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SLOVAK FOOD INDUSTRY AND ITS POSITION ON THE DOMESTIC AND FOREIGN MARKETS

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Abstract

The subject of this article's analysis is the position of the Slovak food industry on the domestic and foreign markets. The period under review was 2015-2019. The identification of the share of Slovak products in the retail network was carried out on the basis of two methodological approaches, which are based on statistically available data, one in financial and the other in kind terms. Research results show that the food industry in the Slovak Republic is thriving, with revenues exceeding costs in the long term. Labour productivity from added value, which is an important economic indicator of the industry's competitiveness, grows over time, which is caused by a decrease in the workforce. On the domestic market, it is a priority to resist the pressure of foreign imports and to increase the share of Slovak products in domestic retail network. The low competitiveness of Slovak food products is reflected in the massive import of substitutable food products that can be produced domestically.

Key words**:** *food industry, competitiveness, domestic market, self-sufficiency, agro-food commodities*

INTRODUCTION

The food industry follows on from agricultural primary production, in addition to food production, it provides jobs with a significant impact on the development of regions. [8] stated that "agri-food refers to primary products derived from plants, forestry, animal husbandry, and fishery, that is, plants, animals, microorganisms, and their products obtained in agricultural activities). Agri-food is the necessity of human survival, which is related to the fate of the human community".

According to [1] and [11] in developing food policies governments are to an increasing extent substituting and supplementing traditional top-down methods of public regulation with more interactive forms of collaborative governance. [5] noted that „in this constellation governments deliberate with relevant stakeholders from the market as well as civil society with the aim of jointly agreeing on a set of measures through having each of the parties commit to taking distinct measures that serve public goals. These new hybrid forms of food governance result in a wide range of voluntary agreements, covenants, pledges, pacts, public–private partnerships or 'deals' in which policy goals, ambitions and measures are spelled out".

According to [4] food industry is a strategic industry, which within the agri-food complex has the potential to ensure a high level of food security in Slovakia while simultaneously respecting the requirements of environmental protection and preserving the principles of sustainable development. Despite the fact that the high quality of Slovak food is guaranteed by strict national legislation, strong competition on the EU market, the policy of trade chains, unbalanced support within agriculture and food industry, insufficient investments in innovation and modernization of the food industry have weakened its competitiveness on the domestic and foreign markets [9].

[3] noted that the food processing industry plays a critical role in generating demand for agricultural raw materials and is an important factor affecting the competitiveness of domestic agricultural production. According to [10] the efficiency of food processing determines the position of domestic production on food markets, both domestic and foreign. The high share of imported

products on the consumer food market and the negative trade balance indicate low competitiveness of the domestic processing industry. Overcapacity and technological backwardness contribute to its low efficiency.

"An important finding about the food industry competitiveness is that the monetary autonomy and the possibility to depreciate national currency is a significant factor that can increase competitiveness and the balance of trade in the times of economic crisis"[2].

According to [7] the decreasing trend of the share of added value in the food industry is to a certain extent caused by the changing share of its level in other sectors of the national economy, but mainly by the decline in production of decisive branches of the food industry and significant imports of finished food products with added value realized outside the Slovak Republic also from primary agricultural raw materials exported from Slovakia.

The potential of the food industry as a generator of added value in the national economy was pointed out by [6], who came to the conclusion that the economic possibilities of this sector compared to other processing industries lie primarily in its innovation capacity as well as the speed of capital turnover. These support the efficiency of intermediate consumption and high labour productivity.

MATERIALS AND METHODS

The chosen methodological procedure corresponds to the material focus of the paper, which is oriented towards selected aspects of food sector competitiveness in the period 2015-2019. The fulfilment of the goal was ensured by analysis, synthesis and comparison of data, which were processed into tabular, graphic and textual form, and expert estimates.

