TWENTY YEARS AFTER – WELFARE EFFECTS OF THE APPLICATION OF THE CAP IN AUSTRIA, FINLAND AND SWEDEN

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Abstract. *Twenty years ago, Austria, Finland, and Sweden joined the EU. The application of the Common Agricultural Policy (CAP) caused major repercussions on the agricultural sectors of the entering countries. This article analyses the effects of accession to the EU on the agricultural markets in Austria, Finland and Sweden in a simple supply and demand framework, which is kept strictly identical across all three countries. The quantitative results of the study are derived by using standard partial equilibrium comparative static analysis in the Marshallian economic surplus framework. Using this method, the welfare effects are calculated for eight major cereal and livestock commodities produced in Austria, Finland, and Sweden by comparing the evolution of the markets with and without entry into the EU. The results of the analysis suggest that consumers have gained from accession and producers, on the other hand, have incurred welfare losses from changing market conditions, which however have been eased by rising budgetary support.*

Key words: *EU, CAP, Austria, Finland, Sweden, welfare analysis.*

INTRODUCTION

At January 1, 1995 the internal market of the European Union (EU) was extended to three new member states: Austria, Finland and Sweden. Accession to the EU, and the application of the Common Agricultural Policy (CAP) changed the operational environment of the agri-food sector within each of the three countries. Agricultural policies were altered substantially implying a new price structure, production quotas and direct income payments to tillable land and animal units. Obstacles to trade were abolished with the rest of the EU, and EU regulations started to be applied in the trade with the third countries immediately on accession.

The question of the benefits and costs of the accession into the EU and compliance with the CAP was hotly debated in all three countries before the accession. However, not many estimates of the actual benefits and costs from the application of the CAP appear to exist to-date (Kola et al. 2000, Niemi 2005, Niemi et al. 2005). This paper attempts to provide both qualitative and quantitative estimates of the effects of application of the CAP on the agricultural sectors of Austria, Finland and Sweden. The twenty-year period from 1995 to 2014 should provide sufficient information for an appraisal of the consequences of the accession on agri-food sectors of the three countries.

The accession has eventually affected production, consumption and trade of agricultural products in three countries under examination and thereby influenced market balance also in the rest of the EU. The effects, thus, concern various groups within the countries, e.g. consumers, producers, the government, etc., as well as EU countries as a whole. We shall here concentrate on the inter-group transfers within a country, and neglect the possible inter-country income transfers. The accession has only very limited impacts on the agricultural markets in the whole EU, as the three countries are minor players in production and trade in relation to the EU and its major export producers.

Initially, the agricultural policies in Austria, Finland, and Sweden before and after entry are briefly discussed in the paper. Then the impacts of accession on agricultural sectors are evaluated and compared (section 2). Section 3 concentrates on quantitative analysis on welfare effects of integration. Static calculations are used to illustrate how adopting EU price levels have affected producer and consumer surpluses. In addition, the budgetary transfers between the three countries and the EU are presented in the context of the CAP. The final section summarizes the findings.

EXPERIENCES OF AUSTRIA, FINLAND AND SWEDEN UNDER THE CAP

In principle, agricultural policies of the three countries (Austria, Finland and Sweden) were in many ways similar to the one of the EU before the entry. Decent incomes for the agricultural population, stabilising

markets and availability of supplies at reasonable prices were common objectives of agricultural policy in these countries and in the EU.

The policy instruments used were to a large extent also similar: price support, quotas, intervention arrangements on the internal market and a system of border protection together with export support for surplus production, as well as direct income aids.

The level of support measured by Producer Subsidy Equivalents (PSE) in agriculture was, nevertheless, higher than in the EU in all three countries at the time of the accession. Finland had the highest PSE, while the support levels in Austria and Sweden were closer to the EU (table 1). The desire to become part of the EU led to some changes in direction of the agricultural policy of the entering countries already before the accession. However, border protection remained relatively high until the end of 1994 (with the exception of Sweden).

