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The impact of ten years of European Union membership on Hungarian agricultural trade

The main objective of this paper is to analyse the impact of European Union (EU) membership on Hungarian agricultural trade with the EU-27 in the period 2003-2013, based on our own calculations using the latest statistical data. We concluded that the agricultural orientation of Hungarian foreign trade and the export orientation of the agricultural sector have strengthened during these ten years. Hungarian agricultural trade with the EU-27 grew dynamically, with expansion of exports being accompanied by increasing import penetration. As a result of the three-fold export and import value growth, the EU-27 became the leading market for Hungarian export products (with an 80 per cent share) and the main source of imports (with a 91 per cent share). While, owing to low competitiveness, the Hungarian export commodity structure is dominated by raw materials and semi-processed goods, the import structure is rather diversified, though processed goods oriented. The share of the Member States that joined the EU from 2004 onwards has increased to almost 40 per cent in Hungary's intra-EU agricultural trade, at the expense of the EU-15. Following a post EU accession deterioration, the balance of Hungary's agricultural trade with the EU had improved to a record of EUR 2.7 billion by 2012.

Keywords: EU accession, Hungarian agricultural trade, trade balance, commodity structure, geographical structure

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Introduction

Hungary, together with nine other countries, joined the European Union (EU) in May 2004. Owing to its importance in the economies of the newly acceded Member States (its contribution to GDP, trade, consumption, employment and rural livelihoods is above the EU average), and the fact that agriculture and rural development is still the biggest item of expenditure in the EU budget, agriculture was one of the most hotly debated and negotiated parts of the accession process (Vajda, 2014). The agricultural productivity and competitiveness of the new entrants lagged behind those of the EU-15 (Csáki and Jámbor, 2012) and they had great expectations concerning EU accession.

As a country with huge agro-potential and a high degree of export orientation, Hungary was looking forward to EU accession, especially in the field of trade in agricultural products. On the one hand, significant export expansion was expected due to (a) increasing output generated by the catching up of agricultural producers' prices and by direct payments providing incentives to the expansion of production; (b) gaining free and unlimited access to the still enlarging single market of around half a billion consumers; and (c) capitalising on the intervention and export refund systems of the Common Agricultural Policy (CAP). On the other hand, there were some reservations concerning the deterioration of the agricultural trade balance as a consequence of increasing import penetration and/or sluggish export growth due to fierce competition in the single market and the low competitiveness of some Hungarian export goods. The increasing share of raw materials in the exports and that of processed goods in the imports were also expected due to the biased nature of the EU support system and the differences in competitiveness.

As ten years have now passed since EU accession and agricultural trade still plays a prominent role in the Hungarian economy, this paper assesses and analyses the impact of EU membership on Hungarian agricultural trade with the EU-27 in the period 2003-2013.

Literature review

While many studies speculating about the possible impacts of Hungary's joining the EU were made prior to EU accession, the first in-depth analyses of these impacts of course appeared only afterwards.

In several papers, Csáki and Jámbor (2009, 2010, 2012, 2013a, 2013b) concluded that for the New Member States (NMS) accession to the EU had an overall positive impact on trade, but that different Member States performed differently due to the big differences in initial conditions and to the diverse pre- and post-accession agricultural policies. EU accession provided many opportunities, but the NMS had to face increasing competition in the single market. With the exception of Hungary and Poland, EU accession resulted in increased trade deficit in agricultural products. The share of raw materials in agricultural exports increased, while agricultural imports became dominated by processed goods. Similarly, Kiss (2011) found that, though the enlarged EU provided markets for the agricultural products of the (twelve) NMS, the competition on their domestic markets increased significantly, resulting in massive import penetration. Consequently, in most of the NMS the agricultural trade balance deteriorated considerably.

Some other studies (Artan and Lubos, 2011; Bojnec and Fertő, 2012; Jámbor, 2013) analysed the agro-food trade of the four 'Visegrad' countries (the Czech Republic, Hungary, Poland and the Slovak Republic) from the point of view of their competitiveness, trade advantages and specialisation. Their results show that the intensity of V4 agro-food trade, the value and volume of export and import activities increased significantly after EU accession, but that the trade balance with the EU-15 deteriorated in most cases, and the comparative advantages of these countries decreased. Comparative advantage stability weakened.

An early study analysing the impact of EU accession on Hungarian agro-food trade (Kiss, 2007) concluded that Hungary's trade position had deteriorated after accession due not so much to insufficient export growth but rather to

a sharp rise in imports. By 2006 the country's total trade balance with the EU-24 had become negative. From an examination of Hungarian agriculture in a broader context by Kapronczai (2010), it became clear that the importance of agriculture and food industry had increased in Hungarian foreign trade, the share of the EU-27 had also grown, and the foreign trade balance had improved mainly due to trade with the NMS. Based on evidence from the last ten years, Vajda (2014) showed that despite many difficulties the Hungarian agro-food sector had successfully managed the challenges of EU accession: between 2003 and 2012 Hungarian agricultural output increased by 53 per cent, net value added by 77 per cent and agricultural exports by 183 per cent.