The information platform for the analysis in question was data from the Statistical Office of the Slovak Republic, departmental statistics of the Ministry of Agriculture and Rural Development of the Slovak Republic and from the National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

The self-sufficiency rate of agri-food commodities in the Slovak Republic was calculated in accordance with Eurostat's methodological procedure, whereby:

$$Self - sufficiency = \frac{\text{production}}{\text{consumption}} * 100 \quad \text{.....(1)}$$

The calculation is based on the balance production and consumption of specific commodities, which are published in the relevant situational and outlook reports of the Ministry of Agriculture and Rural Development of the Slovak Republic and from the National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics. In the Food Industry Development Concept for 2014-2020 [4], it is stated that the level of self-sufficiency of strategic raw materials should not be lower than 80%.

To determine the share of Slovak food on the domestic market, two methodological approaches were used, which are based on statistically available data according to selected branches of the food industry, namely:

1) based on sales and financial volume of foreign trade:

- $\text{Share of foreign goods} = \frac{\text{import}}{(\text{sales} - \text{export} + \text{import})} * 100$ .....(2)
- $\text{Share of domestic goods} = 100 - \text{share of foreign goods}$ .....(3)

2) based on the natural volume of production and foreign trade

- $\text{Share of foreign goods} = \frac{\text{import}}{(\text{production} - \text{export} + \text{import})} * 100$ .....(4)
- $\text{Share of domestic goods} = 100 - \text{share of foreign goods}$ .....(5)

Both calculations are indicative and must be interpreted with caution due to the potential possibility of certain discrepancies in the database of customs statistics, where the data are not abstracted from re-exports.

In addition, for the financial expression, the choice of respondents in the different food

industries may partly vary, mainly due to changes in ownership of existing food businesses, and for the in-kind expression, a limiting factor is the choice of commodities or commodity groups within a given industry, which should correspond to the codes of customs statistics.

Due to the high re-exports, an expert estimate of the monitored indicator was made for the fat and confectionery industries, and only for the first methodological approach.

RESULTS AND DISCUSSIONS

Economic aspects of competitiveness

The food industry as a whole is thriving, with revenues exceeding costs over the long term, which is adequately reflected in profitability indicators. The most favourable cost profitability values in 2019 were recorded in the wine, brewing and malting, canning and confectionery industries (Table 2). A significant part of the cost of one created product consists of material, energy and labour costs.The share of intermediate inputs in production costs in the food industry in 2015-2019 was around 62% (Table 1). In the observed 5-year period, the financial volume of production (revenues from the sale of products and services, activation and changes in inventory levels) of the food industry decreased by 6.5%. Adequately, the volume of sales for own products and services decreased by 6.6% and for the sale of goods by 1.2%.The increase in total added value by 9.8% is positive (Fig. 1).

Fig. 1. Development of selected economic indicators of the food industry (thousands EUR)
Source: Ministry of Agriculture and Rural Development of the Slovak Republic; National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

Table 1. Analytical indicators of the food industry

Indicator	2015	2016	2017	2018	2019	Difference 2019-2015 (%)
Share of intermediate consumption on costs (%)	60.7	62.9	61.6	62.5	61.6	0.9
Costs effectiveness (%)	2.3	3.2	2.6	2.4	3.5	1.2
Profitability of total assets (%)	3.3	4.6	3.7	3.2	4.4	1.1
The share of sales on revenues (%)	68.0	70.2	69.5	70.0	68.8	0.7
Debt of total asset (%)	51.5	50.9	51.1	52.0	51.8	0.4
Shabbiness of long-term tangible and intangible asset (%)	51.4	54.0	54.6	54.9	55.8	4.4
The share of foreign capital on fixed asset (%)	59.2	51.7	50.3	48.7	63.2	3.9
The share of own funds to finance investments (%)	73.4	82.6	73.4	69.5	67.6	-5.8
The share of technologies on purchased investments (%)[11]	61.8	62.0	63.1	55.7	57.3	-4.4
Labour productivity from value added (th. EUR)	23.4	22.7	22.9	23.3	24.4	104.0

Source: Ministry of Agriculture and Rural Development of the Slovak Republic; National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

The most important indicators of growth in the competitiveness of a company or an industry include labour productivity from added value, which in the monitored period in the food sector increased by only 4.0% and in 2016 reached 24.4 thousand EUR. The highest value of labour productivity from added value in 2019 was achieved by the starch, brewing-malt and confectionery industries (Table 2).

