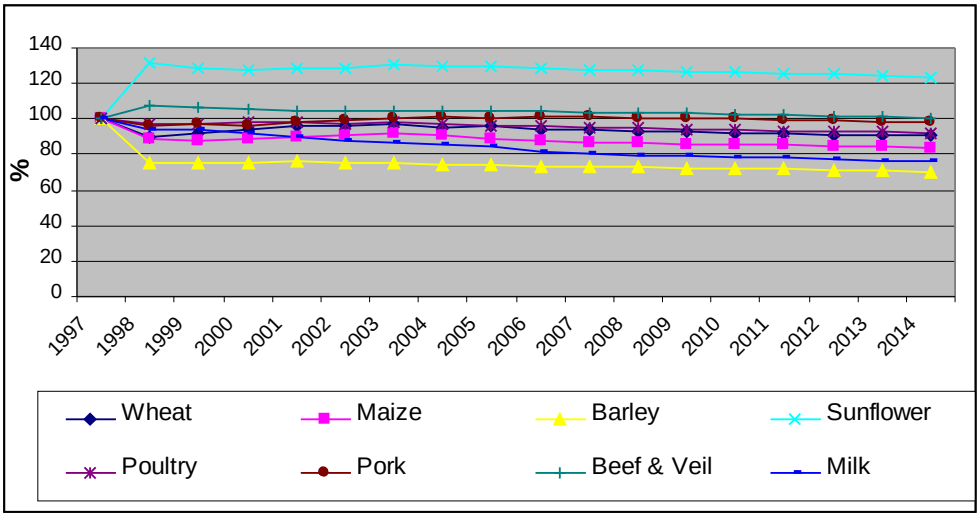
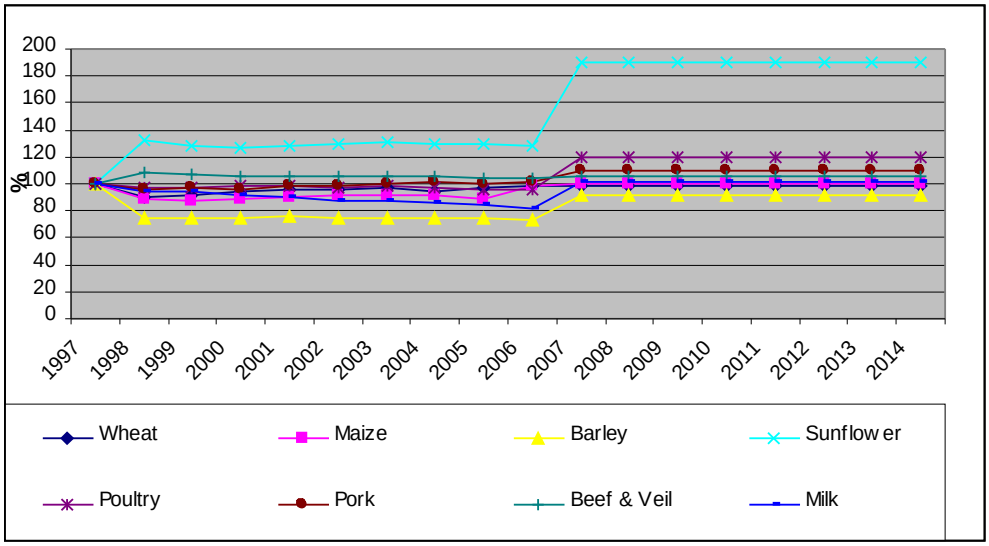


Figure2 Price changes under EU-accession scenarios



As seen from the graphs, after the strong initial drop in prices of milk and grains and substantial increase in prices of beef and veal, sunflowers, a declining trend in all prices is assumed under the base run scenarios- full price liberalization. Under the EU-accession scenarios, after the initial adjustments in prices of all products until the year of accession, prices remain stable.

