Competitiveness of Livestock Production in Slovenia in View of Approaching EU Accession

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SUMMARY

The paper aims at assessing the cost competitiveness of Slovenian livestock production on single European market after its EU accession in 2004. For empirical analysis a sector model of Slovenian agriculture APAS-PAM has been applied. In the paper three accession scenarios are considered (optimistic EUo, pessimistic EUp and realistic EUr) that describe the whole range of possible accession effects. Accession under the scenario of complete acceptance of the CAP mechanisms and quasi equal treatment by the EU (EUo) will improve aggregate income level with moderate changes on commodity basis. Discrimination of the acceding countries in the field of direct payments and non-competitive down-stream sector assumed by the EUp scenario will deteriorate the income situation of domestic producers. The most likely outcome will be somewhere between top and bottom levels, projected with EUo and EUp scenarios. For many commodities, the competitiveness of the food processing industry assuming different price levels for raw materials could have much greater impact on the economic situation of livestock production than agricultural policy environment itself.

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INTRODUCTION

The next European Union (EU) enlargement will have multiple impacts on CEECs (Central and Eastern European Countries) agriculture. As previous enlargement shows, farmers will have to adjust their quantities supplied, shift products and modernise in order to be competitive. Price movements due to harmonisation will probably change cost competitiveness of production and influence trade balance. Moreover, even small price variations and minor modifications in budgetary support may dramatically change the level of income earned by producers on both sides (in "old" and "new" member states), which can, in the end, lengthen the integration process for new member states. Assessment of market and income effects has been a subject of numerous studies (Banse, 2000; Münch, 2000; European Commission, 2002a). Their common message is that enlargement and full adoption of Common Agricultural Policy (CAP) measures by the candidate countries would lead in most of them to increased production levels and improved income position of agriculture.

The objective of this paper is to contribute to the discussion on EU enlargement with the estimation of the likely economic impacts for the livestock sector in Slovenia. The paper begins with description of empirical framework and three policy scenarios under which Slovenia could evolve after accession. In presentation of model results emphasis is given to projected trends in agricultural income and the competitiveness dimension of the accession. The paper concludes with policy evaluation and some policy recommendations.

MATERIAL AND METHOD

APAS - PAM model

This analysis is based on a synthetic-type, multi-market, partial equilibrium sector model APAS together with a policy analysis matrix (PAM) to explore agricultural price and trade policy options in Slovenia. The APAS is designed as a national sector model, taking into account the specific features of Slovenian agro-industry and recent policy changes (Kavcic, 2000). It is primarily focused on market projections. On the other hand, PAM has been used for analysing income, protection and competitive issues for the same policy scenarios.

The model includes all most important agricultural "PSE commodities" (arable crops: wheat and maize, barley and sugar beet; and livestock products: milk, beef, pork and poultry, eggs and sheep meat). Together these commodities account for approx. 80% of Slovenian gross agricultural output.

Measuring income and competitive impacts

APAS is used along with a policy analysis matrix. PAM model has been selected as a basic technique for analysing income and competitive issues of different policy options. The reason underlying this decision is in its relative simplicity, data availability and straightforward procedure of calculations. The basic PAM methodology has been developed in USA (Monke and Pearson, 1989) and widely used in many developing countries (Harrigan et al., 1992; Kydd et al., 1997; Yao, 1997a). It has also been used for estimation of likely consequences of full membership of Portugal in EU on its agriculture (Pearson et al., 1987) and more recently for the same purpose in Estonia (Yao, 1997b) and Slovak Republic (Michalek, 1995). For more detailed literature review see Kavcic (2000).

The applied version of APAS-PAM model provides the possibility for calculation both DRC and RBC (domestic resource cost ratio and rate of bilateral competitiveness) indicators of competitiveness. The later one refers to the ability of producers to be profitable when faced with investigated economic environment. In our instance that means baseline or policy scenario of assumed EU market and tradable input prices, with the costs of the factors of production measured in terms of their opportunity costs. For more detailed explanation see Gorton and Davidova (2000).

Through APAS projections for yield, herd and output for every product under consideration it is possible to incorporate all relevant information to the PAM model so as to get valuable information for competitiveness and income for all policy scenarios.

Income was estimated for each activity using the following equation:

$$NI_i = VP_i - IC_i + Sb_i - Tx_i - Dp_i - Rn_i - Int - Wg$$

where NI stands for net income, VP is value of (crop or livestock) production, IC is intermediate consumption, Sb are subsidies, Tx taxes, Dp depreciation, Rn rents, Int interests and Wg wages of hired labour expressed per unit of commodity i.