Table 2. Selected economic indicators in the food industry branches in 2019

Indicator	Costs effectiveness (%)	Debt of total assets (%)	Shabbiness of long-term tangible and intangible asset (%)	The share of foreign capital on fixed assets (%)	The share of own funds to finance investments (%)	Labour productivity from value added (th. €)
Food industrybranches:	3.5	51.8	55.8	63.2	67.6	24.4
-milk	1.3	54.4	52.0	77.4	63.8	23.5
-meat	0.3	63.4	56.7	75.5	70.8	14.6
- poultry	-1.7	59.5	57.7	64.9	89.4	19.3
- milling	1.3	68.1	44.5	0.0	9.8	23.9
- bakery	0.5	63.3	59.5	56.2	69.3	14.8
- brewery-malt	10.4	57.5	62.8	79.4	96.2	53.3
- starch	6.7	18.7	60.7	100.0	99.2	111.9
- distillery	2.7	34.4	47.8	10.7	75.4	26.5
- fat	0.1	62.9	52.6	0.5	46.0	21.4
- wine	10.5	43.0	46.3	5.9	62.4	29.0
- canning	8.0	56.6	53.1	61.4	66.3	28.6
-freezing	0.0	78.9	60.4	0.0	24.7	15.5
- fishing	-0.6	71.3	38.1	0.0	5.7	13.4
- sugar	2.9	35.1	62.8	97.2	87.2	56.0
- confectionery	9.4	40.1	50.1	0.0	100.0	32.2
- beverages	7.7	50.5	68.3	82.8	32.1	30.9

Source: Ministry of Agriculture and Rural Development of the Slovak Republic; National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

In contrast to the previous period, growth in the number of employees (+5.6%) contributed to the slowdown in the growth rate of value-added labour productivity. In 2019, there were 31.6 thousand employees. The bakery and confectionery, meat and dairy industries employed the largest number of employees in 2019 (Table 3).

Table 3. Selected economic indicators in the food industry branches in 2019

ML	MT	PO	MI	BA	B-M	ST	DI	FT	W	CA	FR	FI	SU	CO	BE
14.7	16.3	6.3	2.5	21.0	5.7	1.1	2.4	1.2	3.7	7.3	1.4	2.3	1.1	8.3	4.7

Notes: food industry branches: ML - milk, MT - meat, PO - poultry, MI - milling, BA - bakery, B-M - brewery-malt, ST starch, DI - distillery, FT - fat, W - wine, CA - canning, FR - freezing, FI - fishing, SU – sugar, CO - confectionery, NE - beverages

Source: Ministry of Agriculture and Rural Development of the Slovak Republic; National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

Foreign capital accounted for 63.2% of the share capital of food companies in 2019, while some companies are part of multinational corporations with a strong capital background enabling them to invest in modern technologies, product innovations and

marketing. On the other hand, marketing strategies are partially absent in many small and medium-sized enterprises due to a lack of resources. The highest share of foreign capital in the fixed capital is currently recorded in the starch (100%), confectionery (97.2%) and beverage (82.8%) industries. Financial capital is absent in the milling, freezing and fishing industries.

In spite of the above, the food industry is generally dominated by a limited volume of financial resources for the permanent modernisation of processing capacities, which is also caused by the insufficient generation of own capital resources, dependence on financing of investments from foreign sources and limited volumes of procured investments. This is related to insufficient spending on research and development (a brake on the dynamic development of the industry and a weakening of competitiveness), reserves in product innovation and insufficiently developed links between the processing and departmental research spheres.

On the negative side, there is a relatively high wear and tear of long-term tangible and intangible assets in the food industry (around 55%). In 2019, 45.5% more funds were reinvested in the monitored industry than in 2018, while the procured investments were directed mainly to technologies (57.3%). In the observed 5-year period, the volume of procured investments in technologies increased by 35.0%. The financing of investments was to a decisive extent (67.6%) provided from own resources (from depreciation and, in the case of profitable companies, also from profit), which means that it was directly dependent on the achieved profitability.