Jámbor (2011) analysed Hungary's post-accession agricultural trade with the EU-15 using the method of revealed comparative advantages. EU accession increased the intensity of agricultural trade, though it had a detrimental effect on trade balance due to more intense import growth. Hungary's exports became dominated by low value added raw materials (where the country had revealed comparative advantages), while imports consisted of high value added processed goods (where Hungary had comparative disadvantages). Short- and long-term stability examinations suggest increased competition in EU-15 markets. These analyses supported the need for structural reforms and increasing competitiveness.

Jámbor and Vásáry (2014) dealt with Hungary's agricultural trade in relation to all EU Member States in the period 2001-2012. Since accession the share of the EU in Hungarian agricultural trade has increased to 85-90 per cent. The main export markets have been Germany, Romania, Slovakia, Italy and Austria, while most agricultural products have been imported from Germany, Poland, the Netherlands, Slovakia and Austria. The major export products were cereals, meat, oil seeds, food industry residues and waste, and preparations of fruits and vegetables, while the main import products were residues, meat, milk, other foodstuffs and cereal preparations. The results of revealed comparative advantages showed that only three product groups (live animals, cereals and residues) out of 24 product categories had comparative advantages in all of the years analysed. Eighteen product groups experienced a decrease in comparative advantages, indicating a deterioration of competitive positions.

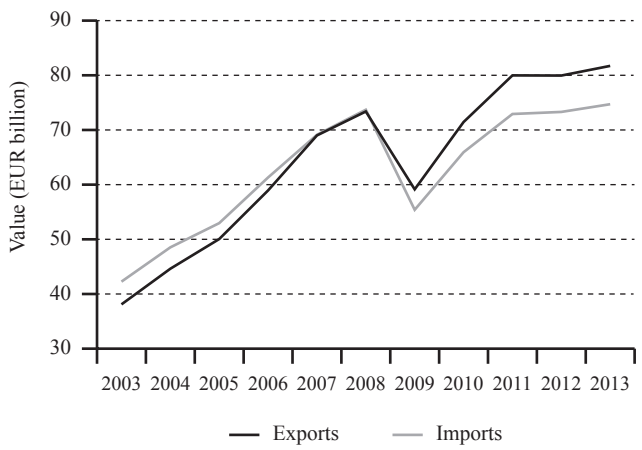

Figure 1: Hungarian total exports and imports, 2003-2013.
Source: KSH data

Many of the above papers are now becoming outdated and/or were published in the Hungarian language. Our analysis of the impact of EU accession on Hungarian agricultural trade with all (27) EU Member States covers (a) export and import performance; (b) the trade generating effect of EU accession; (c) the agricultural trade balance; (d) the changing production and geographical structure of agrarian trade; and (e) the main causes of these changes over the ten year period to 2013, and identifies some issues that require further research.

Methodology

Hungarian Central Statistical Office (KSH) datasets for the years 2003-2013, which are in full conformity with the Eurostat database, for growth rates, value indices, market shares, trade balances, geographical distributions, and export and import product structures have been compiled to cover the whole post-accession period. Analytical description methods have been applied to achieve the research objectives.

'Agricultural products' means the product categories 01-24 of the Combined Nomenclature used in both the external and the intra trade statistics of the EU. Therefore, it allows for comparison with all other EU Member States. The terms 'agricultural trade', 'agrarian trade' and 'trade in agricultural goods/products' are used interchangeably. All currency values are given in EUR.

By EU, the paper means the EU-27 as Croatia only joined in July 2013. For the sake of comparability, data for all 27 Member States have been taken into account irrespective of the year of accession. EU-15 refers to the countries that were Member States prior to 2004, while EU-12 denotes those which joined the EU either in 2004 or in 2007. Though the data are from official sources, in some cases their reliability/accuracy can be questioned. This is indicated where necessary.

Results

Total Hungarian trade

Between 2003 and 2013 total Hungarian *exports* increased from EUR 38.10 billion to EUR 81.72 billion (Figure 1). The growth was positive until the 2008 financial and economic crisis, then a significant drop occurred prior to recovery. During this period, total imports grew from EUR 42.26 billion to EUR 74.71 billion. Again, the value of *imports* increased until 2008 when the economic crisis (i.e. decreasing domestic demand) affected the import growth. After the crisis import values started to lag further behind export values, resulting in an improving trade balance. Until 2009 Hungary had a negative trade balance in its total trade. After the outbreak of the crisis trade balance started to improve mainly due to sluggish import growth. Since 2009 Hungary has had an increasingly positive trade balance and in 2013 this reached EUR 7 billion.

