Principal determinants of Slovenian and other NMS' trade in agricultural and food products

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Trade liberalization for new member states (NMS) of the European Union (EU), following the recent EU accession towards the East, tends to lead to an increase in trade flows among current EU-25 members. The trade creation effects induce the increased traded volume and the diversified trade types. These development patterns are revealed also in agricultural and food trade in NMS. Comparisons of the Slovenian agricultural and food trade with the similar trade for the other NMS are conducted with the emphasis on distinction between primary and processed agricultural and food products. On the basis of the analysis it has been found that the prevailing trade type is the inter-industry trade, which implies higher adjustment costs of displacement of resources across different industries. Intra-industry trade, which is often observed in trade among countries with similar factor endowments and smaller economic distances, represents only minor part of NMS-10 trade in agri-food products. Trade specialization, trade patterns, and trade geography in agri-food products imply some similarities with developing countries and countries with less competitive agricultural and food sector.

Key words: trade structures, agri-food trade, trade types, intra-industry trade

INTRODUCTION

Trade flows play crucial role in determination of the level and composition of activities in the economy, and influence economic stability and economic growth. We certainly cannot claim that the NMS, including Slovenia, are among the countries with the most dynamic trade developments in the agri-food sector.[1] However, after the recent EU enlargement towards the East, it is interesting to investigate new actors in the Single European Market (SEM) and their trade performances in the last years. The usual assumption in most trade studies is, that trade liberalization would transmit into an increase in trade flows within the European integration. Most of this increase would be of intra-industry trade (IIT) type, i.e. simultaneous exports and imports within the same industry. Adjustment costs in such trade developments are generally considered to be much smaller than those associated with the inter-industry trade specialization. The latter tends to drive forces towards a concentration of economic activity on a limited number of

industries and the abandonment of others. It is possible to assume that the integration effects for NMS-10 should lead to trade creation effects with the trade flows' increases within the EU with associated reallocation effects on productive factors. In the late 1970s, Pelzman (1977) denoted that trade between centrally planned economies is characterised by inter-industry specialization, which as shown in this paper, in the NMS' agri-food sector remained prevailing even after the decades passing.

From the global trade development perspective, one might observe that the most visible agricultural and food trade trends are to be seen while distinguishing between trade in primary and trade in processed food products. So in the latest WTO report (2004) the increasing role of processed agricultural goods is emphasized since these represent the most dynamic segment of agricultural world trade. Where are in these developments of global trade positioned NMS, and more precisely Slovenia? To answer this question, the performance of agri-food sector's trade with the respect to the degree of processing (or value-added content) is investigated and presented.

The article is composed as follows: first, we explain the methodology and data used. Then we analyse the export and import structures with emphasis to the value-added content of agricultural and food products. The total trade with agricultural and food products is disentangled into different trade types, which differ substantially across product groups and over time. As such this development reveals to a certain extent the state of development in agriculture and food

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[1] *The agri-food sector comprises agricultural production and food indu stry, while we refer to agricultural and food products as agri-food pro ducts.*

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industry. The similarities and differences in results among the NMS-10 agri-food sectors are discussed in the final chapter, which also derives conclusions and policy implications.

METHODOLOGY AND DATA

When discussing on trade issues (bilateral and multi-lateral), one should first think about the country's prevailing trade types and their determinants. This is a typical approach in the mainstream economic literature for in-depth insights into the countries and sectors specific characteristics on trade developments, trade types and trade specialization for the economy as a whole and/or for their respective sectors. The common research and policy question that arise is on the nature of trade: whether it is inter-industry trade (trade between the industry groups) or whether we are dealing with IIT with simultaneous exports (X) and imports (M) within the same industry group. Krugman (1979) argues on the crucial role of economies of scale within the framework of IIT trade analy-sis. If an industry consists of a large number of firms all pro-ducing somewhat differentiated products and all operating on the downward-sloping parts of their average cost curves, then there is more likely to occur two-way international trade within an industry, because firms in different countries spe-cialize in production of alternative differentiated products. What prevents firms in each country from producing a com-plete range of products domestically is the existence of fixed costs of production. The most widely used measure of IIT is the Grubel – Lloyd index (GLIIT):

$$GLIIT_t = \left(1 - \frac{\sum_i |X_{it} - M_{it}|}{\sum_i (X_{it} + M_{it})}\right) \cdot 100 \quad (1)$$