The confectionery industry had the highest share of own resources in financing investments (100%) and the fishing industry the lowest (2.7%). Depreciation and profit were not a sufficient source of financing for the acquisition of new technologies and the renovation of buildings.

For this reason, the renovation was also financed from domestic loans (15.4%), from subsidies from the Ministry of Agriculture and Rural Development of the Slovak Republic (1.4%), from support for investments in agriculture and the food industry (3.6%), from other sources (11 .4%) and also from foreign capital (0.6%). Total asset indebtedness in the food industry has been around 51.5% over the long term, with the freezing industry (78.9%) the most indebted and the starch industry (18.7%) the least indebted in 2019.

Self-sufficiency in agri-food commodities

Agricultural and food commodities are the basic inputs to individual branches of the food industry. In Slovakia, more and more emphasis is being placed on the offer of foods of domestic origin, which are carriers of quality, regional and regional specificity and also traceability with regard to food safety from the point of view of hygiene and other quality standards. For these reasons, we should strive to process as many inputs as possible of Slovak origin in the food industry and limit their import from abroad. On the other hand, we should increase the efficiency of the food industry and try to process agrarian commodities domestically and not massively export them abroad.

Indicators of competitiveness include the rate of self-sufficiency in agri-food commodities or in basic raw materials for the food industry, which is determined by the ability to cover the needs of the monitored country with its own production potential. The production of plant commodities in Slovakia developed differently in the period 2015-2019, which is not only related to the development of cultivated areas, but also to the development of weather conditions affecting the parameters of production intensity, which in 2019 were favourable for the cultivation of cereals, oilseeds, vegetables, potatoes, sugar beet and legumes, which is evidenced by the fact that compared to the average of the previous 4 years, their production has increased, most significantly in the case of legumes. On the other hand, fruit production fell by half due to the frosty weather in the spring months, which significantly damaged the harvest of fruit trees and strawberries. In 2019, compared to the average of 2015-2018, the consumption of

cereals, fruit, potatoes and sugar showed slightly decreasing tendencies, in contrast to oilseeds and especially pulses, where the opposite trend prevailed (Fig. 2).