Total Hungarian agricultural trade

Between 2003 and 2013 Hungary's agricultural *exports* grew from EUR 2.85 billion to EUR 8.09 billion, i.e. more dynamically than Hungary's total exports. In the meantime total agricultural *imports* also grew significantly, from EUR 1.49 billion to EUR 4.43 billion, three times more intensively than Hungary's total imports and a little more dynamically than Hungarian agricultural exports (Figure 2). As in 2003 the value of agricultural exports was almost twice the value of imports while their dynamics were rather similar, Hungary managed to maintain and even improve its positive trade balance in the case of agricultural goods: in 2003 the trade balance was EUR 1.36 billion and it increased to EUR 3.60 billion by 2013.

As Hungarian agricultural trade grew more dynamically than the country's total trade, the *share of agricultural products* in overall trade increased between 2003 and 2013: in the case of imports from 3.5 per cent to 6.0 per cent, and in the case of exports from 7.5 per cent to 9.9 per cent (reaching a record of 10.1 per cent in 2012).

Hungarian trade with the EU-27

Hungary's trade with the *EU-27* also grew dynamically: the country's *total exports* to the EU-27 between 2003 and 2013 increased from EUR 32.06 billion to EUR 61.88 billion, that is a 1.9 times increase compared to the 2.1 times increase of Hungary's total export growth. Hungary's imports from the EU-27 grew from EUR 32.79 billion to EUR 53.08 billion, a 1.6 times increase compared to the 1.8 times increase of Hungary's total import growth (Figure 3). Though the value of exports and imports were almost equivalent in 2003, as export growth outpaced import increase, Hungary's trade balance with the EU-27 improved, from -0.73 billion to +8.79 billion, however, the share of the EU Member States in total Hungarian exports and imports decreased between 2003 and 2013 from 84.1 per cent to 75.7 per cent, and from 77.6 per cent to 71.0, respectively.

Hungarian agricultural trade with the EU-27

Hungary's agricultural *exports* to the EU-27 increased from EUR 2.05 billion in 2003 to EUR 6.75 billion in 2013, that is, by 3.3 times, more dynamically than Hungary's total agricultural exports and Hungary's total exports to the EU in the same period. Agricultural *imports* from the EU-27 grew from EUR 1.25 billion to EUR 4.12 billion (Figure 4), also more dynamically than Hungarian total agricultural imports and total imports from the EU, suggesting the increasing share of the EU in Hungary's total agricultural trade and the increasing share of agricultural products in Hungary's trade with the EU-27. While Hungary's agricultural trade increased moderately until the outbreak of the economic crisis, and the trade balance in the case of agricultural products deteriorated, the situation significantly improved afterwards: the trade *balance* improved from 0.81 billion EUR in 2003 to 2.63 billion in 2013. In 2013 around 30 per cent of Hungary's trade surplus with the EU-27 derived from agricultural trade.

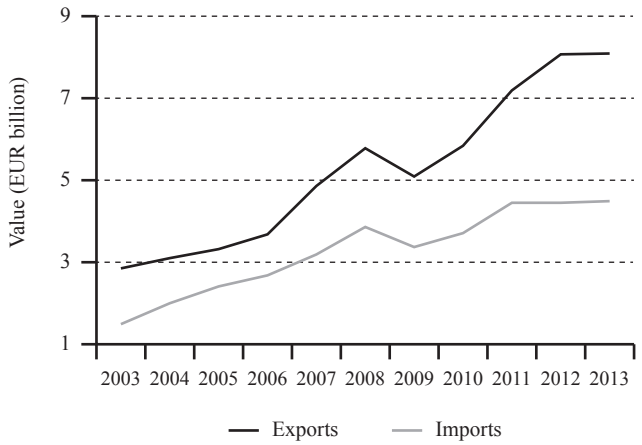

Figure 2: Hungarian total agricultural exports and imports, 2003-2013.
Source: KSH data

Figure 3: Hungarian total exports and imports with the EU-27, 2003-2013.
Source: KSH data

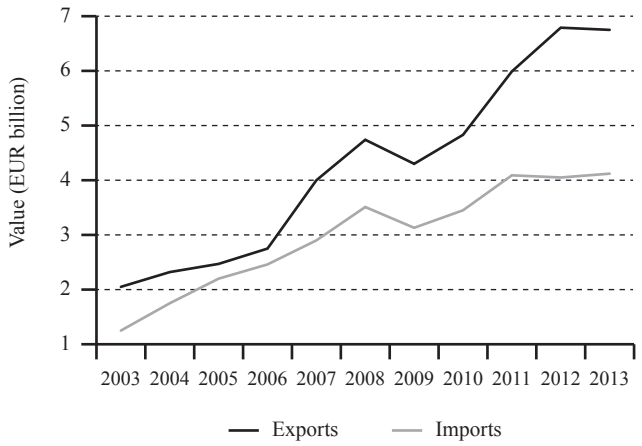

Figure 4: Hungarian agricultural exports and imports with the EU-27, 2003-2013.
Source: KSH data

As a consequence of the above changes, the *share of agricultural products* increased both in Hungary's exports to the EU-27 and in Hungary's imports from the EU-27. The share of agricultural products in exports increased from 6.4 per cent to 10.9 per cent, while the share of imports almost doubled, from 3.8 per cent to 7.8 per cent. Both figures are a little higher than in the case of total Hungarian exports and imports.