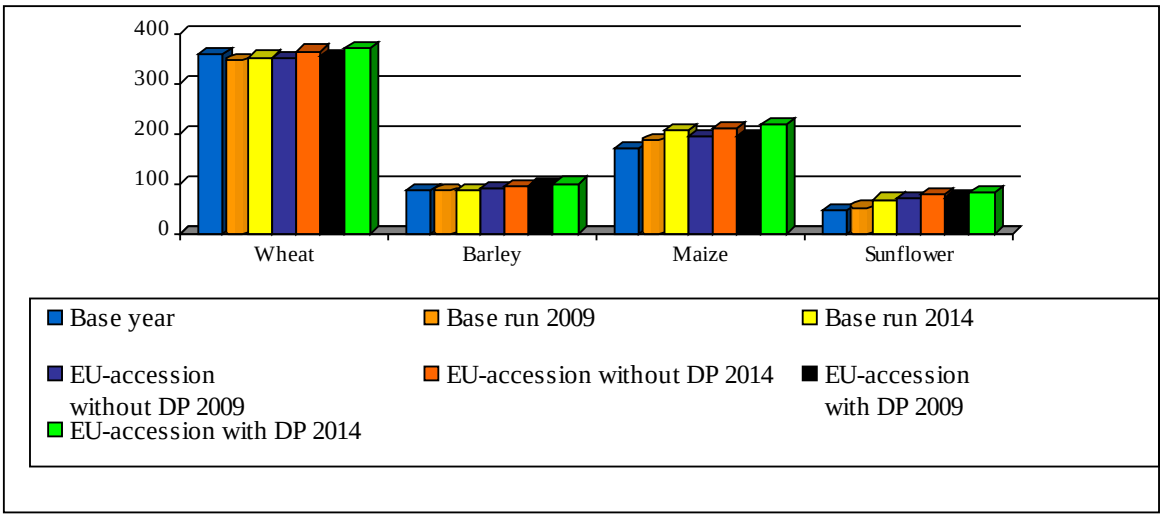
Production quantities- Base run scenario

The base run scenario assumes that domestic policies in place in 1997 remain unchanged over the simulation period. Detailed results are shown in Figures 3 and 4.

The production of most of the products (maize, sunflowers, beef, milk, and poultry) increases in the period 1997. Only a few products exhibit a decrease (wheat and pork) or maintain (barley) the same level of production during the period. Comparing to the base year the changes of production quantities is not significant, except poultry and milk. The results of simulation show that in 2009 production increases by 7% in the case of maize, 4% in the case of sunflowers, 11% in the case of milk, 3 % beef, and 15 % in that of poultry. By the 2014 – end of simulation period production for all products increase but in small trends.

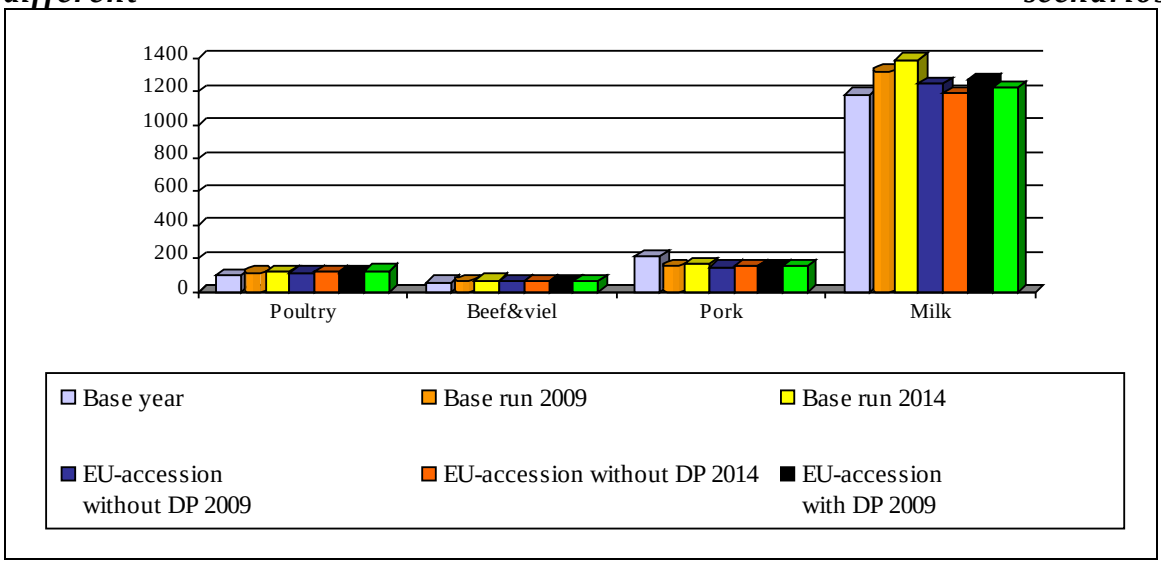
From the results can be concluded that the production under Base run scenarios just follow the changes of world prices. The results suggest that agriculture in Bulgaria under domestic policies is able to moderately expand in the long run.