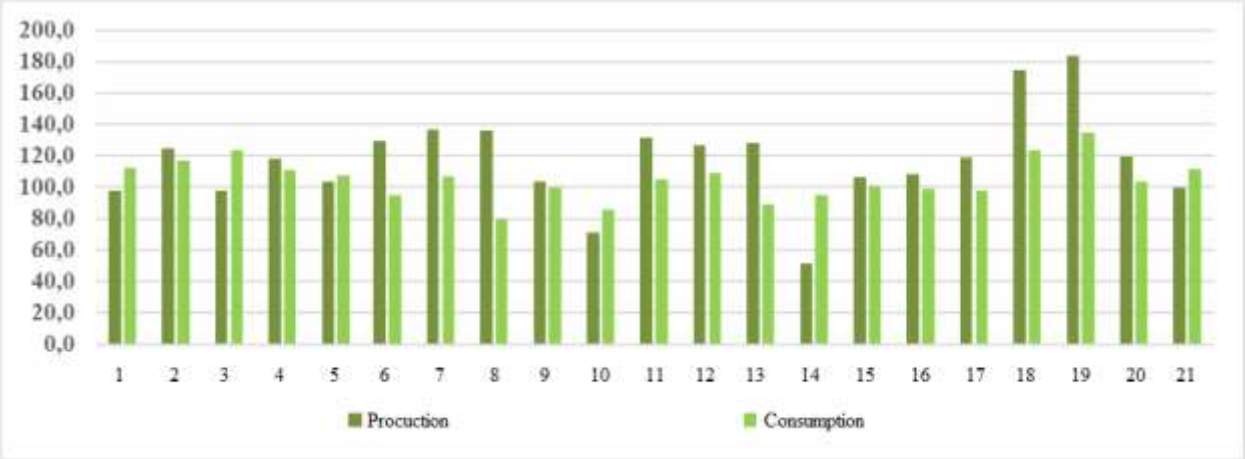

Fig. 2. Development of production and consumption in 2019 (average of 2015-2018=100 %)
Notes: 1-milk, 2-beef meat, 3-pig meat, 4-poultry meat, 5- eggs, 6-grains, 7-wheat, 8-maize, 9-barley, 10-rye, 11-oilseeds, 12-rape seeds, 13-sunflower, 14-fruits, 15-vegetables, 16-potatoes, 17-sugar, 18-legumes, 19-peas, 20-beans, 21-lentil
Source: National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

The data on the self-sufficiency rate in Table 4 testify to how the production of commodities of plant origin participated in their total consumption. In 2019, we covered the total domestic consumption of cereals with production at 189.7%, oilseeds at 262.8%, legumes at 150.7% and sugar at 127.8%, which created space for their export abroad. The dominant legume is peas, the production of which exceeds domestic consumption by approximately two times, in contrast to the other species, which show a minimal rate of self-sufficiency. If we consider the level self-sufficiency rate at 80% as the threshold of food security, then we have reached an acceptable level for vegetables as well (86.8%). In addition to lentils (14.7%) and beans (4.9%), the critical situation was with fruits (33.7%) and potatoes (61.7%), where we have to massively cover domestic consumption with imports, while these are traditional replaceable commodities that were grown in our territory in the past in a volume that satisfactorily satisfied domestic demand.

In 2019, compared to the average of 2015-2018, the domestic consumption of all commodities of animal origin increased quite significantly (Fig. 2), which, among other things, contributed to the decrease in consumer prices of meat and dairy products and, consequently, the growth of their consumption per capita. This happened in an environment of increasing performance of the meat and poultry industry (measured by production and sales for own products and services). As a result of the reduction in the number of dairy cows and pigs, the production of milk and pork decreased slightly. A positive development in production was recorded mainly in beef and poultry meat, and more moderate in eggs.

Specific data on the self-sufficiency rate of agri-food commodities of animal origin (Table 4) show that in 2019 we were able to cover domestic demand with commodities of Slovak provenance for beef and poultry meat. In addition, in the case of beef, we produced surpluses that exceeded domestic consumption by 17.8%, which created the conditions for their export abroad. In 2018, we were absolutely self-sufficient in milk and eggs. In the following years, we already had to supplement the domestic demand for these commodities with imports. However, we are reaching the food security threshold, which we exceeded by 1.9% for milk and 11.6% for eggs in 2019. The situation is alarming for pork, where we cover only 45.1% of

consumption, i.e. we have to import more than half of our domestic consumption from abroad, and the indicator has deteriorated significantly in the last two years.

Table 4. Self-sufficiency rate of selected agrarian commodities in Slovakia (%)

Indicator	2015	2016	2017	2018	2019	Difference 2019-2015 (%)
Animal commodities						
Milk from sales	101.8	95.7	89.1	92.9	81.9	-19.9
Beef meat	116.5	105.2	108.3	113.2	117.8	1.2
Pork meat	55.3	56.6	68.3	48.2	45.1	-10.1
Poultry meat	91.8	77.3	96.7	113.3	100.0	8.1
Eggs	100.1	90.3	91.7	96.9	91.6	-8.4
Plant commodities						
Grains, out of which:	116.5	128.9	172.6	138.4	189.7	73.3
Wheat	122.9	154.5	178.5	167.9	201.1	78.1
Maize	115.8	109.9	203.4	124.6	233.1	117.4
Barley	102.4	101.4	133.6	103.5	114.6	12.2
Rye	117.1	197.5	109.2	94.5	107.3	-9.8
Oilseeds, out of which:	155.0	227.0	253.1	205.8	262.8	107.8
Rape seeds	102.3	182.2	210.7	148.0	187.1	84.8
Sunflower	1,314.8	1,957.4	2,007.0	1,742.9	2,465.0	1,150.1
Fruits	57.4	65.6	69.1	61.0	33.7	-23.6
Vegetables	84.2	86.7	79.9	79.6	86.8	2.6
Potatoes	58.6	55.8	59.0	51.4	61.7	3.1
Sugar	80.1	102.4	131.1	105.8	127.8	47.7
Legumes, out of which:	67.7	77.6	119.8	150.1	150.7	83.1
Peas	86.3	106.2	179.4	192.5	203.3	117.0
Beans	4.1	3.4	5.2	4.2	4.9	0.8
Lentil	22.0	15.9	3.4	21.6	14.7	-7.3

