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Camelia GAVRILESCU

Institute of Agricultural Economics, Romanian Academy, Bucharest
cami_gavrilescu@yahoo.com

CONTRIBUTION OF PROCESSED PRODUCTS TO ROMANIA'S AGRI-FOOD TRADE BALANCE DEFICIT

ABSTRACT

Despite the significant efforts made by Romania in the post-accession period to increase the quantity, quality, efficiency and competitiveness of its agri-food products and thus become an increasingly important player in the European and international markets, it has not yet managed to achieve a positive agri-food trade balance. After accession, the ratio between basic agricultural products and processed products in agri-food trade has improved. The value of exports has increased significantly, both for basic agricultural products and for primary and secondary processed products. In recent years, the average share of processed products in exports has varied between 41–43%, of which one third are semi-processed products and two thirds are highly processed products. At the same time, the share of processed products in imports has been at 69–70%. This paper aimed to study Romanian agri-food trade in the post-accession period compared to the pre-accession period, by analysing the main trends and deficiencies that led to a quasi-permanent deficit, with a breakdown by product categories depending on the degree of processing.

Key words: agri-food trade deficit, post-accession, primary processed products, secondary processed products.

JEL Classification: Q17

1. INTRODUCTION

The analysis of Romanian agri-food trade has highlighted a series of positive developments in the post-accession period: a spectacular increase in trade flows (mainly in exports); an increase in market shares on international markets; a significant improvement in the quality, quantity and diversity of processed products (although insufficient to reverse the shares of processed products in exports and imports), and very importantly, to maintain the trade surplus with non-EU countries, starting with 2010.

The present study aims to analyse the Romanian agri-food trade in the post-accession period compared to the pre-accession period, by highlighting the main trends and deficiencies that led to a quasi-permanent deficit. The evolution of the values and structure of trade flows are analysed, with a breakdown by product groups depending on the degree of processing – basic agricultural commodities, primary processed products and secondary processed products.

2. STATE OF KNOWLEDGE

The main directions and composition of Romanian international agri-food trade flows in the transition and pre-accession period were analysed by Gavrilescu *et al*. (2005), Rusali (2006), Rusali and Gavrilescu (2008) and Gavrilescu (2019).

Comparative studies on differences in trade performance and competitiveness in the pre-accession period and in the first decade of accession for the New Member States were carried out by Fogarasi (2008), Ferto (2008), Csaki and Jambor (2015) and Gavrilescu (2018). Piglowski (2023) showed that despite the continuous growth in volume and value in the post-accession period, the shares of the New Member States in intra-community agri-food trade remained lower than those of the Old Member States.

For the post-accession period, various authors assessed the competitiveness of the agri-food trade of the New Member States, using a wide range of methods and indicators: revealed comparative advantage (Alexandri *et al*., 2002; Rusali & Gavrilescu, 2008; Torok & Jambor, 2013); intra-industry values and indices (Rusali, 2012; Jambor, 2014; Gavrilescu, 2022); constant market shares (Jankune *et al*., 2015); trade balances (Gavrilescu, 2018); unit values for export and import (Gavrilescu & Voicilaş, 2014; Jankune *et al*., 2015; Gavrilescu, 2023).

The most important feature of the international agri-food trade of the New Member States after the accession to the EU was the significant increase in the volume and value of trade. The structural changes that have occurred – mainly the trend of increasing exports of agricultural raw materials and imports of processed products – were analysed by Jambor (2014) for Hungary and by Gavrilescu (2014) for Romania. The present paper updates and completes these analyses.

3. MATERIAL AND METHOD

The data on international agri-food trade used in this paper were extracted from Eurostat, in the Combined Nomenclature (CN), at 2-digit level (HS chapters 1–24), at 4-digit level (203 HS subgroups 0101–2404) and at 6-digit level (where necessary) for the period 2000–2023, and Tempo-online for the period 1991–2001.

The paper considers and refers to several time periods: Ttz=1991–1999 (transition period), T0=2000–2006 (pre-accession period), Tpa=2007–2023 (post-accession period), divided in turn into three sub-periods: T1=2007–2011, T2=2012–2016 and T3=2017–2023. For the specific analysis of processed products, we used the methodology proposed by Jankune *et al*. (2015), which separates agri-food products into 3 categories: agricultural commodities (or basic agricultural products), primary processed products (or semi-processed products) and secondary processed products (or highly processed products). These last two categories combined give the total processed products.

Thus, the first category (basic agricultural products) includes 68 groups (4 digits CN), *e.g.*: live animals, live plants (trees, flowers), fresh fish, eggs, fresh vegetables, fresh fruits, cereals, oilseeds, tobacco leaves (Table 1).