Net income was calculated per head of animal, at sector level as well as at aggregate level, applying size of production (number of animals) previously calculated by APAS. The same holds for yields, which are incorporated to PAM from APAS projections and results obtained were applied in PAM analysis both to revenue side and to input (cost) side. Yields' improvements are a consequence of technological changes implying different input levels, which were calculated using linear regression procedure (assuming marginal costs of different cost items to be constant on a range of average yields' changes).

ACS

Agric. conspec. sci. Vol. 68 (2003) No. 3

Scenarios and data

The simulation was run using baseline and three policy scenarios. The latter estimate the possible effects of the final negotiation results (European Commission, 2002b) on the Slovenian agriculture after accession:

- Baseline scenario (BS). It assumes continuation of agricultural policy from 1999/2000 and predominantly serves as a comparison tool. It takes into consideration intermediate policy changes, deriving from trade agreements. Like for the policy scenarios, the anticipated price movements are derived from the agricultural outlook for different regions (OECD, 2001; FAPRI, 2001).

- Optimistic accession scenario (EUo). This scenario assumes that Slovenia will apply the negotiated CAP with the allowed level of direct payments (including top-up) and relatively rich rural development program already at the date of EU accession (i.e. in 2004 as the assumed accession). It assumes competitive domestic food processing industry contrary to the pessimistic accession scenario (EUp), reflected in lower producer prices.

- Pessimistic accession scenario (EUp). Basically it assumes lower absorption capacity of Slovenian agriculture and reduced producer prices.

- Realistic accession scenario (EUr) with anticipated budgetary support and most likely (i.e. expert estimate) levels of producer prices.

RESULTS AND DISCUSSION

Competitiveness

Domestic resource cost ratio and the rate of bilateral competitiveness was estimated for all products under consideration. Results obtained are presented in Table 1.

RBCs show relatively favourable competitive position of Slovenian agriculture in the event of non-discriminative EU agricultural policy environment (EUo), conditioned upon (competitive) domestic food industry. Opposite is the case in a liberalised situation on agricultural markets (DRC highly above 1, with no exemption). Differences between various commodities are obvious. Cattle (dairy and beef) production under subsidised CAP regime seems to be more competitive than pork, eggs and sheep meat production. The reasons for this are mainly high direct payments and/or highly protected markets, resulting in high revenues in proportion to domestic opportunity costs. Sheep meat production with relatively small direct payments (EUp) is unlikely to be competitive. Pork and eggs production is difficult to be competitive under speculation of non-competitive domestic food industry. It is important to stress that EU accession - even under optimistic scenario - would not significantly improve the competitiveness of great majority of investigated commodities. In cases where RBC ratio remains stable under EUp in comparison with baseline (only beef), it is a consequence of

Table 1. Domestic resource cost ratio (DRC) and the rate of bilateral competitiveness (RBC) for products under investigation

		Milk	Beef	Pork	Poultry	Eggs	Sheep m.
DRC	BS	1,44	3,17	2,39	0,69	1,51	2,25
	EUo	1,66	4,17	1,19	1,13	1,54	2,56
	EUp	2,11	4,30	1,46	2,59	10,84	3,41
	EUr	2,12	4,87	1,49	3,08	18,65	3,46
RBC	BS	0,67	0,74	0,57	0,39	0,50	1,03
	EUo	0,68	0,62	0,85	0,51	0,85	1,00
	EUp	0,80	0,77	0,97	0,53	0,97	1,27
	EUr	0,73	0,66	0,91	0,53	0,91	1,09

The period observed in the model is year 2005 since immediate impacts of EU accession are at the top of policy interest. It is not to be expected that the accession effects will be expressed completely already in year 2004.

The relevant data for the analysis were provided by the Agricultural Institute of Slovenia (Volk, 2001a, 2001b; Golez, 2001) and various published or recalculated sources of the Statistical Office of the Republic of Slovenia.

high discrepancy between domestic agricultural policy in base year and the current CAP due to general trend of price cuts. For many commodities, the competitiveness of the food processing industry with lower or higher prices for rough materials could have much greater impact on the economic situation of agricultural production than agricultural policy environment itself.

