An estimation of the EU integration effects upon some agricultural markets from Romania

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ABSTRACT

The paper analyses the effects upon welfare for two alternative scenarios, generically named "Fragmentation maintenance" and "Deepening of integration", comparing the effects of a stronger integration of seven important agricultural markets from Romania upon producers and consumers. The period 2014-2020 brings about certain development opportunities for Romania's agriculture in the poultry and wheat sectors, as well as certain threats associated to competition in the pig sector and milk reform sector, adding to certain pressures on the maize sector.

Keywords: Romania, agricultural markets, European integration, producer surplus, net welfare.

INTRODUCTION

The present paper was achieved by using a simplified partial equilibrium model for estimating the effects of deepening of European integration in the Romanian agriculture. The model used in this estimation was inspired by the model applied in 1998-1999 for estimating the effects upon welfare as a result of Romania's adopting the Common Agricultural Policy. The effects upon welfare (gain or loss), measured at producer and consumer, represent a usual modality of estimating the impact of introduction or implementation of a certain agricultural policy. The welfare effects are measured as positive or negative changes of producers' and consumers' incomes, owing to the modifications of agri-food prices in the period 2012-2020. That is why, for each scenario under comparison, the agricultural prices are those that synthetically define the evolution of investigated markets.

The model calculates the effects upon welfare for two alternative scenarios, generically named "Fragmentation maintenance" and "Deepening of integration", comparing the effects of a stronger integration of seven important agricultural markets from Romania upon producers and consumers. The model forecasts the effects quantified in money of the differences between the equilibriums of investigated markets, in the situation when the markets from Romania maintain the present fragmentation by the year 2020, which is specific to a partial integration, compared to the situation of deeper integration, favoured by the Common Agricultural Policy and accelerated by its reform measures.

MATERIAL AND METHOD

In order to compare the effects of the two scenarios of Romanian agricultural markets integration into the Common European Market, I selected two products from the grain category (wheat and

maize) and three products from the meat category (beef, pork, poultry meat), plus two important products from the agricultural policy perspective (sugar beet and milk), as these will be affected by the CAP reform measures in the period 2014-2020, which presuppose the removal of quotas.

In order to define the "Baseline situation" I used the average producer prices in the period 2010-2011, expressed in euro per ton, for each selected product, as they result from the Economic Accounts for Agriculture corresponding to the respective period (Table 1). The data on the production level from the reference period also represent the 2010-2011 average level, expressed in tons for all products, according to the data from the Economic Accounts for Agriculture. As regards the level of consumption, this was estimated in the same units of measure as production, starting from the relation between the level of consumption and of domestic production from the Food Balances elaborated by NIS for the years 2010-2011.

Table 1

Prices of agricultural products in Romania for the baseline situation and for the two scenarios, expressed in euro/ton, current prices

Product	*Baseline situation (2010-2011)*	*Scenario 1 (2020) "Fragmentation maintenance"*	*Scenario 2 (2020) "Deepening of integration"*
Wheat	175	180	182
Maize	204	220	197
Sugar beet	34	31	29
Milk	466	555	433
Beef	1437	1653	2462
Pork	1638	1801	1453
Poultry meat	799	926	1358

Source: the author's processing based on Eurostat and OECD/FAO (2012) data.

Scenario 1 "Fragmentation maintenance" presupposes that in the period 2012-2020 the evolution of production and of prices for each investigated market is influenced, on one hand, by internal factors (increase of agricultural yields, general economic growth and supply and demand equilibrium on each market), and on the other hand, by external factors (evolution of the prices of the respective products in the European Union, under the influence of world prices evolution, according to FAO and OECD forecasts for the period 2012-2022).

Scenario 2 "Deepening of integration" presupposes, in addition to the previous scenario, that an equalization of the product prices will be produced on the investigated markets. This hypothesis was approximated by the equalization of the level of prices in Romania, France and Poland, which means price adjustments in Romania, upwards or downwards, with a higher or lower intensity, depending on the competitiveness of different products and the fragmentation level of the respective markets.

Although the model simulates the evolution of production and consumption throughout almost one decade, the main determinant of the analysis is represented by the prices of products for each of the two scenarios, which makes the model have rather a static character, estimating the producer and the consumer effects, under the hypothesis that the shift from one price level (that

in the baseline period) to another (for each of the two scenarios) is produced gradually. Another implicit hypothesis is that throughout this period of agricultural prices modification, there is no modification of processor margins, i.e. any modification of producer price level is found at consumer price level.

As regards the elasticities in relation to price and to income (Table 2), these are those used in the above-mentioned model, being considered adapted for the Eastern European countries. Other hypotheses are related to the yearly productivity growth, different by products, and to the increase of consumer incomes (1% per year, in our case), as a result of the general economic growth in Romania.

Table 2

Yield trends and elasticities for the selected products

Product	*Yields (% annually)*	*Price elasticity of supply*	*Price elasticity of demand*	*Income elasticity*
Wheat	2.0	0.8	-0.1	0.2
Maize	2.0	0.8	-0.1	0.2
Sugar beet	3.0	1.2	-0.3	1.0
Milk	1.5	1.2	-0.2	1.5
Beef	1.0	1.0	-0.7	1.5
Pork	1.0	1.0	-0.5	1.0
Poultry meat	1.0	1.5	-0.5	1.0

Source: processing of data from Davidova and Thomson (2003).

RESULTS AND DISCUSSIONS

Although the economic welfare effects of a deeper EU integration of the seven agricultural markets are not spectacular on a cumulated basis, the situation is different by each product in part, as it results from Table 3.