Table 1

Classification of agri-food products (4 digits CN) in the 3 categories (selection)

Basic agricultural products		**Primary processed products**		**Secondary processed products**	
HS Code	**Product groups**	**HS Code**	**Product groups**	**HS Code**	**Product groups**
0103	Live swine	0203	Meat of swine, fresh, chilled or frozen	0405	Butter
0301	Live fish	0303	Fish, frozen	0406	Cheese and curd
0407	Birds' eggs	0403	Milk and cream, not concentrated	1517	Margarine
0603	Cut flowers, fresh or dried	0409	Natural honey	1601	Sausages
0701	Potatoes, fresh or chilled	0710	Vegetables, steamed or frozen	1602	Other prepared and preserved meat
0702	Tomatoes, fresh or chilled	0811	Fruit, steamed or frozen	1604	Prepared or preserved fish, caviar
0808	Apples, pears and quinces, fresh	0901	Coffee and coffee substitutes	1806	Chocolate and other products containing cocoa
1001	Wheat and meslin	0902	Tea	1902	Pasta
1002	Rye	0905	Vanilla	1905	Bread, pastry, biscuits
1003	Barley	1101	Wheat and meslin flower	2001	Vegetables and fruit preserved in vinegar
1005	Maize	1107	Malt	2007	Jams, fruit jellies, marmalades
1201	Soya beans	1512	Sunflower oil	2009	Fruit juices, unfermented
1205	Rape or colza seeds	1701	Sugar	2103	Sauces, prepared mustard
1206	Sunflower seeds	1804	Cocoa butter	2104	Soups and broths
2401	Unmanufactured tobacco	1805	Cocoa powder	2105	Ice cream
		2304	Soybean oilcakes	2203	Beer made from malt
				2204	Wine of fresh grapes
				2309	Pet food
				2402	Cigars, cigarettes

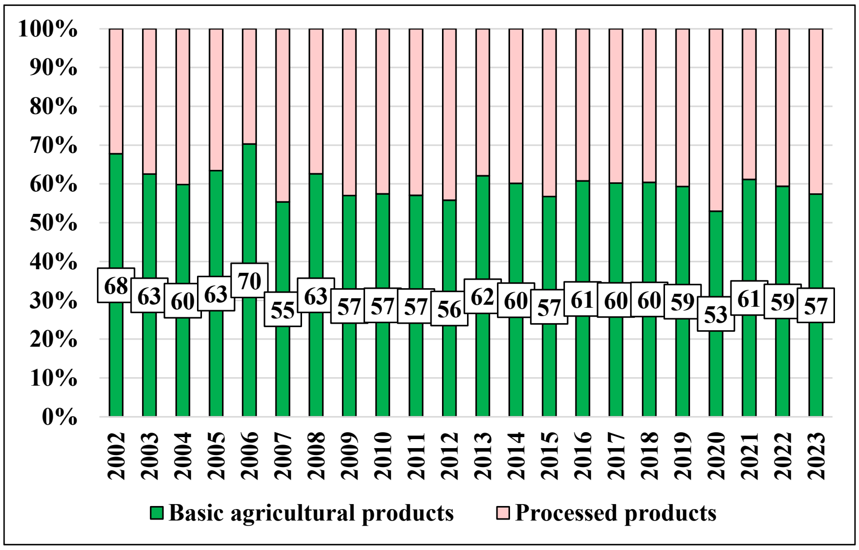
Source: Based on Jankune *et al*. (2015).

The category of primary processed products includes 92 groups (4 digits CN), *e.g.*: meat, liquid milk, cereal flour, edible oils, sugar, coffee, tea, dried or frozen fruits and vegetables, animal feed (oilseed meals - soybean, sunflower, etc.). These products require minimal processing processes, and although they can be consumed as such, they are often used as raw materials for other products with higher added value (secondary processed products).

Secondary processed products require more intense industrial processing. Thus, this category includes 43 groups (4 digits CN), *e.g.*: yogurts, butter, cheeses, chocolate, bakery and pastry products, wine, food preparations (sausages, soups, sauces), pet food, cigarettes, etc.

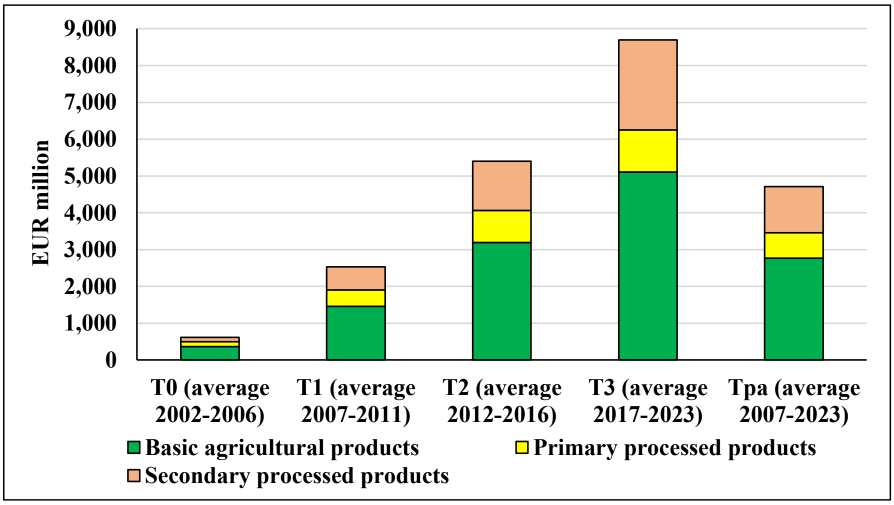
4. RESULTS AND DISCUSSIONS

The analysis of Romanian international agri-food trade by degree of processing shows that in the period T1 (2002–2006), basic agricultural products were predominant in exports (56–63%) (Figure 1). The variation is mainly due to the annual changes in exports of cereals and oilseeds.



Source: Calculations based on Eurostat data.
Figure 1. Share of basic agricultural products in Romanian agri-food exports (%).

If one compares the average values of exports from the pre-accession (T0) and post-accession (Tpa) periods, a significant increase can be noticed: 9.6 times. However, the three components had different growth rates (Tpa/T0): 9.5 times for basic agricultural products, 6.7 times for primary processed products and 13.3 times for secondary processed products (Figure 2).