In the membership negotiations, the EU effectively achieved its objective of immediate alignment of producer prices. As CAP prices were considerably lower than producer prices in Austria and Finland, in particular, it was agreed that "degressive national aids to farmers should be authorized where support levels differ significantly". For Austria and Finland it was important to reach a long-term support package that would guarantee the profitability of agriculture, although the producer prices dropped considerably when prices were adjusted to the EU level. Finland pushed for Less Favoured Area (LFA) status for all of its agricultural area. In Austria about 70% of the agricultural area is included in the LFA support (Niemi et al. 2005).

In addition, Austria received the opportunity to provide extra national aid (Grundbetrag) to small farms for a period of ten years, where existing LFA allowances are insufficient, and where these farms already received aid in 1993. For Finland and Sweden an important borderline is the 62nd parallel, to the north of which and in adjacent areas to the south permanent, so-called nordic agricultural national support can be paid. This national nordic support is paid on the basis of the hectares of agricultural land or heads of animal. The support may not lead to an increase in production or in the level of overall support observed during a pre-accession reference period determined by the Commission (Niemi et al. 2005).

The elimination of border protection with the rest of the EU reduced barriers to trade as well as trade related transaction costs. This reduced domestic retail prices as well as producer prices and increased imports of agricultural products. The retail prices of food decreased only by about 0.5% in Austria and 1% in Sweden, but 11% in Finland immediately upon accession. Lower retail prices have in turn stimulated growth in consumption. In the food chain the position of retail sector has strengthened relative to the domestic raw material production and food industry within each of the three countries. The retail sector has been able to take advantage of the competition between the domestic food companies and between the domestic companies and the foreign ones.

The manner, in which adjustment in the agrifood sector (primary production as well as the processing industry) has proceeded, has been dependent on agri-industrial structures and the relative competitiveness among different types of firms, commodities and countries. The accession has affected agricultural production differently in different regions, also depending on the formulation of compensatory policies. The adjustment process has therefore by no means been uniform. Furthermore, the three countries exhibit significant regional variations within national boundaries. The following subsections looks in detail at the effects of price and subsidy changes on agricultural production, trade and processing industries within each of the three countries.

QUANTITATIVE EXAMINATION OF THE EFFECTS OF COMPLIANCE WITH THE CAP

The quantitative results of this study are derived by using standard partial equilibrium comparative static analysis in the Marshallian economic surplus framework. This method based on welfare economics is well known, for both its usefulness and limitations. Corden (1957), Deaton and Muellbaur (1980), Just et al. (1982) and Gardner (1987) provide useful discussions of the concept of producer and consumer surplus. Using this method the welfare effects of entry into the EU and compliance with the CAP are evaluated for eight major cereals and livestock commodities produced and imported in Austria, Finland and Sweden. These eight products account for almost 80% of the output of basic agricultural production at market price in the three countries under examination.

Economic surplus measures (i.e. producer and consumer surplus) are calculated by comparing the evolution of the agricultural market with and without entry into the EU. As with most policy changes, the response of the individuals impacted by integration depends on the time perspective. In this analysis we focus on the medium

term, which is defined as the period that at least one factor is fixed. The basic formulae for calculation are represented by equations (1) through (8):