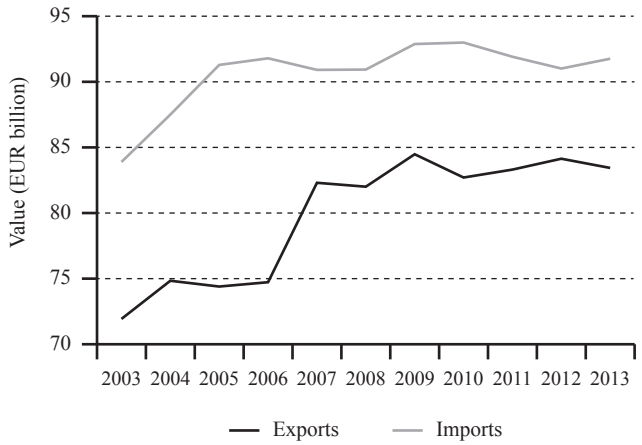

Figure 5: The share of trade with the EU-27 in Hungarian agricultural exports and imports, 2003-2013.
Source: own calculations based on KSH data

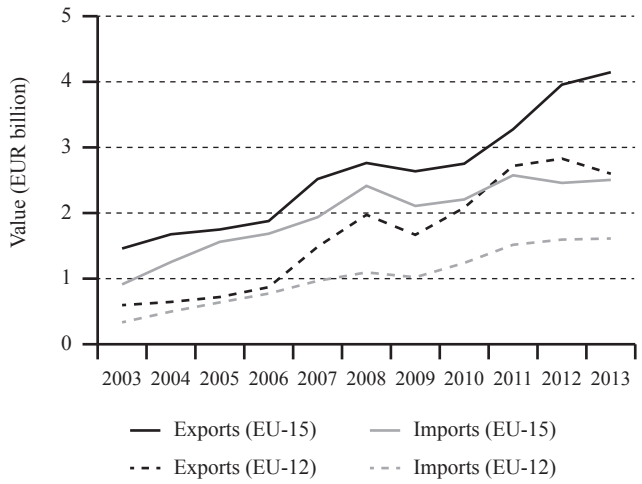

Figure 6: Hungarian agricultural exports and imports with the EU-15 and the EU-12, 2003-2013.
Source: own calculations based on KSH data

In addition, the *share of the EU-27* in Hungary's agricultural export and import trade increased significantly. In 2013 already 83.3 per cent of Hungary's agricultural exports were directed to the EU-27 (compared to 72.0 per cent prior to accession) and 91.6 per cent arrived from the EU-27 in 2013 compared to 83.4 per cent in 2003 (Figure 5).

Hungarian agricultural trade with the EU-15 and EU-12

Hungary's agricultural trade with the *EU-15* and *EU-12* performed differently. While in the former case Hungary's agricultural exports increased by 2.8 times between 2003 and 2013, in the latter case the increase was 4.4-fold, albeit from a much lower starting value (Figure 6). The equivalent figures for imports are 2.7 and 4.8 respectively. Consequently, the share of the EU-15 in Hungary's agricultural trade within the EU-27 decreased, in contrast to the share of the EU-12: while in 2003 71 per cent of Hungary's EU-27 agricultural exports were directed to the EU-15 and 29 per cent to the EU-12, by 2013 the share of the EU-15 fell to 61 per cent and the share of the EU-12 increased to 39 per cent. The respective figures in the case of imports are very similar: 73 per cent for the EU-15 in 2003 (27 per cent for the EU-12) and 61 per cent for the EU-15 in 2013 compared with 39 per cent for the EU-12.

Trade balances increased in favour of Hungary in both cases. While the agricultural trade balance with the EU-15 increased by 3.0 times, in the case of the EU-12 the increase was 3.8 times, and in 2013 almost 38 per cent of Hungary's agricultural trade balance with the EU-27 derived from its trade with the EU-12.

Product structure of Hungary's agricultural trade

In 2003 more than 30 per cent of Hungary's agricultural exports consisted of cereals and meat, and around two thirds of five additional product categories (animal fodder, preparations of vegetables, oil seeds, beverages, and fats and oils). The export commodity structure shows high concentration and relative stability (as was evidenced by Jámbor, 2011 for the period 1999-2010): in 2013 the same seven product groups covered 64 per cent of Hungary's exports to the EU-27 as ten years before, however, by 2013 cereals became the leading export product instead of meat (Figure 7).