Source: Calculations based on Eurostat data.
Figure 2. Romanian agri-food exports by degree of processing.

When analysing the share of the three categories of exported products, an obvious improvement between T0 and T3 is visible for secondary processed products only, which increased from 19 to 28%, to the detriment of primary processed products, whose share decreased from 21% in T0 to 13% in T3 (Table 2).

During this time, although in value terms exports increased significantly for all three product categories, the ratio between basic agricultural products and total processed products remained almost unchanged in the post-accession period (59%/41%).

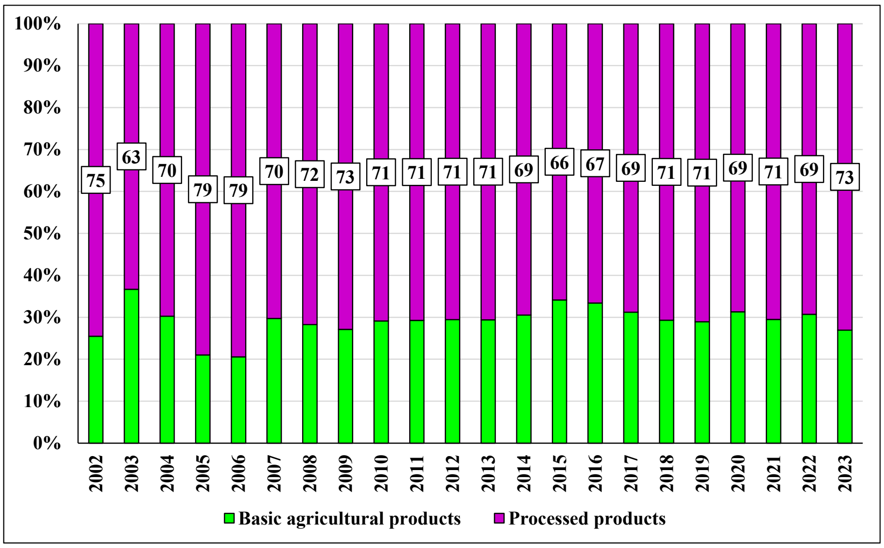
Table 2

Structure of agri-food exports by degree of processing (%)

Item	**T0 (average 2002–2006)**	**T1 (average 2007–2011)**	**T2 (average 2012–2016)**	**T3 (average 2017–2023)**	**Tpa (average 2007–2023)**
Basic agricultural products	60	58	59	59	59
Primary processed products	21	17	16	13	14
Secondary processed products	19	25	25	28	27
– total processed products	***40***	***42***	***41***	***41***	***41***
Total agri-food exports	100	100	100	100	100

Source: Calculations based on Eurostat data.

The analysis of agri-food imports by degree of processing shows that during the pre-accession period, processed products were predominant in imports (63–79%). During the period T3, the variation in the share of imported processed products decreased compared to T0, remaining within lower limits (69–73%) (Figure 3).



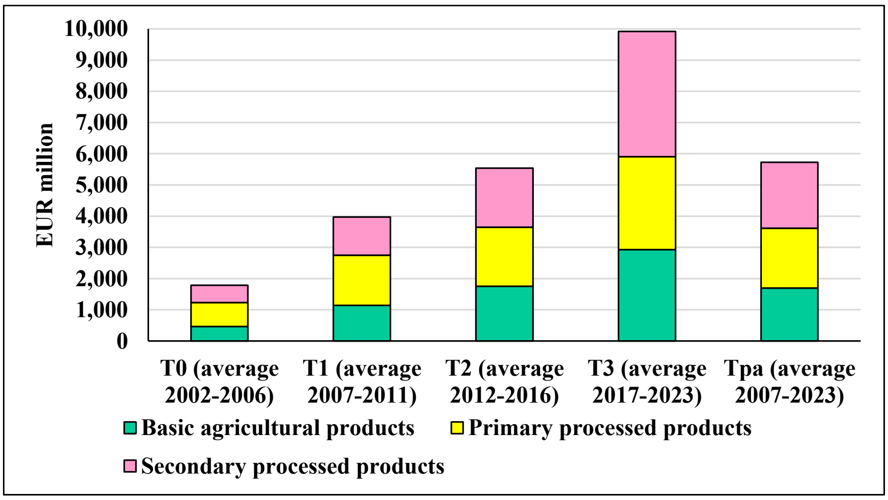
Source: Calculations based on Eurostat data.
Figure 3. Share of processed products in agri-food imports (%).

While in the structure of exports the basic agricultural products do not fall below 53% throughout the period 2002–2023, in imports they do not exceed 34% (except for 2003, when drought severely reduced the production of wheat and barley and exceptional imports were necessary to cover the domestic consumption needs).

When comparing the average values of imports in the pre-accession (T0) and post-accession (Tpa) periods, a much slower increase (3.8 times) can be noticed, as opposed to the 9.6 times increase in the value of exports. The three components had much slower growth rates than their export counterparts (Tpa/T0): 4.4 times for basic agricultural products, 2.9 times for primary processed products and only 4.6 times for secondary processed products (Figure 4).

When analysing the share of the three product categories in agri-food imports, an obvious improvement between T0 and T3 is visible for primary processed products, whose share decreased from 43% to 30%, while the share of imported secondary processed products increased from 31% to 40%, which points to the inability of the Romanian food industry to satisfy the increased demand of Romanian consumers for highly processed products, which is why increasingly large imports were necessary.