1) estimated domestic production without entry into the EU

$$Q_1 = Q_2 + n_s\,[(r_1 - r_2)/\,r_1]\,Q_2$$

2) estimated domestic consumption without entry into the EU

$$C_1 = C_2 + n_d\,[(p_1 - p_2)/\,p_1]\,C_2$$

3) net social benefit in production as a result of accession

$$NCB_p = [0.5\,(Q_2 - Q_1)] * (r_2 - r_1)$$

4) net social benefit in consumption as a result of accession

$$NCB_c = [0.5\,(C_2 - C_1)] * (p_1 - p_2)$$

5) welfare gain of producers as a result of accession

$$PS_d = [Q_1 - 0.5\,(Q_2 - Q_1)] * (r_2 - r_1)$$

6) welfare gain of consumers as a result of accession

$$CS_d = [C_1 + 0.5\,(C_2 - C_1)] * (p_1 - p_2)$$

7) change in taxpayers' expenditure as a result of accession

$$TX_d = Q_1\,(r_1 - p_1) - Q_2\;\,(r_2 - p_2) + S_2 - TX_2$$

8) net social benefit in society as a result of accession

$$NSB_d = NCB_p + NCB_c + TX_d$$

where r_1 is the per-unit return faced by domestic producers under a non-entry scenario; r_2 is the per-unit return in the entry scenario; p_1 is the market price faced by domestic consumers under a non-entry scenario; p_2 is the market price; Q_1 is the simulated production quantity under a non-entry scenario, Q_2 is the actual quantity of production; C_1 is the simulated consumption under a non-entry scenario, C_2 is the actual quantity of consumption, n_s is own-price elasticity of supply, n_d is own-price elasticity of demand, S_2 represents the sum of direct subsidies received from the European Guidance and Guarantee Fund (EAGG), and TX_2 represents country's payment to the EAGG.

Substituting non-entry prices into the supply and demand equations allows us to estimate a level of consumption and production in the no-entry alternative. From this, the net social losses and changes in consumer and producer surpluses can be calculated. Information required for the analysis are entry and non-entry prices and support production and consumption of agricultural products and own-price supply and demand elasticity estimates by commodity for Austria, Finland, and Sweden.

Table 1

Estimated change in agricultural production as a result of accession in Austria, Finland and Sweden, % of 1994 production

	Austria		Finland		Sweden	
Commodity	Low	High	Low	High	Low	High
Wheat	-2.2	-3.3	-2.4	-6.4	-2.4	-3.6
Barley	-1.0	-1.9	-0.5	-2.4	-1.5	-3.8
Oats	0.1	0.3	-0.6	-2.8	-1.6	-4.0
Beef	-1.1	-2.6	-1.9	-14.9	-3.1	-11.4
Pork	-1.6	-10.2	0.0	-7.3	-8.9	-12.4
Poultry	-1.9	-5.4	-1.4	-5.5	-1.2	-2.5
Eggs	0.5	1.4	-1.8	-4.5	9.4	16.8
Milk	-2.1	-9.7	-0.9	-6.1	-0.8	-2.1

The effects of entry into the EU on production and consumption volumes are summarised in tables 1 and 2, from which a number of points can be made. In the non-entry scenario, the net returns received by agricultural producers are higher than the corresponding returns under entry. Therefore, when production and supply are positively related to producers' net returns, agricultural production is estimated to be lower in the entry

scenario. On the other hand, as a result of lower food prices there is an increase in domestic consumption with the entry into the EU.

The effects on trade are merely a combination of the effects on production and consumption, since stocks are assumed to be constant. The entry has caused an increment in the import of all agricultural products analysed.

Table 2

Estimated change in consumption of agricultural products as a result of accession in Austria, Finland and Sweden, % of 1994 consumption

	Austria		Finland		Sweden	
Commodity	Low	High	Low	High	Low	High
Wheat	6.0	24.6	10.8	29.3	1.2	4.5
Barley	5.5	18.4	6.4	21.9	1.6	4.9
Oats	5.8	19.8	6.7	23.3	1.7	5.3
Beef	1.5	11.5	5.4	21.7	3.3	12.7
Pork	3.3	5.0	9.3	34.1	3.4	10.8
Poultry	3.9	12.8	4.3	19.9	0.8	3.0
Eggs	-0.8	-1.3	6.1	16.8	-7.9	-14.7
Milk	1.3	6.7	0.2	1.7	0.2	1.5

The most sizeable effects of entry are the welfare transfers between producers and consumers. Producers both in Austria and Finland have incurred large welfare losses in commodity production, which are to be contrasted with the increase in budgetary support. In Austria, producers' welfare losses due to the CAP range from EUR 701 million (the low elasticity case) to EUR 726 million (the high elasticity case) per year. Producers in Finland have incurred welfare losses from a low EUR 573 million to a high EUR 600 million per year. In Sweden, producers' welfare losses range from EUR 376 million to EUR 389 million per year (table 3).

In Austria, the magnitude of the losses has been most pronounced for the dairy and pork producers. Dairy producers' welfare loss ranged from EUR 265 to EUR 277 million. Pork producers have lost from EUR 238 to EUR 250 million. In Finland and Sweden the losses are largest for the beef and pork producers. Finnish beef producers' welfare loss ranged from EUR 213 to EUR 229 million. Swedish pork producers have lost between EUR 161-164 million.