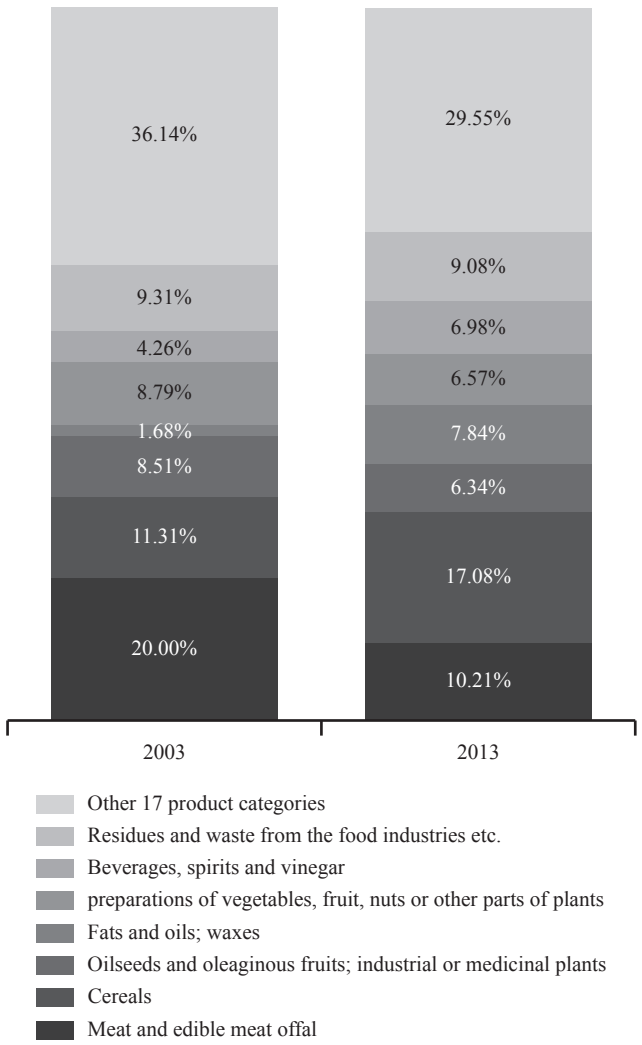

Figure 7: The changing commodity structure of Hungarian exports to the EU-27, 2003 and 2013.
Source: own calculations based on KSH data

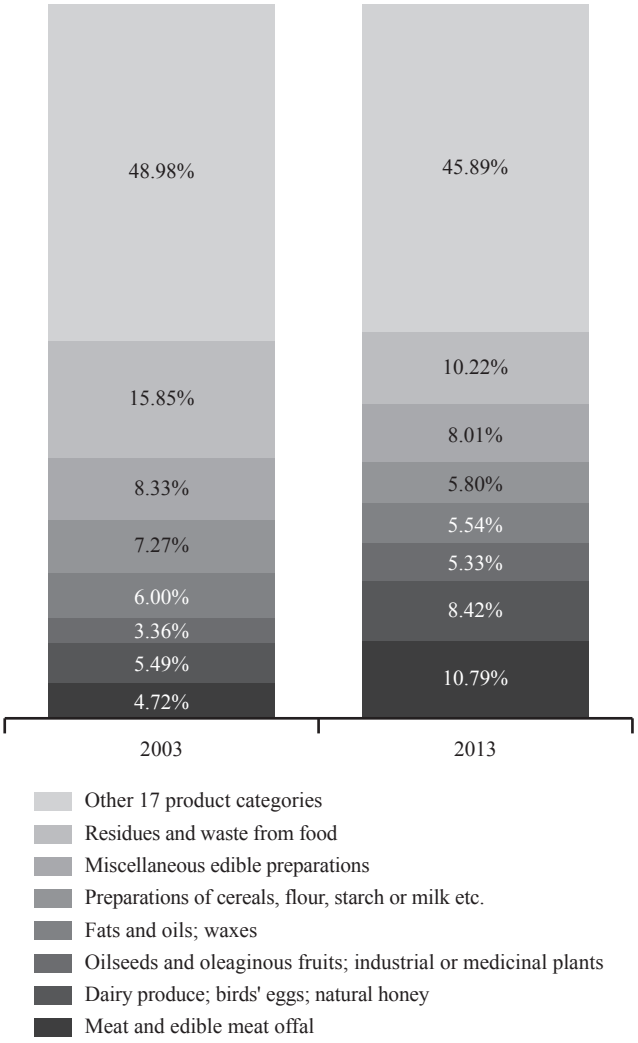

Figure 8: The changing commodity structure of Hungarian imports from the EU-27, 2003 and 2013.
Source: own calculations based on KSH data

The import structure is less concentrated: in 2013 the five most important product categories (meat, animal fodder, dairy products, fats and oils, and preparations of cereals) comprised 43 per cent of Hungary's agricultural imports from the EU-27 (Figure 8).