Where X represents value of exports and M value of imports of commodity group i in year t. The GLIIT index is equal to 100 if all trade of the country is IIT and it is equal to 0 if trade is exclusive of inter-industry nature. Since integration increases a share of IIT, the GLIIT index is often considered as an indicator for economic integration among countries with similar factor endowments. Moreover, the research question is also what kind of IIT we are dealing with. An approach, used by Fontagne et al. (1997), disentangles trade into one-way and two-way trade type, with the latter further disaggregated into different types of IIT. Therefore, this methodology allows us to take a look at the nature of two-way IIT distinguishing between horizontally and vertically differentiated products. It is often assumed that differences in export vis-à-vis import prices reflect quality differences. So, to measure trade quality differences, we use differences in unit values of X and M for the same product group. A threshold of 10 per cent for trade overlap is introduced (see also Abd-el-Rahman 1991; Greenaway et al. 1994; Fontagne et al. 1997). When the minority flow represents at least 10 per cent of majority flow, that overlap is considered as IIT. Below that threshold, the trade overlap is not significant and is defined as inter-industry type. Products with the ratio X-to-M prices within a 15 per cent threshold in a given year are considered as similar or horizontally differentiated (Fontagné et al. 1997):

$$\frac{1}{1.15} \le \frac{UV^X_{kk'pt}}{UV^M_{kk'pt}} \le 1.15 \quad (2)$$

where UV refers to unit value and X and M refer to exports and import, respectively, at the 6-digit Combined Nomenclature (CN) product level. Indices k represent the declaring country, k' the partner country and p the product in year t. When equation (2) for two-way trade or for IIT does not hold, products are considered as vertically differentiated. It is assumed that differences in quality are reflected in price differences. In the latter case of vertically differentiated IIT we consider the exchange of qualities, while in the former case of horizontally differentiated IIT the exchange of varieties. According to Fontagné et al. (1997) determinants of IIT in horizontally differentiated products are different from those in vertical. In the former case, products sold at the same price may be considered as perfect substitutes, while in the second common ranking of consumer preferences can be associated with differences in quality. In this case, the adjustment costs might be sizeable, since it might not be equivalent to specialize in high or low quality products in the same industry. So, IIT is divided into exchange of horizontally (HIIT) differentiated products in varieties and vertically (VIIT) differentiated products in qualities:

$$IIT = HIIT + VIIT \quad (3)$$

It is furthermore assumed that VIIT has two components, high quality (HQ) and low quality (LQ) (Díaz Mora, 2002). A high share of LQ implies that a country is specializing into relatively low-price export goods in the vertically differentiated product groups or sectors and otherwise, high share of HQ implies that VIIT is in the form of high-value added exports vis-à-vis similar imports. Therefore, trade flows can be classified into three trade types according to the unit values (UV) of X and M in the matched two-way trade flows. Table 1 summarizes the criteria for decomposition of trade flows and trade flows' classification, as it is further used in the empirical part of this paper.

Table 1. Criteria for decomposition of trade flows and trade flows classification

Degree of overlap between export (X) and import (M) values: Does the minority flow represent at least 10% of the majority flow?	Similarity of export and import unit values: Do X and M unit values differ less than 15%?	
	Yes (horizontal differentiation)	**No** (vertical differentiation)
Yes	Two way trade in similar products	*Two – way trade in vertically differentiated products:* • LQ: if $UV^X_{kk'pt}$ / $UV^M_{kk'pt}$ < 1/1.15-: low export prices (indicates low X quality) and high quality of M • HQ: if $UV^X_{kk'pt}$ / $UV^M_{kk'pt}$ > 1.15: high X quality and low M quality
No	*One – way trade*	

The trade data used in this paper comes from two main data sources: Slovenian Statistical Office at the six-digit product level of CN and Eurostat's COMEXT trade database, where the observations from 1999 to 2003 at the eight-digit product level of CN are comprised. For the purpose of this analysis, the products from the first 24 chapters of the CN are taken into the account. The agricultural and food products are further disentangled by the value added content according to the United Nations (UN) classification of the products using the Broad Economic Categories (BEC) classification Rev. 3. According to this criteria, agricultural and food products are classified into the following categories by the degree of processing and the purpose (final or intermediate) in consumption:

- primary products (food and beverages) mainly for industry, captured in three-digit BEC product category 111, and primary products mainly for household consumption (category 112);
- processed products mainly for industry refer to the product category 121, while processed products in category 122 are intended for final consumption in households;
- minority of agri-food products are included in category of industrial supplies, not else specified. Primary ones refer to category 21, and processed fell into category 22.