Table 3

Welfare gains of producers as a result of accession in Austria, Finland and Sweden, EUR million per year

	Austria		**Finland**		**Sweden**	
Commodity	Low	High	Low	High	Low	High
Wheat	-77	-78	-26	-27	-34	-34
Barley	-17	-17	-26	-26	-29	-30
Oats	0	0	-25	-25	-21	-21
Beef	-50	-50	-213	-229	-128	-134
Pork	-238	-250	-139	-144	-161	-164
Poultry	-58	-59	-13	-13	-16	-16
Eggs	5	5	-14	-14	57	56
Milk	-265	-277	-118	-121	-45	-45
Total	-701	-726	-573	-600	-376	-389

On the hand, consumers have gained an estimated EUR 2,087-2,197 per year in the three countries. In Austria, consumers have gained about EUR 898-931 million per year for the total of eight major commodities analysed. In Finland and Sweden, consumers have gained about EUR 815-875 million and

EUR 374-391 million, respectively. Clearly, these gains are important to consumers, even though the magnitude of these benefits is small relative to market sales (table 4).

Apart from transfers between producers and consumers, there are budgetary transfers, which must also be taken into account when documenting welfare changes in the whole society. Countries' contributions to the EAGG is not known, since payments are made to the EU budget as a whole and not to each special fund separately.

However, if we make the usual assumption that the proportion of a member states' contribution that goes to EAGG is equal to the share of EAGG in the total budget, we find that Austria and Finland have been net receivers from the EAGG in 2003. Sweden, on the other hand, has been a significant net payer.

Therefore, the net budgetary benefits from the application of the CAP in 2003 amount EUR 548 million in Austria, and EUR 180 million in Finland. In Sweden, the EU-membership has lead to an increased burden for taxpayers, of at least EUR 500 million annually.

Sweden has one of the highest net per capita contributions to the EU and money received within the CAP are not at all of the same size. It is also worth to notice that governmental payments in 1994, our reference year, were relatively high since that was a year of "compensation payments" for the Swedish deregulation agricultural reform. Compared to a post-reform year in Sweden the differences therefore ought to be even higher.

Table 4

Welfare gains of consumers as a result of accession in Austria, Finland and Sweden, EUR million per year

	Austria		Finland		Sweden	
Commodity	Low	High	Low	High	Low	High
Wheat	132	123	107	101	26	26
Barley	92	87	107	99	29	28
Oats	16	15	86	80	14	14
Beef	89	85	176	165	174	167
Pork	205	203	245	223	159	154
Poultry	72	69	67	63	20	19
Eggs	-7	-7	56	53	-75	-79
Milk	332	324	31	31	45	45
Total	931	898	875	815	391	374

CONCLUSIONS

The objective of this study was to compare the welfare derived from the existing EU situation with that derived from a hypothetical non-entry situation for agricultural markets in Austria, Finland and Sweden. The analysis is based on a simple Marshallian supply and demand framework and differentiates eight commodities. The benefit or cost of integration is the extent to which welfare under current situation deviates from welfare under the non-entry scenario. Whether all these benefits and costs could have been avoided by not entering the EU is doubtful, as the outcome of the Uruguay Round Agreement on Agriculture would have hit the country similarly.

The quantitative results of the study indicate that the most sizeable effects of integration are the welfare transfers between consumers and producers. According to the study, consumers in all the three countries have gained, in total, between EUR 2,087-2,197 for the eight major commodities analysed. Producers, on the other hand, have incurred large welfare losses in commodity production, ranging from EUR 1,650 to EUR 1,715 million. These losses are to be contrasted with the increase in budgetary support, however.

The EU-membership reduced average agricultural prices in all three countries. Consumer gained more than produces lost from this. An increased market competition in processing has probably also contributed to welfare gains from the EU-integration. The generous acceptance from the EU-commission in relation to

environmental programs and national exceptions in the form of additional national support compensated farmers. When evaluating the aggregated welfare effect, taxpayers situation therefore become essential. Sweden seems to lose because of a large net transfer to the EU, while Austria and Finland seems to be net gainers from the implementation of the CAP.

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