Hungary's main export and import partners in the EU-27

In 2003 (in decreasing order) Germany, Austria, Romania, Italy, the Netherlands and Poland were Hungary's most important *export markets* within the EU-27. These six countries provided markets for up to 67 per cent of Hungary's exports to the EU-27 prior to EU accession. By 2013 the share of the leading six markets increased to 70 per cent, and though Germany remained the main market, it was followed by Romania, Austria, Italy, the Slovak Republic and the Netherlands (Table 1).

In 2003 Hungary's main *import sources* were Germany, the Netherlands, Poland, Italy, Austria and Romania. These six countries provided 63 per cent of Hungary's imports from the EU-27. Though in 2013 Germany was still the biggest import source for Hungary, Poland became the second and the Slovak Republic the third partner, followed by the Netherlands, Austria and Italy. These six countries covered 70 per cent of Hungary's imports from the EU-27 (Table 2).

Discussion

The main objective of this paper was to analyse the impact of EU accession on Hungarian agricultural trade with the EU-27 in the period 2003-2013. This paper is among the first to cover the whole ten year period since EU accession and to analyse Hungary's trade not only with the EU-15 but with all 27 Member States. It attempts to provide an overall

Table 1: Hungary's main export markets in agricultural trade with the EU-27 (%).

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Austria	11.9	11.0	10.9	11.2	8.8	9.9	9.2	9.6	10.5	11.0	10.7
Germany	24.6	23.9	20.6	19.9	17.1	18.2	18.7	16.0	16.4	16.5	18.0
Italy	8.7	10.0	11.6	12.7	13.8	11.7	13.4	11.8	10.3	10.0	10.3
Netherlands	7.0	6.9	5.9		6.8		5.8	5.3		9.0	8.2
Poland	5.0	5.7	5.0	5.6	5.9	5.9			5.3		
Romania	10.2	7.5	7.9	7.7	14.3	17.4	16.0	16.5	14.0	14.0	13.3
Slovak Republic				6.1		7.2	8.0	11.9	15.7	12.2	9.4
Total*	67.4	64.9	62.0	63.1	66.7	70.3	71.0	71.0	72.1	72.6	69.9

* for the six most important markets
Source: own calculations based on KSH data

Table 2: Hungary's main import partners in agricultural trade with the EU-27 (%).

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Austria	6.8	6.4	7.0	7.8	7.8	9.0	9.1	9.1	9.5	9.1	9.0
Germany	18.7	21.5	25.0	24.6	24.8	23.5	24.1	22.9	22.4	22.0	21.4
Italy	8.1	7.1	6.9	6.5	6.9	7.1	5.8		5.9	5.7	5.6
Netherlands	15.7	17.0	15.2	12.9	12.1	14.7	12.9	12.5	10.2	9.1	9.1
Poland	8.5	9.8	13.2	14.9	13.6	13.1	13.1	13.9	12.2	12.2	12.8
Romania	6.2										
Czech Republic		7.1						5.3			
Slovak Republic			6.7	6.8	8.1	7.3	8.4	9.1	11.4	13.0	11.7
Total*	63.9	68.8	74.0	73.6	73.4	74.6	73.3	72.8	71.6	71.1	69.5

* for the six most important markets
Source: own calculations based on KSH data

picture of Hungary's agricultural trade based on the latest statistical data.

In the last ten years the agricultural orientation of Hungarian foreign trade and the export orientation of the agricultural sector could be evidenced as export values increased by 2.8 times, having reached a record level of around EUR 8.1 billion in 2013, and the share of agricultural products was around 10 per cent in 2013 (compared to 7.5 per cent in 2003). These changes are due to the increasing agricultural production resulting in a growing share of Hungarian agriculture in the EU's total agricultural output (this increased from 1.65 per cent in 2003 to 1.96 per cent in 2011 (Vajda, 2014)) and the increasing contribution of agriculture to Hungarian GDP. The share of agriculture in Hungarian GDP started to increase noticeably following the onset of the global economic and financial crisis: in 2010 3.5 per cent, in 2011 3.9 per cent, and in 2012 and in 2013 4.0 per cent of Hungarian GDP was generated by agriculture (Agrárgazdasági Figyelő, 2014).

This trend is welcome if it stems from capitalising on Hungary's agro-potential (high abundance of land and labour) and leads to the modernisation of the economy and the rural areas. However, it is a less favourable change if it (a) derives from the slower growth or downturn of the other economic sectors, (b) is due mainly to price hikes and good weather, and (c) results only from the quantitative increase (extensification) of agricultural output without structural changes and improving competitiveness (as in fact did happen, see Jámbor, 2010; Jámbor, 2011; Juhász and Wagner, 2013; Vásáry *et al*., 2013). All the more, as the main EU supports (direct payments, intervention system, the different market regimes) favoured bulk, raw materials production. As agricultural production is rather volatile due to weather conditions and climate change, Hungary's increasing agricultural export orientation might make the country's foreign trade balance vulnerable. In 2013 more than 50 per cent of the country's foreign trade balance was generated by agricultural trade.