Additionally, we apply the classification of products consisting of ten major groups: fruits and vegetables, cereals, dairy products, oilseeds, meat, beverages, spices, fish, sugar and others. This classification is obtained from Chevassus-Lozza and Gallezot (1998).

RESULTS AND DISCUSSION

The empirical results on agri-food trade and its development for Slovenia indicate the external economic performance of these two economic sectors. At the first glance both, agriculture and the food sector are not the most important ones in the economic sense of the Slovenian economy. However, they do have an economic and social role that should not be denied. Altogether, these two sectors employ around 12% of labour force in Slovenia. Due to their sensitive political-economy nature they have been the subjects of serious debates during the preparation and negotiation for the EU accession.

Regardless the degree of processing, the negative trade balance occurred with all trading partners, except with the former Yugoslav markets. This evidence provides first indication that Slovenia lacks competitiveness in the agricultural and food sector vis-à-vis the majority of its trading partners. In the continuation of our analyses we have split trade flows by the degree of processing. It is assumed that processed products contain a higher value added degree than primary ones. Despite the fact that majority of Slovenian agricultural and food trade is in processed products (almost 80 per cent of export and 60 per cent of import in 2002) rather than in primary products, there is a lack in international competitiveness. This is also confirmed by negative trade balance for all markets except the former Yugoslav ones (Table 2). By the individual product groups, the surplus in agricultural and food trade balance in 2002 is observed for dairy products, meat and beverages (see Figure 1).

Table 2. Slovenian trade balance (X-M) by the degree of processing* and by regions (in mio € and in % of X or M) in the year 2002.

	Primary products (mio €)	Primary products (%)	Processed products (mio €)	Processed products (%)
EU-15				
Exports (X)	26.78	31.61	56.41	17.48
Imports (M)	155.01	50.79	258.95	57.05
Balance (X-M)	-128.22	-19.18	-202.55	-39.57
Ex-Yugoslav markets				
Exports	51.25	60.49	218.04	67.55
Imports	13.58	4.45	66.65	14.68
Balance	37.67	-56.04	151.39	-52.87
Central European Free Trade Agreement (CEFTA)** countries				
Exports	3.08	3.64	8.26	2.56
Imports	67.14	22.00	62.53	13.78
Balance	-64.06	-18.36	-54.26	-11.22
Other				
Exports	3.60	4.25	40.05	12.41
Imports	69.48	22.76	65.79	14.49
Balance	-65.88	-18.51	-25.75	-2.08
Total				
Exports	84.72	100.00	322.77	100.00
Imports	305.21	100.00	453.93	100.00
Balance	-220.49	-	-131.16	-

*Primary group of products includes the following three BEC categories: 111, 112 and 21. In the processed group of products the remaining of BEC categories are included: 121, 122, and 22.
** CEFTA includes Hungary, Poland, the Czech and Slovak Republics, Bulgaria and Romania.
Source: Bojnec, Majkovič and Turk, 2005.
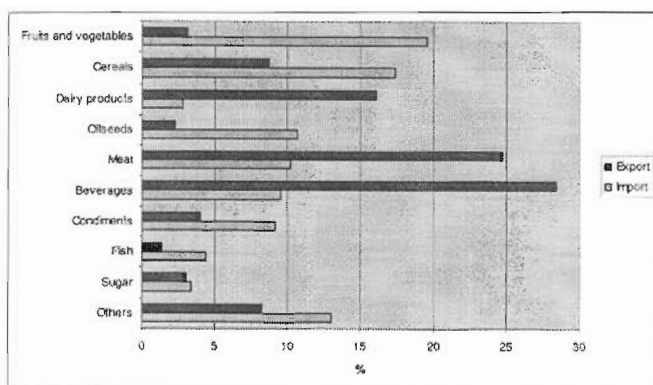
Source: Own computations based on data from Slovene Statistical Office.

Fig. 1. The structure of Slovene exports and imports by product groups in 2002 (% of total agri-food exports and imports, respectively).

Table 3. Structure of trade by trade types in the total Slovenian agri-food trade.