During this time, the share of basic agricultural products increased slightly in relative terms (from 26% to 30%) (Table 3), but much in value terms (with a multiplication factor of 6.3).



Source: Calculations based on Eurostat data.
Figure 4. Romanian agri-food imports by degree of processing.

Table 3

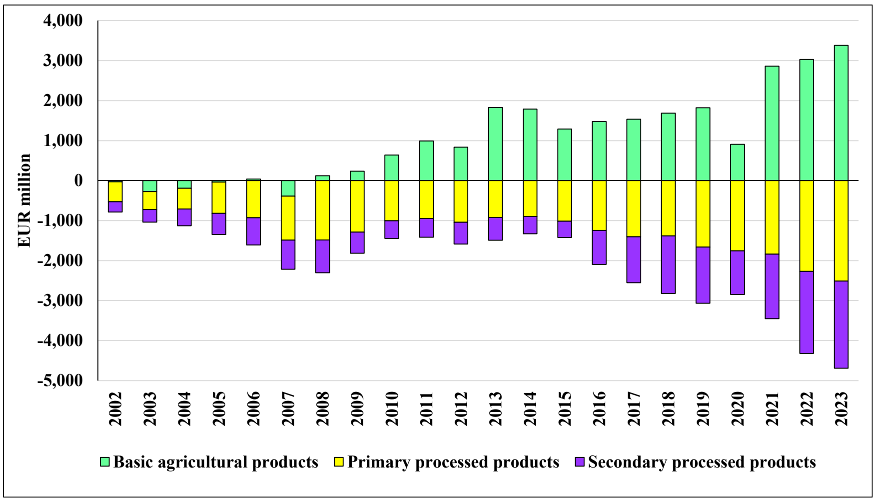
Structure of agri-food imports by degree of processing (%)

Item	**T0 (average 2002–2006)**	**T1 (average 2007–2011)**	**T2 (average 2012–2016)**	**T3 (average 2017–2023)**	**Tpa (average 2007–2023)**
Basic agricultural products	26	29	32	30	30
Primary processed products	43	40	34	30	33
Secondary processed products	31	31	34	40	37
– total processed products	***73***	***71***	***68***	***70***	***70***
Total agri-food exports	100	100	100	100	100

Source: Calculations based on Eurostat data.

When analysing the trade balance by degree of processing, during the pre-accession period, all three product categories had negative balances.

In the post-accession period, only the balance for basic agricultural products turned positive since 2008 (Figure 5), thus contributing substantially to the reduction of the agri-food deficit. This is due to Romania's massive entry into the Near and Middle East markets with large exports of basic agricultural products (cereals, oilseeds and live sheep). The leap was significant, from a negative balance (-98.1 million EUR in T0, to a surplus balance in T3 (+2175.2 million EUR).



Source: Calculations based on Eurostat data.
Figure 5. Agri-food trade balance by degree of processing (2002–2023).

However, processed products remained with a negative balance in all years. The trade deficit in processed products (primary and secondary, combined) diminished in the period 2010–2015 (became less than -1.6 billion EUR), due to the total agri-food surplus in 2013–2014.

Cereals, oilseeds and live animals were the agricultural commodities that supported the increasing trend of the agri-food trade balance.

The trade deficit in primary and secondary processed products decreased in T2 compared to T1 (Table 4).

Table 4

Value of agri-food balance by degree of processing (EUR million)

Item	**T0 (average 2002–2006)**	**T1 (average 2007–2011)**	**T2 (average 2012–2016)**	**T3 (average 2017–2023)**	**Tpa (average 2007–2023)**	**T3/T0**
Basic agricultural products	-98.1	320.1	1443.5	2175.2	1414.4	***
Primary processed products	-636.4	-1163.5	-1024.6	-1831.3	-1397.6	2.9
Secondary processed products	-439.1	-598.1	-560.4	-1561.4	-983.7	3.6
– total processed products	***-1075.5***	***-1761.6***	***-1584.9***	***-3392.7***	***-2381.3***	***3.2***
Total agri-food balance	-1173.6	-1441.5	-141.4	-1217.6	-966.9	***

Source: Calculations based on Eurostat data.

Nevertheless, it increased significantly in T3, with a multiplication factor (T3/T1) of 1.8 for primary processed products and 2.8 for secondary processed products, respectively, proving that Romania has continued to have a trade disadvantage in highly processed products.

The detailed analysis by component groups of exports of primary processed products (Table 5) shows that sunflower oil occupies the first position in T3 and T2, with a share of approx. 20% (EUR 238 million in T3), followed by poultry meat (approx. 14%, *i.e.* EUR 158 million in T3).

However, these exports are strongly competed with by Ukraine, which massively exports edible oil at competitive prices. Therefore, Romania has resumed exporting sunflower seeds, reducing the raw material base for oil production. Sugar and natural honey are also present in the top 10 groups of primary processed products exported.

The range of exported primary processed products is very little diversified, given that the top 5 product groups (out of a total of 92) account for over half of all exports in this category.

The most important imports of primary processed products (Table 5) are pork (a continuously deficient product in the Romanian market since 2000) and sugar (a product that has always been deficient). Between T0 and T3, imports increased by a multiplication factor of 3.3 for pork, 1.8 for sugar and 4.4 for coffee, tea and spices, the third product in terms of weight in the group of primary processed product imports. Similar to exports, imports of primary processed products show the same concentration characteristics: the top 5 groups accumulate over 52% of the total value, and only the top 7 groups (out of 92) have import values over EUR 100 million in T3.