While the above changes are only loosely related to Hungary's joining the EU, developments in its total trade with the EU-27 are closely related to EU accession, the foreign trade effects of which, however, should not be overestimated. As a result of the Association Agreement signed by Hungary with the European Community in December 1991 (Tracy, 1994), 92 per cent of the EU's market had already been liberalised prior to accession and very few market access obstacles remained (Kiss, 2007). Consequently, the process of dismantling trade barriers could not itself have a significant trade generation effect.

However, getting access to a permanently extending market as a consequence of the enlargement of the EU provided a growing market for Hungarian goods. Nevertheless, capitalising on unlimited market access highly depended on the competitiveness of the exported products[1] and the still existing 'indirect' (hidden) trade barriers. This is the reason why though Hungary's exports to the EU-27 almost doubled between 2003 and 2013, the share of the EU-27 decreased in Hungary's overall exports from 84.1 per cent to 75.7 per cent; that is, Hungary failed to fully utilise the market opportunities provided by EU accession and enlargement.

Not only have Hungarian exports grown rather moderately, but Hungarian imports from the EU-27 have done so too. This is partly due to the fact that by the time of EU accession already 85 per cent of the Hungarian market had been liberalised as an outcome of the Association Agreement. Consequently, after EU accession the share of the EU-27 in Hungarian total imports decreased, from 77.6 in 2003 to 71.0 per cent in 2013. As a result of this moderate import penetration, Hungary's trade balance with the EU-27 increased substantially, reaching around EUR 10 billion in 2010 and 2011, thus improving the country's current account balance and balance of payments situation.

In contrast to the overall trade, Hungarian agricultural trade with the EU-27 increased dynamically. A more than three-fold growth in the value of exports implies that Hungary produced enough agricultural goods for exports and made use of the enlarging market opportunities. All the more so, as prior to EU accession more trade barriers existed in the field of agricultural trade than in the case of trade in industrial products. Hungary's increasing specialisation on agricultural goods in its trade with the EU-27 is shown by the growing and high share of agricultural products (more than 10 per cent) in its overall trade with the EU-27. Whether this type of specialisation is a desired one, inherent in the country's endowments and comparative advantages, and/or an 'enforced' one, deriving from the conditions of EU accession and motivated by the interest of the EU is a topic for further research.

However, the question is still relevant: Are we witnessing the emergence of a 'colonial' type of 'division of labour' between the EU-15 and the Eastern EU Member States? Are the latter condemned to be exporters/suppliers of raw materials and unprocessed products while the EU-15 intend to keep their positions as exporters of high value added products? The question is all the more relevant as in 2003 47 per cent of Hungary's agricultural exports to the EU-15 consisted of raw materials, and this share increased to 56 per cent by 2010 after having reached 60 per cent in 2007. This might be explained by the decline of the food processing industry after EU accession. However, a good sign is that in 2012 and in 2013 the share of processed goods (animal products, vegetable oils, food products, drinks and tobacco) began to increase while that of the raw materials and crop products decreased (Szabó, 2014). The import structure has always been dominated by processed goods: agricultural raw materials accounted for 33 per cent of imports in 1999 and 27 per cent in 2010 (Jámbor, 2011).

One of the consequences of the vigorous growth in Hungarian agricultural exports is that Hungary has become highly dependent on the EU-27 as an export market: presently more than 80 per cent of Hungary's agricultural products are directed to the EU-27. This high degree of dependence might be dangerous if it is associated with high concentration of exports on a few product categories and/or partners. This danger is immanent: after analysing Hungary's agricultural export structure it is evident that it concentrates on a hand-

[1] For an analysis of the agricultural competitiveness of the Visegrad countries see Vásáry *et al*. (2013) and for the competitiveness of the Hungarian agri-food exports see Juhász and Wagner (2013).

ful of product groups: cereals (mainly maize and wheat) and meat products (pork, duck, chicken, turkey) account for more than one quarter of Hungary's exports to the EU-27, while seven product categories generate 64 per cent of them. The high concentration of Hungary's agricultural exports was confirmed by the finding of Jámbor and Vásáry (2014) that the five major product categories (cereals, meat, oil seeds, food industry residues and waste, and preparations of fruits and vegetables) provided more than 50 per cent of Hungary's agricultural exports to the EU27.