Agricultural Income

The results of the policies under the optimistic EUo scenario point to a slight or even significant improvement in the income situation of 'ruminant' sectors, including that of dairy farmers (Table 2),

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Agric. conspec. sci. Vol. 68 (2003) No. 3

Table 2. Likely agricultural income situation (in EUR/head[1])

	Milk	Beef	Pork	Poultry	Eggs	Sheep m.
BS	1.024	224	434	272	383	401
EUo	1.248	480	313	265	145	543
EUp	1.006	341	237	242	71	383
EUr	1.149	440	274	243	105	482

[1]10 pigs or sheep, 10,000 chickens or 100 layers.

Table 3. Sector and aggregate agricultural income forecast (BS = 100).

	Milk	Beef	Pork	Poultry	Eggs	Sheep m.	Aggregate
EUo	99	232	68	100	37	151	115
EUp	81	158	50	91	18	101	83
EUr	92	210	59	91	26	132	104

when expressed per unit of production. But the projection is less favourable in the case of more likely EUr scenario. On the other side deterioration is expected in pork, poultry and particularly in eggs sector, and, when taking into account production quotas in calculation of sector income, also in dairy farming (Table 3).

A significant improvement, but conditioned upon high level of producer prices, is expected only in currently discriminated beef production. Situation is expected to be the worst in pork and egg sectors. In the case of non-competitive food processing industry, a rapid stagnation of intensive livestock production is expected.

In the case of realisation of the negotiation outcomes and if the prices of commodities remain relatively high (EUo scenario), the income situation will be significantly improved at aggregate level. On the contrary, it will decline dramatically with the lower absorption capacity and without a significant increase (to the EU average level) of competitiveness of the domestic food industry. The difference between the optimistic accession scenario (EUo) and the baseline one is approximately +15 %, and deterioration under also probable EUp is similar (around 17 %). The situation to be expected if nothing crucial happens by the time of real accession (May 2004) is somewhere between EUo and EUp. Our model estimation for realistic accession scenario in comparison with the base year is aggregate income improvement in the rank of 4-5 %.

These results show the sensitivity of accession conditions. The accession with relatively low absorption capacity (direct and structural payments) and considering low competitiveness of the food industry is far from being attractive for Slovenian producers. The general picture is even the opposite to the one that can be expected taking into account several general conclusions about EU enlargement effects. In the case of significant budgetary problems in Slovenia in this and forthcoming years, accession means a reduction of total agricultural income with enormous deterioration within some sectors (industrial livestock production and milk), and improvement only in currently discriminated sectors (beef).

CONCLUSIONS

The results confirm the hypothesis that inevitable alteration of economic situation will take place in Slovenian agriculture at the time of accession. An important part of changes will result from different competitiveness of food-processing industry. Authors expect that in the case of Slovenia, changes affected by low competitiveness could be even greater than presented in the analysis.

Wider interest is anticipated for estimates of income situation in Slovenian agriculture after the accession to the EU. Compared with the baseline, only under the less realistic conditions of the optimistic accession scenario income situation could be improved significantly. This might be the case for beef sector, but this improvement should not bring any enthusiasm concerning the perspectives of this sector as competitiveness and actual income situation remain low. Nevertheless, accession is not as attractive for Slovenian farm producers as one would expect - the case can be even opposite unless producers receive high level of direct payments. Even under the optimistic scenario, total agricultural income will increase only slightly, with significant worsening of income situation in some sectors (pork and eggs).

During the pre-accession period, all the efforts have to be made to strengthen the arguments for realisation of direct payments. Especially important is also the institutional development with establishment of paying agency and reestablishment of comparable mechanisms proposed by the agricultural policy reform. Some other steps of adjustment also need to

be considered. Like other candidate countries Slovenia should not neglect structural and environmental policies on the account of economically and politically questionable direct payments.

Although direct payments have political and economical relevance, in the long run improvement of competitiveness is essential for Slovenian agriculture and down-stream industry. This can be achieved efficiently also by measures such as faster trade liberalisation, support for factor mobility, more targeted budgetary policy in terms of externalities and above all, with a clear description of the actual and projected situation for domestic producers. Also dynamic technical and structural development could and should play an important role in the near future and have to be supported by all means at disposal of agricultural policy. Anyhow, individual producer with more entrepreneur skills will play the major role in time to come along with decreasing rate of policy influence. However, due to generally unfavourable socio-economic characteristics in the sector, dynamics of necessary changes in Slovenia is expected to be very low.

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Agric. conspec. sci. Vol. 68 (2003) No. 3