Trade type	Share in a total trade (in %)		
	1996	1999	2002
Two way trade in similar products (IIT similar)	2.50	2.21	2.49
Two way trade in high quality differentiated products (IIT high)	4.70	3.91	4.10
Two way trade in low quality differentiated products (IIT low)	5.72	6.72	5.06
One way trade	87.09	87.15	88.34
Total	100.00	100.00	100.00

Source: Own computations based on data from Slovene Statistical Office.

One-way trade flows (minority flow representing less than 10% of the predominant flow) prevail in Slovenian agri-food trade (see Table 3). Furthermore, even a slight increase in this type of trade is evident. However, in general the structure of trade types has not changed considerably in the analysed period. Fontagne et al. (1997) argued that determinants of inter-industry trade type are factor endowments and productivity differential, while the potential effect of integration in this case leads to the specialization along comparative advantages and, through agglomeration, to potential income divergences among countries. If the Slovenian agricultural and food inter-industry trade specialization will continue in the future, this can cause high adjustment costs. With continuation of inter-industry trade specialization the economic activities tend to specialize towards a very limited number of industries, while abandoning the others. So the adjustment might take place between the industries rather than along the qualities within the industry. The reallocation process of production factors that follows this inter-industry specialization process from the shrinking or even disappearing industries to the surviving ones is associated with the reallocation adjustment costs of production factors limiting qualitative division of labour. Many times fixed assets are indivisible or sector specific and reallocation of labour requires new investments in trainings to obtain new knowledge and skills associated with the requirements in the new production process. Fontagne et al. (1997) report that the IIT increased since the mid of 1990s in intra-European flows and became the pivotal type of trading of EU-15. But when the results are disentangled to the industry level, the one-way trade type accounted for 61% in trade flows for food and beverages, while for agriculture the share remained even higher (almost 74%) in the year 1994. These shares are relatively stable through the analysed period 1980-1994. Our empirical results point at the significant role of the one-way trade in Slovenian agricultural and food trade. As we will present further, the similar trade structures prevail in the agri-food sector of all NMS, which joined the EU in 2004. The NMS entry augmented the increased competitive pressures in the SEM thus inducing greater pressures for deeper and more efficient restructuring in agriculture and the food sector.

Table 4 reveals that primary and processed agri-food products are characterised by the large proportion of inter-industry (one-way) trade. In most cases this even increased

Table 4. Share of trade types in Slovenian agri-food trade by the value added content groups (in %).

Group of products	1996				2002			
	One-way trade	Two way-low quality products	Two way-high quality products	Two way-similar products	One way trade	Two way-low quality products	Two way-high quality products	Two way-similar products
Primary products for industry	93.03	5.97	1.00	0.00	98.86	0.17	0.97	0.00
Primary products for households	97.65	1.32	0.92	0.10	95.85	2.96	1.05	0.14
Processed products for industry	88.35	2.17	2.42	7.06	85.53	3.09	10.00	1.38
Processed products for households	78.47	3.53	17.61	0.39	83.53	2.58	13.75	0.13
Primary industrial supplies	85.24	3.17	11.53	0.07	92.42	1.90	5.18	0.50
Processed industrial supplies	86.71	1.61	9.82	1.86	86.88	1.09	12.00	0.03

Source: Own computations based on data from Slovene Statistical Office.

during the analysed period, suggesting specialization between industries rather than within the similar industry on the time scale. Despite the gradual trade liberalization, which should tend to lower prices of protected products through increased competition, these developments stay rather mixed for sensitive agri-food products. Before the entry into the EU, some protection measures still shielded sensitive agri-food products. Due to this, expected market structure transformations to foster more efficient use of resources did not fully occur.