The leading role of cereals is quite evident as Hungary is traditionally a country where maize, wheat, barley, sunflower and oilseed rape production exceeds domestic demand. While the sowing area for maize and wheat remained stagnant after EU accession at 1.2 and 1.1 million hectares respectively (Potori *et al*., 2013), the oilseed area increased as a result of the expansion of the EU biofuel industry, providing a growing market for rapeseed. Consequently, the leading role of meat in Hungarian exports has been taken over by cereals. The falling share of meat was also caused by decreasing animal stock (by the end of 2011 the number of pigs had dropped to almost 3 million, being the lowest figure since 1949; Potori *et al*., 2013) and the crisis of the Hungarian meat industry induced among others by the reorganisation of the industry and the increasing fodder prices. Not to speak of the fact that the Single Area Payment Scheme and the national top-up system gave preference to crops, especially arable crops (cereals) production. The per-hectare direct payments amounted to EUR 70.2 in 2004 and 233.0 EUR in 2013 (Potori *et al*., 2013). Consequently, during the ten years of EU membership the share of crop production in total Hungarian agricultural production increased to 70 per cent, while the share of animal breeding fell to 30 per cent. The great (around 20 per cent) export share of cereals implies high volatility in Hungarian export revenues depending on weather conditions, all the more so as one third of Hungary's agricultural trade balance is generated by cereals exports (Varga and Kruppa, 2014).

Hungarian agricultural exports also depend to a great extent on the country's main markets: the degree of concentration remained unchanged after EU accession (with the leading six countries having a 67 per cent share in 2003 and a 70 per cent share in 2013). Germany is still the biggest market for Hungarian agricultural products, though with a decreasing share (25 per cent in 2003 and 18 per cent in 2013). Romania became the second biggest market as a result of the more than four times increase of Hungarian agricultural exports between 2003 and 2013. An interesting feature is the Slovak Republic's increasing share: in 2011 it became Hungary's second largest agricultural export partner and it was the third in 2012. Whether these trade flows are real or fictitious, and what role is played by the high tax burden (the VAT rate is 20 per cent in the Slovak Republic and 27 per cent in Hungary), tax fraud, tax evasion, low tax moral, lack of transparency in the taxation system (Potori *et al*, 2014) and illegal (black) markets in Hungarian exports to Romania and the Slovak Republic[2] needs further research.

There was a major fear in Hungary at the time of accession (Kiss, 2007) that the EU would be in a position to make better use of unlimited market access and there would be large import penetration. These fears turned out to be real in the first years of EU membership, however, later on Hungary's agricultural imports from the EU-27 became counterbalanced by its agricultural exports to the EU-27. Increasing imports can be explained by the higher competitiveness of EU agricultural products due partly to traditionally high subsidies of the EU-15 (Jámbor, 2013). The share of the EU in Hungarian agricultural imports was already rather high (more than 83 per cent) at the time of EU accession, but this had even increased by 2013, the EU having become the dominant supplier of agricultural products to Hungary with its 91.6 per cent share. This high dependence is counterbalanced by the diversified commodity structure of Hungary's agricultural imports from the EU-27: none of the product groups had a share that was higher than 11 per cent in 2013, and the top five product categories provided 43 per cent of Hungary's imports.

The sources of supply are rather concentrated: in 2013, 69 per cent of Hungarian agricultural imports from the EU-27 arrived from six countries (with a 20 per cent share of Germany). However, the above-mentioned high dependence on the EU sources is a little misleading as many products imported/arrived from the EU originate from outside the EU and is handled only statistically as imports from the EU (Szabó, 2013; Vásáry *et al*., 2013): the basis for registration is no longer the country of origin, but the country that forwarded the given product. Consequently, agricultural import items originating from developing countries (such as banana, coffee, cocoa, fish etc.) statistically appear as German or Dutch imports.

The other major fear at the time of EU accession was that as a consequence of increasing import penetration (which did happen), the Hungarian agricultural trade balance would deteriorate. Looking at data from the first years of EU membership (2004-2006) this fear was not without reason. Nevertheless, thanks to the accession of Bulgaria and Romania in 2007, afterwards Hungary's agricultural exports to the EU-27 increased and Hungary's trade balance improved significantly and grew without interruption (by 2012 it had reached a record of EUR 2.7 billion). However, it should be noted that 'only' 73 per cent of Hungary's overall agricultural trade balance is generated by Hungary's agricultural trade with the EU.

A further presumption concerns the relational trade diversion effect of EU accession in intra-EU agricultural trade from the EU-15 towards the EU-12. This has also been justified: while in 2003 71 per cent of Hungary's intra-EU agricultural exports were directed to the EU-15 (and 29 per cent to the EU-12), by 2013 the share of the EU-12 had increased to 39 per cent. As in the case of imports the same share had been reached by 2013, we may state that almost 40 per cent of Hungary's intra-EU agricultural trade is conducted with the newly acceded countries. Does it mean a 'back to the CEFTA' (Central European Free Trade Agreement, signed in December 1992) with a detour?

[2] Between 2003 and 2011 Hungary's agricultural exports to Slovakia increased from EUR 54 million to a record EUR 938 million (i.e. more than 17(!) times). Fourteen per cent of Hungary's EU exports consisted of sugar and another 14 per cent of cereals.

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