Table 5

Primary processed agri-food products – exports and imports – top 5 groups (4 digits CN) sorted in descending order by Tpa (EUR million)

EXPORT – PRIMARY PROCESSED PRODUCTS					
Product group	**T0**	**T1**	**T2**	**T3**	**Tpa**
Total exports of primary processed products (92 groups)	**129.03** ***(100%)***	**435.15** ***(100%)***	**826.06** ***(100%)***	**1136.17** ***(100%)***	**838.78** ***(100%)***
1512 – Sunflower oil	29.12 *(22.6%)*	88.18 *(20.3%)*	137.44 *(16.6%)*	237.99 *(20.9%)*	164.36 *(19.6%)*
0207 – Meat and edible offal of poultry, fresh, chilled or frozen	5.40 *(4.2%)*	61.10 *(14.0%)*	136.74 *(16.6%)*	157.93 *(13.9%)*	123.22 *(14.7%)*
2306 – Oilcakes (from linseed, sunflower, rape, colza seeds oil extraction)	15.11 *(11.7%)*	31.87 *(7.3%)*	87.84 *(10.6%)*	144.74 *(12.7%)*	94.81 *(11.3%)*
2304 – Oilcakes from soya-bean oil extraction	2.27 *(1.8%)*	25.22 *(5.8%)*	50.59 *(6.1%)*	66.29 *(5.8%)*	49.59 *5.9%)*
1701 – Cane or beet sugar	4.01 *(3.1%)*	51.05 *(11.7%)*	50.76 *(6.1%)*	34.65 *(3.0%)*	44.21 *(5.3%)*
Top 5 exports	**55.91** ***(43.3%)***	**257.43** ***(59.2%)***	**463.37** ***(56.1%)***	**641.60** ***(56.5%)***	**476.19** ***(56.8%)***
Top 10 exports	**78.39** ***(60.8%)***	**316.09** ***(72.6%)***	**593.70** ***(71.9%)***	**795.35** ***(70.0%)***	**595.08** ***(70.9%)***

Table 5 (continued)

IMPORT – PRIMARY PROCESSED PRODUCTS					
Product group	**T0**	**T1**	**T2**	**T3**	**Tpa**
Total imports of primary processed products (92 groups)	**765.46** ***(100%)***	**1568.29** ***(100%)***	**1819.77** ***(100.0%)***	**2957.10** ***(100.0%)***	**2214.12** ***(100%)***
0203 – Swine meat, fresh, chilled or frozen	204.32 *(26.7%)*	344.91 *(22.0%)*	293.47 *(16.1%)*	674.24 *(22.8%)*	465.39 *(21.0%)*
1701 – Cane or beet sugar	115.00 *(15.0%)*	205.14 *(13.1%)*	197.19 *(10.8%)*	208.87 *(7.1%)*	204.34 *(9.2%)*
0901 – Coffee, whether or not roasted or decaffeinated, coffee substitutes	58.87 *(7.7%)*	102.66 *(6.5%)*	160.79 *(8.8%)*	260.09 *(8.8%)*	184.58 *(8.3%)*
2304 – Oilcakes from soybean oil extraction	22.20 *(2.9%)*	115.16 *(7.3%)*	180.17 *(9.9%)*	208.90 *(7.1%)*	172.88 *(7.8%)*
0207 – Meat and edible offal of poultry, fresh, chilled or frozen	75.74 *(9.9%)*	137.39 *(8.8%)*	141.45 *(7.8%)*	197.16 *(6.7%)*	163.20 *(7.4)*
Top 5 imports	**476.14** ***(62.2%)***	**905.26** ***(57.7%)***	**973.06** ***(53.5%)***	**1549.26** ***(52.4%)***	**1190.38** ***(53.8%)***
Top 10 imports	**541.15** ***(70.7%)***	**1113.67** ***(71.0%)***	**1226.61** ***(67.4%)***	**1957.33** ***(62.%)***	**1494.28** ***(67.5%)***

Notes: (1) T1 = 2007–2011 average; T2 = 2012–2016 average; T3 = 2017–2023 average; Tpa = 2007–2023 average.

(2) Number of product groups, 4 digits: 203; groups of primary processed products: 92; groups of secondary processed products: 43; remaining 68 groups - basic agricultural products.

Source: Calculations based on Eurostat data.

In the trade balance deficit of primary processed products (Table 6), the same three groups rank first in T3: pork, sugar and coffee. Cumulating all the products with a negative balance in this category, in T3 a deficit 3 times higher than in T0 resulted. 73 primary processed products (out of 92) have negative balances in T3, and only 19 products have a positive balance.

In the hierarchy of primary processed products that have a positive balance in T3 and Tpa, one can find sunflower oil, rapeseed oil, natural honey and oilseed meals (Table 6). All primary processed products with a trade surplus cumulate only EUR 454 million, compared to those in deficit, which cumulate – EUR 2275 million in T3.