Concerning the evolution of trade types and developments in the GLIIT, on the time scale from 1996 to 2002, the following patterns are observed (detailed computations available by authors): the one-way trade to a certain extent prevails in the case of processed products compared to primary ones, while the GLIIT index indicates the significance of the two-way trade in the processed products. The observed indicators behave relatively stable, and with very high share of the one-way trade for both sectors, suggest a specialization along lines of comparative advantages. Some deviations can be seen in the category of processed food and beverages for intermediate consumption: in this group of products imports from the EU-15 increased from 46% in 1996 to 60% in 2002, while imports from the CEFTA countries decreased substantially (from 26% to 16%). On the export side, the share of ex-Yugoslav markets raised substantially compared to other countries. Unlike to our theoretical expectations, that the Slovenian adjustments towards the EU membership will increase IIT at the expense of inter-industry trade, as it was the case with Spain and Portugal, where the rise of IIT began well before their entry to the EU, our empirical results for Slovenia do not confirm this trade pattern. However, there are some factors and circumstances that explain this diverging trade pattern more in-depth (see Bojnec and Hartmann 2004). Likewise, the fragmented structures hinder efficiency in the agricultural sector as well as in the food processing industry. The latter was also burdened with rather slowly privatisation and restructuring processes. The expected changes in patterns of trade, trade types and trade specialization in agri-food trade in Slovenia in the near future are likely to depend on the extent of structural changes within the sectors. Perhaps this could partly be explained by the size of the market: the greater the market, the greater opportunities for varieties and qualities. We consider Slovenian market as small, not just in terms of inhabitants, but also primarily by the relatively low importance of Slovenia in the global markets. Slovenia is certainly not a big player in the global agri-food markets and thus changes in Slovenian markets do not cause changes in global ones. As far as the inter-industry trade specialization is concerned, the country size and their differences across countries do matter. Small countries are less likely to produce and trade greater varieties of different product groups, as it is more often for large countries. Small and open countries rely more on niche products and product categories with comparative advantages to utilize economies of scale in domestic and international markets.

Although Slovenia entered in free trade agreements and began adjustments towards the EU in 1990s, agriculture and the food sector remained rather protected. High levels of government support did not decline even during the regional integration process. The protectionist measures were either maintained or were transferred from market-price support towards direct payments. Due to protectionist and government transfer policies in the past, some distortions within certain sectors and between them have resulted in market and trade distortions, which have become more visible when the borderless SEM become reality also for Slovenia. For products, where the distortions prior the accession in the borderless SEM was relatively significant one should expect that such markets and sectors will face the greatest adjustments pressures. This is also clearly illustrated for certain agricultural products and food processing branches most recently (see UMAR 2005). The most protected branches in the past are often the least prepared for the open competition. Their income reductions are often more considerable.

Tables 3 and 4 clearly indicate the predomination of vertically differentiated IIT over IIT types with horizontally differentiated products. These developments imply sizeable costs that might occur due to the specialization in the diversified quality varieties (high or low) within the similar industries. If the future development follows a path with the increase of inter-industry trade (or keeping the large proportion of such trade types, as in the case of Slovenia), this trade specialization between rather than within industries would be seen not just in the traditional light of comparative advantages, but also from the agglomeration (EU) economy point of view, where NMS and regions would exhibit a high degree of industrial specialization. But, as Diaz-Mora (2002) explained, the EU integration promotes an IIT commercial specialization, with mentioning the cases of Greece, Spain and Portugal in the previous enlargement. These countries have converted their trade to IIT in much greater extent than the previous old EU member states. On the other hand, it should be stressed that these results were related to the aggregated trade for the economy as a whole. In the case of agriculture and to a lesser extent of the food processing industry patterns in development are more mixed. One reason, particularly for agriculture, relates to the relatively immobile production factors such as land. In Slovenia, for example, the frequency of land transaction is around 1% (Lerman 2004). Yet, the production processes in agriculture are in the large extent influenced by external, often unpredictable factors such as unfavourable weather conditions, disease occurrences, and the labour force, which is especially in the agricultural sector often less skilled and formally less qualified.

Trade geography and trade patterns over time are influenced by different causes, such as political and economic factors as well as historical and cultural linkages. Greater geographical trade diversification in Slovenian trade became visible during the 1980s when the economic slowdown of the former Yugoslav economy occurred and due to political reasons some trade barriers were introduced in inter-republican trade within the common former Yugoslav state. This inter-republican trade diversion with the gradual reorientation of trade towards the Western markets was more substantial for different non-food manufactured goods than for agri-food products. Agricultural and food imports from abroad (i.e., other than the former Yugoslav markets) were hindered by border measures in forms of set tariffs and high levels of special import levies. These protectionist import measures hindered imports and thus shielded domestic

agri-food production. During that period inter-republican agri-food trade flows among the former Yugoslav republics remained dominant. Slovenia purchased from the former Yugoslav republics mainly primary products such as cereals from Croatia and Serbia, while exported some processed products to these markets (Bojnec and Hartmann 2004). After the Slovenian independence in 1991, imports of agri-food products from the EU countries have increased, while the former Yugoslav markets have still remained pivotal destination for Slovenian agri-food exports. Slovenian exports of agri-food products thus still reveal rather unusual picture. Due to expected Slovenian integration into the EU, one should expect the increasing efforts in export orientation towards the EU markets. However, the empirical evidence for Slovenian agri-food trade does not confirm this generally expected pattern. Instead of increasing exports towards EU market, Slovenian agri-food exporters have continued with sales mainly towards the former Yugoslav markets. Prior to the EU accession, Slovenia even expanded its agri-food exports to these former Yugoslav markets. This export orientation towards the former Yugoslav markets can be explained by stipulated bilateral free-trade agreements between Slovenia and some of the former Yugoslav states (e.g., the Former Yugoslav Republic (FYR) of Macedonia,