Figure 3 Production of Wheat, Barley, Maize and Sunflower under different scenarios



Source: own calculations carried out with EISM

Figure 4 Production of Poultry, Beef and Veil, Pork and Milk under different scenarios



Source: own calculations carried out with EISM

Production quantifies –EU accession scenarios

The results of simulation show that under EU accession scenarios the total crop production is slightly higher than in the base run because of more favorable relative price developments. The highest positive trend in midrun can be seen in case of sunflower production – 20 %. For the other commodities the production increase by 14% for maize comparing to the base year and 4 %comparing to the base run scenarios in 2009. In case with barley 7 % more then quantities in base year and base run scenario, for wheat 3 %. From this result can be concluded that in the midrun the crop

production is higher than the quantity in base year and under base run scenario.

In case of livestock's production the situation is different comparing to the production in base year production increase with exception of pork – decrease by 29 %. However the production is lower than under base run scenarios. For example for poultry in midrun production is 2 % lower than under base run scenarios, for beef and veil is 3 % for pork 4%. In case with milk comparing to the base year the production is 6 % higher but lower comparing to the production in 2009 under base run scenarios by - 5 %. Form this analysis can be concluded that the introduction of CAP in Bulgaria in midrun has a negative effect over livestock production.

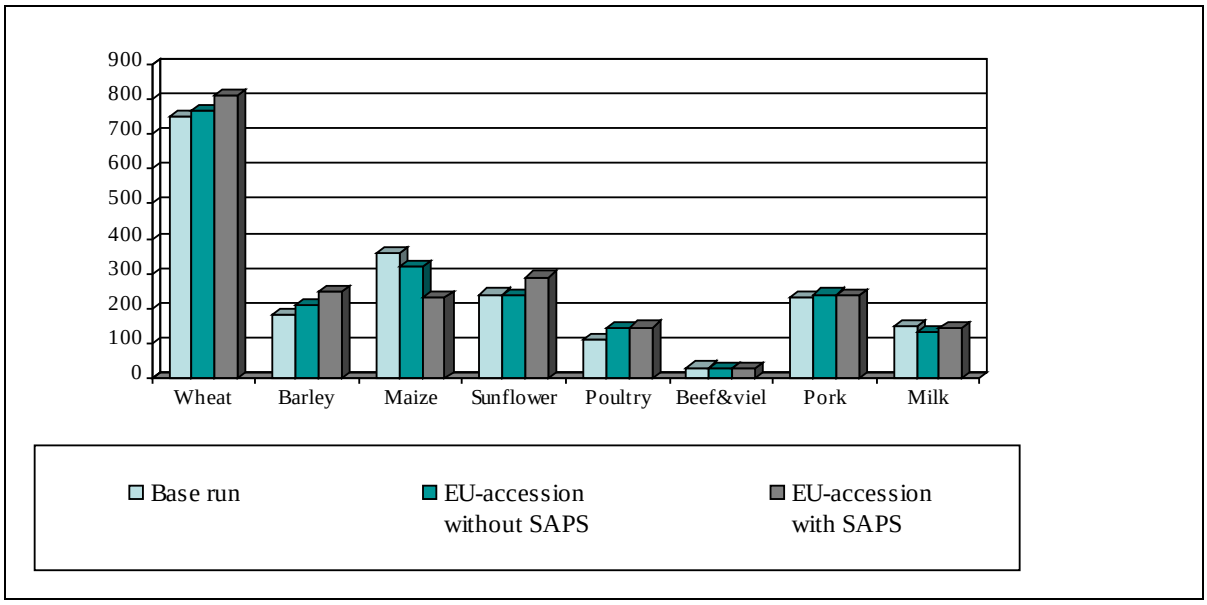
In the end of simulation period production from all products except beef and milk shows positive trends. According to the results of simulation in 2014 the production of wheat will increase by 5 % compeering to the base run scenarios, for barley by 10 %, in case of maize by 13 %, 45 % in case of sunflower, poultry – 2 %. In case of milk the production will decrease by 12 %. The maim reason for this is milk quotes that will be applied in Bulgaria according to the CAP reform in 2003. As result of reduction of milk production in long run, beef production also decrease. In 2014 the expectation for the beef and veal is to decrease by 5 %.

Agricultural income in Bulgaria

Contrary to the situation with the production, the farmers' incomes under EU-accession scenarios will increase significantly. The results of simulation show that introduction of SAPS in Bulgaria will significantly increase producers' incomes. From a sector perspective, the importance of direct payment schemes will increase upon EU accession: the share of direct payments in agricultural incomes will range from 9 percent (SAPS without top- up) to 18 percent (SAPS with maximum top- up), with the importance of direct payments increasing as SAPS phase- in levels rise in subsequent years. In 2014 the farmers' incomes will rang from 18 % without SAPS without top-up to 26.5 SAPS with top- up compeering to the base year. The implementation of CAP pricing regime without granting direct payments would increase average producer incomes by 3.3 percent Figure5. CAP pricing levels (at current productivity, efficiency, and quality levels) would imply income increases for wheat, barley, maize, sunflower, whereas incomes from production of milk and beef would decline substantially.