Table 6

Primary processed agri-food products – trade balance – top 5 groups (4 digits CN) sorted in descending order by Tpa (EUR million)

PRIMARY PROCESSED PRODUCTS WITH POSITIVE TRADE BALANCE					
Product group	**T0**	**T1**	**T2**	**T3**	**Tpa**
Total balance for primary processed products (92 groups)	**-636.43**	**-1133.14**	**-993.71**	**-1820.93**	**-1375.34**
1512 – Sunflower-seed oil	20.58	8.85	86.07	182.35	103.00
2306 – Oilcakes (from linseed, sunflower, rape, colza seeds oil extraction)	15.09	30.70	82.79	124.83	84.78
0409 – Natural honey	15.49	22.53	33.49	31.71	29.53
1514 – Rape, colza or mustard oil	1.15	12.39	9.42	28.39	18.10

Table 6 (continued)

0205 – Horse meat, fresh, chilled or frozen	3.13	9.56	9.59	24.50	15.72
Total positive balance – primary processed products	**79.67**	**106.94**	**281.42**	**453.97**	**295.78**
Top 5	**55.44**	**84.03**	**221.36**	**391.78**	**251.14**
Top 10	**61.30**	**101.79**	**261.29**	**433.50**	**285.29**
PRIMARY PROCESSED PRODUCTS WITH NEGATIVE TRADE BALANCE					
Product group	**T0**	**T1**	**T2**	**T3**	**Tpa**
Total balance for primary processed products (92 groups)	**-636.43**	**-1133.14**	**-993.71**	**-1820.93**	**-1375.34**
0203 – Swine meat, fresh, chilled or frozen	-203.71	-341.11	-256.52	-659.33	-447.26
0901 – Coffee, whether or not roasted or decaffeinated, coffee substitutes	-57.90	-97.99	-152.32	-245.99	-174.91
1701 – Cane or beet sugar	-110.99	-154.09	-146.43	-174.22	-160.13
2304 – Oilcakes from soybean oil extraction	-19.94	-89.94	-129.58	-142.61	-123.29
2207 – Undenaturated ethyl alcohol (minimum 80% alcoholic strength)	0.50	-6.48	-31.29	-117.10	-59.33
Total negative balance – primary processed products	**-716.10**	**-1240.08**	**-1275.13**	**-2274.90**	**-1671.12**
Top 5	**-392.05**	**-689.60**	**-716.14**	**-1339.26**	**-964.91**
Top 10	**-520.86**	**-895.42**	**-889.08**	**-1642.60**	**-1201.22**

Notes: (1) T1 = 2007–2011 average; T2 = 2012–2016 average; T3 = 2017–2023 average; Tpa = 2007–2023 average.
(2) The cumulative value of the deficit for the top 5 and 10 groups respectively also includes the cumulative value of the groups with a surplus balance that are ordered by Tpa
Source: Calculations based on Eurostat data.

The detailed analysis by component groups of exports of secondary processed products (Table 7) shows that cigarettes, cigars and tobacco substitutes occupy the first position in T3 and Tpa, with a share of approx. 26% (EUR 645 million in T3) and 35% in Tpa, respectively. They are followed by bakery, pastry and biscuit products (approx. 7.6%, *i.e.* EUR 193 million in T3).

Table 7

Exports and imports of secondary processed agri-food products – top 5 groups (4 digits CN) sorted in descending order by Tpa (EUR million)

EXPORT – SECONDARY PROCESSED PRODUCTS					
Product group	**T0**	**T1**	**T2**	**T3**	**Tpa**
Total secondary processed products (43 groups)	**119.12** ***(100%)***	**611.83** ***(100%)***	**1291.19** ***(100%)***	**2442.71** ***(100%)***	**1565.53** ***(100%)***
2402 – Cigars, cigarettes, tobacco substitutes	5.63 *(4.7%)*	316.55 *(51.7%)*	663.74 *(51.4%)*	644.64 *(26.4%)*	553.76 *(35.4%)*
1905 – Bakery and pastry products, biscuits	19.09 *(16.0%)*	40.39 *(6.6%)*	83.70 *(6.5%)*	193.18 *(7.9%)*	116.04 *(7.4%)*
2403 – Other tobacco products and substitutes	1.41 *(1.2%)*	1.72 *(0.3%)*	5.51 *(0.4%)*	260.14 *(10.6%)*	109.24 *(7.0%)*
2404 – Products containing tobacco, reconstituted tobacco, nicotine or substitutes	0.00 *(0.0%)*	0.00 *(0.0%)*	0.00 *(0.0%)*	263.46 *(10.8%)*	108.48 *(6.9%)*

Table 7 (continued)

2106 – Other food preparations	5.68 *(4.8%)*	40.36 *(6.6%)*	82.57 *(6.4%)*	142.98 *(5.9%)*	95.03 *(6.1%)*
Top 5 exports	**31.81** ***(26.7%)***	**399.02** ***(65.2%)***	**835.51** ***(64.7%)***	**1504.39** ***(61.6%)***	**982.55** ***(62.8%)***
Top 10 exports	**63.50** ***(53.3%)***	**501.67** ***(82.0%)***	**1064.89** ***(82.5%)***	**1971.66** ***(80.7%)***	**1272.61** ***(81.3%)***
IMPORT – SECONDARY PROCESSED PRODUCTS					
Product group	**T0**	**T1**	**T2**	**T3**	**Tpa**
Total secondary processed products (43 groups)	**558.17** ***(100%)***	**1199.63** ***(100%)***	**1857.47** ***(100%)***	**4003.98** ***(100%)***	**2547.84** ***(100.0%)***
1905 – Bakery and pastry products, biscuits	34.06 *(6.1%)*	99.03 *(8.3%)*	188.12 *(10.1%)*	433.05 *(10.8%)*	262.77 *(10.3%)*
2106 – Other food preparations	77.69 *(13.9%)*	151.29 *(12.6%)*	179.91 *(9.7%)*	368.92 *(9.2%)*	249.32 *(9.8%)*
2309 – Pet food	51.62 *(9.2%)*	108.18 *(9.0%)*	165.54 *(8.9%)*	353.47 *(8.8%)*	226.05 *(8.9%)*
1806 - Chocolate and other products containing cocoa	19.98 *(3.6%)*	85.64 *(7.1%)*	169.98 *(9.2%)*	341.46 *(8.5%)*	215.79 *(8.5%)*
0406 – Cheese and curd	9.97 *(1.8%)*	78.70 *(6.6%)*	133.13 *(7.2%)*	348.60 *(8.7%)*	205.85 *(8.1%)*
Top 5 imports	**193.33** ***(34.6%)***	**522.84** ***(43.6%)***	**836.69** ***(45.0%)***	**1845.50** ***(46.1%)***	**1159.77** ***(45.5%)***
Top 10 imports	**391.54** ***(70.1%)***	**744.33** ***(62.0%)***	**1138.46** ***(61.3%)***	**2497.43** ***(62.4%)***	**1582.11** ***(62.1%)***