which are becoming less attractive for agri-food exports from Slovenia. Therefore, Slovenian traders are now in a need to adjust their marketing and selling strategies, which have occurred with policy changes induced by the membership in the EU. It is a bit surprisingly that these policy changes have found Slovenian agri-food exporters rather unprepared.

As seen in Figure 2, Slovenia exported only 23% of agri-food exports to the EU in 2002, and almost three quarters to the other countries, namely to the ex-Yugoslav markets. Being the constituent part of the same former Yugoslav state until 1991, this may explain that historical links, similar language and common border (with Croatia) are probably the reasons for this persistence in Slovenian agri-food export orientation to the traditional former Yugoslav markets. So, the costs of agri-food export disintegration from these markets can be potentially high. On the other side, there are now new opportunities for greater trade and export creation with the EU markets. Slovenia also fixed the exchange rate with Euro, which provides greater monetary stability with most of the EU markets, which are using or have fixed their exchange rates with Euro. As Rose (1999) reported, two countries using the same currency they trade three times more with each other than two comparable countries using separate currencies.
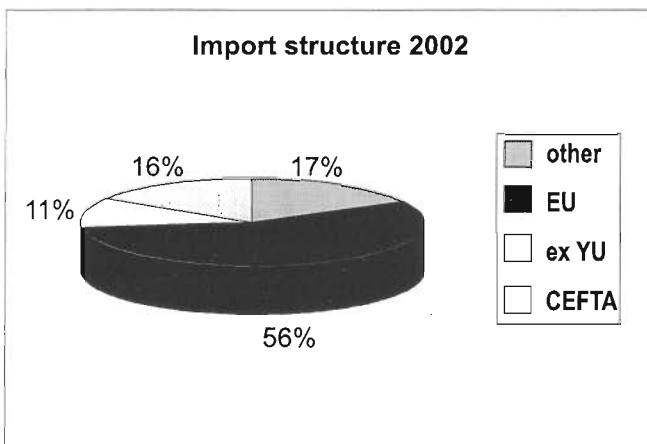
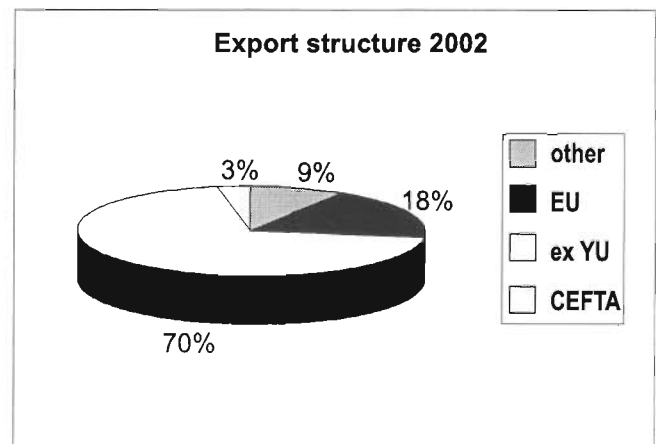Source: Own computations based on data from Slovene Statistical Office

Fig. 2. Geographical trade patterns of Slovenian agri-food exports and imports in 2002.

Croatia, Bosnia and Herzegovina (BH)). These agreements since the second half of the 1990s have provided incentives for exports of Slovenian agri-food products to these markets. With the entry of Slovenia into the EU and the introduction of the EU common trade policy measures, the Slovenian preferential trade status at the former Yugoslav markets is abolished. Having this in mind, Slovenia is now considered as the EU member country with the application of full import protection measures at the markets of BH and FYR of Macedonia. As import duties on EU imports are higher than they were prior, Slovenian exports are facing the increase of import duties. Less change in import duties have occurred in exports to Croatia due to its special pre-accession trade agreement with the EU. Fewer changes in trade regimes are also with Serbia and Montenegro, because Slovenia did have a special agreement with these markets. Consequently, Slovenian agri-food export competitiveness has particularly deteriorated on the markets with BH and FYR of Macedonia,