Table 3

The economic welfare effects of the deepening of European integration on the main agricultural markets from Romania, compared to maintaining their fragmentation (differences between Scenario 2 and Scenario 1, in the year 2020, expressed in million euro)

Product	*Producer surplus*	*Consumer surplus*	*Net welfare*
Wheat	14.06	-6.25	7.80
Maize	-285.61	17.25	-268.35
Sugar beet	-0.69	7.40	6.71
Milk	-379.57	350.94	-28.63
Beef	204.67	-130.37	74.30
Pork	-199.51	313.86	114.47
Poultry meat	368.38	-193.02	175.36
Total	*-278.27*	*359.81*	*81.54*

Source: author's calculations

In the case of grains, world price increase in the period 2010-2011 was also felt in the European Union, as well as in Romania. Wheat prices were slightly below those in France, but above the prices in Poland. Thus, an uniformization of wheat prices by the year 2020, under the background of maintaining the high prices from the beginning of the decade, would mean a moderate producer surplus, the consumer loss being even lower. It results that Romania's wheat production is relatively competitive, even though the yields are low on the average (the costs are also lower).

The maize producers in Romania benefited from a favourable market conjuncture in 2010-2011, which led to record prices (238 euro/t in 2011, much above the level from France, where the 200 euro/t threshold was not reached). This is an example of existing fragmentations on the European Single Market. Starting from the high price level in Romania in the baseline period, even though the EU average price is not expected to decrease until 2020 (but to remain at a high and relatively stable level), price uniformization (in other words surmounting the fragmentation drawbacks) will lead to a significant producer loss, accompanied by consumer surplus (yet not at the same intensity, as maize does not have a very high share in the population's food consumption).

As regards the expected effects on the Romanian meat market, the evolutions are quite different, being specific to each of the three investigated products. Taking into consideration the economic crisis affecting most EU countries, meat demand orientation towards the cheaper options (pork respectively) is quite normal. However, in Romania, pork is the most expensive option, this situation revealing the non-competitiveness of the pig sector. The producer losses, determined by the Romanian price getting closer to prices from other EU countries, great pork producers, would amount to about 200 million euro in the year 2020, which imposes the development of investment programs, which should increase the sector economic performance. The pork consumer surplus in the year 2020 is even higher (over 300 million euro) and it is due to the pork imports at lower prices

Poultry meat consumption will not exceed pork consumption by the year 2020, even though the poultry sector in Romania is a competitive sector (the producer prices in Romania were half the prices in France in the year 2011). This reveals another aspect of market fragmentation: the difficulty in marketing a competitive production. According to the scenario, the deepening of integration on this market would lead to a producer surplus of over one third of billion euro in the year 2020. Correspondingly, the consumer will have a welfare loss (evaluated at about 200 million euro), under the background of a slight diminution of poultry meat consumption.

The asymmetry between the beef market situation from Romania (where the specialization of holdings in raising bovines for meat is quite rare) and the situation in France or Poland (where beef quality justifies the high producer prices) makes the results for this sector be relevant only from the perspective of the sector development potential. In the conditions of a deep integration, the Romanian beef production would have competitive prices on the European market, which would lead to a producer surplus of more than 200 million euro in the year 2020, while the consumers will have a loss amounting to 130 million, compared to the situation of maintaining a fragmented market. However, the orientation towards such an evolution (high quality beef production) needs more than an economic incentive, being a problem that can be solved up by the correction of the traditional bovine raising practices through a significant knowledge transfer.

Sugar beet cultivation in Romania drastically declined in the transition period, and the incentives from the post-accession period only succeeded to stabilize the situation at its previous level. The producer welfare effects, under the hypothesis of integration deepening scenario, reveals a modest loss compared to the fragmentation maintenance scenario, which is a predictable situation under the background of a slight decrease of sugar beet price in 2020, inclusively as a result of the quota system expiry in 2017, according to the European Commission Proposal. The consumer surplus is higher than the producer loss, and it is mainly due to the decrease of sugar price (regardless of its origin) induced by giving up the quota system.

The milk sector is also confronted with a problem of effects directly linked to the agricultural policies, the quota system expiring in 2015, according to certain decisions made before the present reform proposal. The prices taken into consideration targeted the raw milk production, while the main dairy markets (fresh milk, butter, cheese, skimmed milk powder) were considered for the consumption. The milk production increase potential in EU following the milk quota removal represents a challenge for the Romanian producers, whose milk prices (above the prices from France and Poland) will diminish, under the deep integration scenario, compared to the fragmentation maintenance scenario, resulting in a producer loss around 380 million euro in the year 2020. This amount will be almost totally transferred to consumers, under the form of surplus due to lower prices; however, the negative effect upon Romania's economy will be the low increase of milk production (by only 5% by the year 2020), in a period with a global conjuncture favourable to milk and dairy consumption (butter, cheese, skimmed milk powder), when their world prices are expected to rise by about 20%, on the basis of increasing demand in the developing regions.

CONCLUSION

The period 2014-2020 brings about certain development opportunities for Romania's agriculture in the poultry and wheat sectors, as well as certain threats associated to competition in the pig sector and milk reform sector, adding to certain pressures on the maize sector (which is influenced by the livestock raising sector). Considering the essential importance of the pork and milk production in ensuring food security for the population in Romania, the respective sub-sectors need to get support, through investments, so as to successfully face competition on the European Single Market.

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