Notes: (1) T1 = 2007–2011 average; T2 = 2012–2016 average; T3 = 2017–2023 average; Tpa = 2007–2023 average.
(2) Number of product groups, 4 digits CN: 203; groups of secondary processed products: 43.
Source: Calculations based on Eurostat data.

These exports of secondary processed products increased after accession as a result of significant domestic and foreign capital investments in bread and pastry factories. The third and fourth places in the hierarchy are also occupied by product groups related to tobacco processing, with approx. 10.7% share in exports each in T3 (EUR 260 million each).

The range of secondary processed products exported is even less diversified than primary processed products, given that the first 5 product groups (out of a total of 43) have a share of approx. 63% of total exports in this category, and the first 10 products exceed 81%.

The main imports of secondary processed products (Table 7) are bakery, pastry and biscuit products, various food preparations, animal feed preparations, chocolate and cheese. Between T0 and T3, imports of secondary processed products increased by a multiplication factor of 7.2. For bakery, pastry and biscuit products, the multiplication factor (T3/T0) was 12.7 and 17.1 for chocolate, respectively, which shows that in the secondary processed products category, investments in these branches of the food industry, producing highly processed foods, were insufficient to satisfy domestic demand. Here we also find imports of over EUR 100 million annually (T3) for distillates and spirits, flavoured mineral waters, sauces, canned meat, vegetables and fruit. In the last three groups, there is an obvious lack of organization of supply chains, of the respective agricultural supply, to which the insufficiency of processing plants is added.

Compared to exports, imports of secondary processed products are somewhat less concentrated: the first 5 groups accumulate approx. 45% of the total value, and 12 groups (out of 43) have import values over EUR 100 million in T3.

In the trade balance deficit of secondary processed products (Table 8), the same groups (as those leading imports) are found in the first five places in T3: animal feed preparations, cheeses, various food preparations, chocolate; bakery products, pastry and biscuits. Cumulating all products with a negative balance in this category, in T3 a deficit 5.4 times higher than in T0 resulted. A number of 37 secondary processed products (out of 43) have negative balances in T3, and only 6 products have a positive balance.

Table 8

Trade balance of secondary processed agri-food products – top 5 groups (4 digits CN) sorted in descending order by Tpa (EUR million)

SECONDARY PROCESSED PRODUCTS WITH POSITIVE TRADE BALANCE					
Product group	**T0**	**T1**	**T2**	**T3**	**Tpa**
Total balance for secondary processed products (43 groups)	**-439.05**	**-587.80**	**-566.28**	**-1561.27**	**-982.31**
2402 – Cigars, cigarettes, tobacco substitutes	-131.19	267.14	595.02	530.83	472.15
2404 – Products containing tobacco, reconstituted tobacco, nicotine or substitutes	0.00	0.00	0.00	251.36	103.50
2403 – Other tobacco products and substitutes	-7.20	-19.72	-49.97	165.87	47.80
1602 – Other prepared or preserved meat and offals	8.58	8.26	24.31	-5.11	7.48
2104 – Soups and broths	-3.50	-0.48	1.97	16.43	7.21
Total positive balance for secondary processed products	**23.91**	**280.66**	**580.78**	**964.50**	**639.08**
Top 5	**(-133.31)**	**(255.2)**	**(571.33)**	**(959.38)**	**638.14**
SECONDARY PROCESSED PRODUCTS WITH NEGATIVE TRADE BALANCE					
Product group	**T0**	**T1**	**T2**	**T3**	**Tpa**
Total balance for secondary processed products (43 groups)	**-439.05**	**-587.80**	**-566.28**	**-1561.27**	**-982.31**
2309 – Pet food	-51.20	-106.38	-157.88	-330.98	-214.01
0406 – Cheese and curd	0.46	-71.02	-99.33	-282.82	-166.56
2106 – Other food preparations	-72.01	-110.93	-97.35	-225.94	-154.29
1806 – Chocolate and other products containing cocoa	-17.00	-65.28	-121.77	-228.02	-148.91
1905 – Bakery and pastry products, biscuits	-14.97	-58.64	-104.42	-239.86	-146.73
Total negative balance for secondary processed products	**-760.12**	**-1432.07**	**-1711.20**	**-4080.91**	**-2603.69**
Top 5	**-154.72**	**-412.25**	**-580.75**	**-1307.62**	**-830.49**
Top 10	**-228.80**	**-562.40**	**-799.42**	**-1767.73**	**-1128.42**

Notes: (1) T1 = 2007–2011 average; T2 = 2012–2016 average; T3 = 2017–2023 average; Tpa = 2007–2023 average.