To summarize, the structures and patterns in Slovenian agri-food trade are still different compared to the EU-15 member states. It is known from literature that IIT in similar products and its horizontal component increases with the size of the country. The increasing size of the country leads to trade of a greater variety. The differences in the size of trading partners inhibit this trade as the potentials for welfare gains in variety. The second factor, which counts in favour of the mentioned trading IIT type, is the standard of living: the richer the country, the higher the income per capita, and the greater demands by consumers for variety and differentiation in similar products. Along with trade liberalization, economic integration and economic growth there is expected an increase in trade in similar products. On the other side, it would be possible to assume that Slovenian trading partners are characterized by their different size and different factor endowments. According to these differentiations, these would provide more opportunities for specialization in

inter-industry type along comparative advantage. Of course, the increase in inter-industry specialization would reduce IIT further. Differences in the country size might lead to mono-location of industries, if external economies of scale or agglomeration economies play an important role. The presence of the latter factors often leads to increase of inter-industry trade.

Tables 5 and 6 compare Slovenian agri-food trade with the rest of NMS, which entered into the EU on the 1st of May 2004. The agri-food trade composition of the NMS-10 of the EU reveals the predominant role of Hungary and Poland in the EU-15 agri-food trade. In 2003, Hungary and Poland were the greatest exporters (among the NMS-10) of primary products (products with lower degree of value

Table 5. Agricultural and food trade structures of the NMS-10 by the value-added content in the EU-15 markets (in per cent), 1999 and 2003.

| | 1999 | | | | 2003 | | | |
| | Primary products | | Processed products | | Primary products | | Processed products | |
	X share	M share	X share	M share	X share	M share	X share	M share
Malta	0.35	2.41	1.48	4.22	0.53	2.08	1.35	3.44
Estonia	2.07	2.96	3.16	4.96	1.09	3.76	4.66	5.18
Latvia	0.71	3.00	1.81	5.04	1.40	4.63	2.23	5.21
Lithuania	3.00	4.42	5.87	6.23	8.27	5.31	5.74	6.22
Poland	30.51	41.57	34.35	29.48	33.50	32.45	34.20	27.42
Czech Republic	12.47	18.27	16.58	18.64	10.89	20.86	15.21	19.81
Slovakia	4.84	7.22	6.64	9.6	5.45	8.17	6.09	8.94
Hungary	40.7	9.03	24.46	10.03	34.75	11.08	25.93	13.05
Slovenia	2.84	7.52	4.19	7.18	1.69	7.41	3.46	6.48
Cyprus	2.50	3.59	1.46	4.61	2.41	4.25	1.12	4.24
Total NMS-10	100	100	100	100	100	100	100	100

Note: X – export and M – import.
Source: Own computations from Eurostat's Comext database

added compared to processed ones) to the EU-15 market. In the case of imports of the primary products, Poland is again the leading NMS-10, with the substantial share of the Czech Republic at the second place. Very similar structures are found for the most important trading partners in the case of processed products.

A very high proportion of one-way trade represents the common characteristic of NMS-10 agri-food trade. In most cases it is even higher than 90%. The lowest proportion of one-way trade is found for the Slovak Republic[2], where almost one third of its trade is characterised by a two-way trade, which is either horizontally or vertically differentiated (high and low quality) IIT. The example of the Slovak Republic seems to be the closest to the EU-15 average trade type structures in agri-food trade in the intra-EU-15 trade. The Slovak trade type structures are likely to be biased in a great extent towards trade with the Czech Republic, while the latter is oriented more towards the EU-15. Possible explanation of this development pattern is that the higher proportion of both IIT in vertically and in horizontally differentiated products is often arising from the country similarities in factor endowments and similar preferences

Table 6. Trade types (in percentage) in agricultural and food products for NMS-10 in 2003.

	Two way trade in similar products	Two way trade in low quality	Two way trade in high quality	One way trade
Malta	1.13	0.58	0.60	97.69
Estonia	4.90	1.71	3.39	90.00
Latvia	1.74	8.81	2.02	87.43
Lithuania	2.55	1.88	3.85	91.72
Poland	0.86	2.99	2.53	93.62
Czech Republic	5.41	6.87	6.09	81.64
Slovakia	8.32	11.86	7.52	72.29
Hungary	1.43	3.38	2.66	92.54
Slovenia	1.87	2.19	3.15	92.79
Cyprus	0.11	0.55	1.30	98.04

Source: Own computations from Eurostat's Comext database.