Introducing the CAP with SAPS improves the income situation of the farmers although the improvement is clearly greater for wheat, barley, maize and sunflower than for livestock.

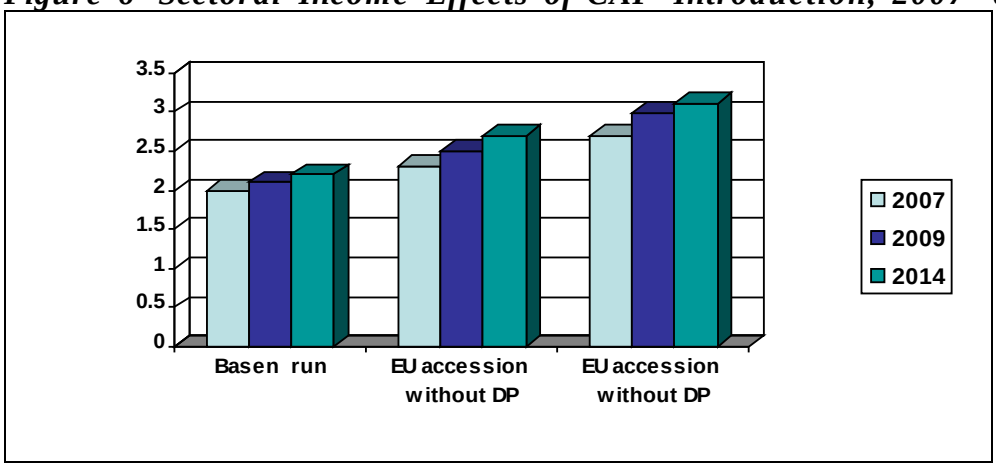
Figure 5. Income Effects of Introducing the CAP in 2009, million BGN.



Source: own calculations carried out with EISM

The simulations suggest that the basic SAPS (2007 level,) will result in a short –run an significant (14 percent) increase in average income for agricultural producers, overcompensating some of the aforementioned negative income effects of an introduction of CAP pricing. Although no SAPS payment will be granted to livestock activities as such, livestock producers would enjoy income increases as a result of price increases for outputs, price decreases for some inputs (forages other than concentrated ones) and SAPS payments to their forage area. However, average agricultural incomes would exceed current levels by 13.8 percent already in 2009 when SAPS payments are only 30 percent of the EU average. Figure 6 summarizes the impact of direct payments in the pre- accession (that is, base run scenario) on average farmer income in the agriculture sector as a whole and compares that to the impact of the introduction of CAP pricing and SAPS. It is visible that on average there is a clear gain for farmers from introduction of the SAPS regime.

Figure 6 Sectoral Income Effects of CAP- Introduction, 2007- 09



Source: own calculations carried out with EISM

The impact of SAPS also varies for farmers producing different commodities. Figure 5, displays the impact on producer incomes in a SAPS scenario with different products the results show improves the income situation of the farmers although the improvement is clearly greater for wheat, barley, maize and sunflower than for livestock.

6 Conclusion

Bulgarian agricultural producers gain from EU-accession and introduction of CAP. Direct payment schemes such as the SAPS will provide some level of stability - income increases by the equivalent of further 0.8 wage units to 2.6 national wage units, and help mitigate farmers' exposure to income risk by guaranteeing a minimum income from farming.

At the same time Accession to the EU market will intensify the competitive pressure and substantially alter the politico- economic conditions for farming in Bulgaria. As a result production will not extend significant and agricultural capacity will not be used effective. Direct support schemes, however, cannot substitute for the need to raise the productivity and improve the competitiveness of Bulgarian agriculture. Productivity growth and improved competitiveness remain the only sustainable solution to agricultural income problems.

In addition, direct income support payments may reduce the incentives for farmers to restructure, consolidate, and modernize. Direct income payments may reduce incentives for consolidation, because they guarantee a minimum income from farming and therefore reduce the incentive for unprofitable or older farmers to sell or lease their assets to more productive entrepreneurs. SAPS payments and their effects on land prices or land rental rates may also make land consolidation more difficult, in particular in a farming environment in which agricultural credit is not well developed.

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