(2) The cumulative value of the deficit for the top 5 and 10 groups respectively also includes the cumulative value of the groups with a surplus balance that are ordered by Tpa.

Source: Calculations based on Eurostat data.

In the hierarchy of secondary processed products showing a surplus balance in T3 and Tpa, one can find the three groups of secondary processed products with the highest export values: cigarettes and products related to tobacco processing, canned meat, then soups and broths. All secondary processed products showing a trade surplus cumulate EUR 965 million, compared to those in deficit, which cumulate EUR -4081 million in T3.

5. CONCLUSIONS

All along the post-accession period, Romania has made significant efforts to increase the quantity, quality, efficiency and competitiveness of its agri-food products and to become a more important player in the European and international markets. The result was that in 17 years since accession, Romania has not yet managed to become a net exporter of agri-food products. However, it has managed to achieve spectacular increases in exports.

Romania's accession to the EU has been the main driver of its economic development in the last 17 years. Access to the Single Market and to other extra-EU markets with which the EU has preferential trade agreements have favoured important developments in this sector.

The financing in the pre-accession period (through the SAPARD programme), as well as after 2007, funds from the second pillar of the CAP, as well as foreign and domestic capital investments, generated growth in the agricultural and food sector through the establishment of new enterprises, development of existing ones and provision of modern technologies, which have facilitated the implementation and compliance with the strict sanitary and veterinary regulations and high quality levels necessary for presence on the Single Market.

At the same time, the Single Market rules allowed unrestricted access of Community products to the less developed and less competitive Romanian markets, which are constantly faced with lower prices, better quality and more diversified range of products, tailored to the continuously changing consumption pattern of Romanian consumers.

Due to their lower purchasing power than that of consumers in other EU countries, the poorest segments of domestic consumers seek very cheap, implicitly low-quality or even counterfeit products, which freely enter the Romanian market. They satisfy the needs of a population group with very low incomes, but their excessive presence on the Romanian market is detrimental to domestic producers who are trying to develop their businesses by supplying good quality products manufactured with local raw materials.

The analysis of Romanian agri-food trade highlighted a series of positive developments in the post-accession period: the spectacular increase in trade flows (mainly in exports); significant improvement in the quality, quantity and diversity of processed products. However, these positive developments were not sufficient to increase the share of processed products in exports and reduce their share in imports; but they allowed maintaining the positive trade balance with countries outside the EU, starting with 2010 (through the massive contribution of basic agricultural products – cereals, oilseeds, live animals). Romania remained in the area of large imports from the EU, especially processed products, resulting in a quasi-continuous agri-food trade deficit.

After accession, the ratio between agricultural goods and processed products improved. First of all, a significant increase in the value of exports can be noticed: 9.5 times for basic agricultural products, 6.7 times for primary processed products and 13.3 times for secondary processed products.

When analysing the share of the three product categories, an obvious improvement is visible especially in secondary processed products, which increased from 20 to 28% between the pre-accession and post-accession periods, to the detriment of primary processed products, whose share decreased from 21% to 13%.

In recent years, the average share of processed products in exports has varied between 41–43%, of which approx. 13% semi-processed products and 28% highly processed products. At the same time, the share of processed products in imports is around 69–70% compared to 73% in the pre-accession period.

The factors that have contributed the most to the weaker development of the Romanian agri-food sector, compared to the other Member States are:

- Unfavourable structure of agricultural production (crop/animal production ratio), strongly favouring the production of cereals and oilseeds for export, and increasingly moving away from subsectors generating higher added value (such as animal husbandry and local processing of agricultural products);
- Lack of development efforts that would allow the local transformation of these raw materials (cereals, oilseeds) through primary and secondary processing, thus reducing the need for imports, increasing and diversifying exports in quantitative, qualitative and value terms;
- A deficient structure of the agricultural production sector (low share of medium-sized farms, with a commercial vocation, inclined towards concentration, capitalisation and financing);
- Small farmers' reluctance to various forms of association, which thus maintain underdeveloped or fractured agri-food chains, unable to concentrate supply in subsectors dominated by small family farms, but potentially generating high added value (vegetables, fruit, dairy and meat production);
- An inadequate and still underdeveloped structure of food industry, which is polarised: on the one hand, a small number of very large processing units (generally transnational companies) and on the other hand, many very small units, operating at local level. The share of medium-sized processing units, able to efficiently valorise local raw materials, to integrate into local

and regional value chains, so as to concentrate sufficient activity with development potential for export, is very small.

In this context, which is becoming increasingly complicated due to unpredictable developments in world markets, the future targets of the Romanian agri-food production and trade sector should be:

- increasing production and concentrating supply in order to reduce imports of basic products (meat, fruit, vegetables);
- medium and long-term investment programmes in the food industry for a significant improvement in the use of domestic production of agricultural raw materials, to diversify the range of exported products and increasing on this basis the share of products processed for export;
- increasing the number of products integrated into European quality systems (PDO, IGP, TSG, mountain product), as well as investments in the local organic product processing industry;
- last but not least, significantly improving the marketing of Romanian agri-food products on European and extra-European markets.

Complementary targets for the Romanian agri-food trade should also be, in the short and medium term, the regaining and development of domestic markets for local consumers (in order to reduce imports). This would be also a way to contribute to the UN Sustainable Development Goal SDG 12 – Ensuring sustainable consumption and production patterns.

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