[2] *Gaulier and Zignago (2004) report on the basis of the analyses using the BACI Database (CEPII, 2005; available at http://www.cepii.fr/anglaisgraph/bdd/baci.htm) the following structures of trade types in overall trade for the Czech and Slovak Republics: one-way trade 50% and 68%, respectively, and two-way trade in vertically differentiated products 40% and 25%, respectively. Their report included also other NMS: Hungary, Lithuania and Poland. Their share of one-way trade was in general higher, up to 86% for Lithuania.*

and tastes by the consumers. The relatively high proportion of one-way trade, which prevails in the case of the NMS-10 (a declining trend is most noticeable in the case of the Czech and Slovak Republics), indicates gains arising from the specialization. They can be derived from greater exploitation of scale economies. On the other side, in the case of IIT the gains are likely to be encouraged by exchanges in product varieties and their qualities which also depend on

the consumers' preferences. The higher the share of IIT, the greater is external integration of a certain product category, and thus the lower are expected pressures and related adjustment costs arising from further trade liberalization. And vice versa, the restructuring and reallocation of production factors across industries would be much more painful as such processes requires not only adjustments along the product differentiation within the certain product lines, but particularly movements of production factors, their reallocations and restructuring between different industries.

CONCLUSIONS

IIT denotes simultaneous exports and imports of products that are very close substitutes for each other in terms of factor inputs and consumption (Tharakan and Calfat 1996). Important determinants of prevailing IIT are similarity of factor endowment between trading countries, the prevalence of product differentiation and economies of scale. GLIIT index for IIT in the similar products imply degree of external integration, which on the short-term does not require particular specialization efforts or displacement of resources across different industries. This IIT pattern is often observed in trade among countries with similar factor endowments as well as among countries with small economic distances. In such case, adjustment costs, factor mobility and income distribution are changing less substantially. Similar findings and conclusions are derived for agri-food trade of the NMS-10, including for Slovenia, where IIT type in agri-food trade flows is not very frequent. On the contrary, the most of agri-food trade in the NMS-10 is characterized by the prevailing inter-industry trade. However, when interpreting trade results, too detailed system of products' classification at very disaggregated data level might cause relations between separate commodities that are good substitutes in production. This problem may arise when there is no unique criterion used for re-grouping of commodities within the classification systems used for reporting international trade data. So we should leave some room for assumption of different (a slightly higher) proportion of IIT among countries analysed. But even in this case, the persistence of NMS' high share of inter-industry trade implies that their trade in agri-food products is specialized. Their trading partners may not be similar countries in terms of economic distance. They may trade more with economically remote, not necessarily less developed countries, but surely countries with different factor endowments and/or different degree of competitiveness of theirs agri-food sectors. So one should interpret the EU-2004 newcomers more as developing rather than developed – at least in the case of agri- food trade. However, the EU membership, joining the SEM and thus reduction of trade obstacles is more likely to influence the increase of IIT. This expected development pattern should have implications for the EU trade policy, where more than one third of agri-food trade in the current EU-25 members is represented by NMS-10.

When comparing these NMS-10 trade developments with the previous EU enlargements (most notably enlargement with Spain, Greece and Portugal), some lessons can be learned and derived. As Fontagne et al. (1997) report,

the proportion of IIT has increased since the mid-1980s: thus, on the whole, this evidence does not support a possible scenario of concentration of industries in a limited number of countries. More precisely, within IIT, the share of trade with varieties remained more or less stable, whereas the share of trade with qualities has increased rapidly and is during the last decades the most important trade type in intra-European trade. As a result, the deep integration of European economies did not imply deep specialization. Nevertheless, the importance of IIT in qualities and less varieties suggests a qualitative division of labour within the EU, with adjustments taking place within industries along the quality spectrum, rather than between industries. In the last decades countries such as Ireland and Germany were in general specialized on high quality products, whereas Southern member states were specialized on the low and medium quality segments. Will this path continue in the future with the NMS-10? It is not easy to draw conclusions on future trade developments. But when analysing the respective agri-food sector and its trade performance, the scepticism in some NMS-10 remains, including Slovenia. Therefore, huge efforts should be made to increase competitiveness of the agri-food sector in the NMS-10.

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