Source: Ministry of Agriculture and Rural Development of the Slovak Republic; National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

Foreign trade exchange with agro-food products

The competitiveness of Slovak agri-food products on the foreign market is mainly influenced by strong competitive pressure, which is manifested by massive imports of substitutable products to Slovakia at comparable or more competitive price ranges, especially from EU countries. The attractiveness of foreign, innovative products at prices comparable to domestic food, well-thought-out marketing and attractive advertising of retail chains are an attraction that partially dampens the patriotism of the dominant segment of Slovak consumers.

From the data presented in Table 5, it is evident that Slovakia has a long-term negative foreign trade balance with agri-food commodities, the volume of which is deepening over time. In order to be able to identify the causes of the negative development of agri-food foreign trade of the Slovak Republic, it is necessary to divide it into two basic components - trade in agricultural and food products. Since in our analysis we worked with aggregated data on foreign trade of the Slovak Republic at HS 04 level (four-digit code of customs tariff), the identification of agricultural and food products is only indicative. Moreover, the

structure of the customs tariff does not respect such division even at the most detailed level of HS 08 (eight-digit code of customs tariff), so absolutely objective and exact division of agro-food products is not possible.

Table 5. Foreign trade of the Slovak Republic with agricultural and food products (thousands EUR)

Indicator	2015	2016	2017	2018	2019	2019/15
Agricultural products						
Import						
In total	914,594	832,742	801,450	822,308	876,371	95.8
out of which: replaceable	702,567	598,113	554,585	565,906	593,410	84.5
irreplaceable	212,027	234,629	246,865	256,402	282,961	133.5
Export						
In total	1,221,414	1,126,689	893,804	907,434	913,901	74.8
out of which: replaceable	1,150,096	1,038,443	822,180	829,813	831,100	72.3
irreplaceable	71,318	88,246	71,623	77,620	82,800	116.1
Trade balance						
In total	306,820	293,947	92,354	85,126	37,530	12.2
out of which: replaceable	447,529	440,330	267,596	263,908	237,690	53.1
irreplaceable	-140,709	-146,383	-175,242	-178,782	-200,160	142.3
Food products						
Import						
In total	3,049,290	3,065,282	2,988,178	3,022,841	3,227,974	105.9
out of which: replaceable	2,438,641	2,447,182	2,334,319	2,299,600	2,511,364	103.0
irreplaceable	610,649	618,100	653,859	723,240	716,610	117.4
Export						
In total	2,371,776	2,088,084	1,840,687	1,892,245	1,912,989	80.7
out of which: replaceable	2,075,491	1,838,785	1,595,853	1,591,772	1,599,750	77.1
irreplaceable	296,285	249,299	244,834	300,472	313,239	105.7
Trade balance						
In total	-677,514	-977,198	-1,147,491	-1,130,596	-1,314,985	194.1
out of which: replaceable	-363,150	-608,397	-738,466	-707,828	-911,614	251.0
irreplaceable	-314,364	-368,801	-409,025	-422,768	-403,371	128.3
Agri-food trade in total						
Import						
In total	3,963,884	3,898,024	3,789,628	3,845,149	4,104,344	103.5
out of which: replaceable	3,141,208	3,045,296	2,888,904	2,865,506	3,104,774	98.8
irreplaceable	822,676	852,729	900,724	979,642	999,570	121.5
Export						
In total	3,593,190	3,214,773	2,734,490	2,799,678	2,826,889	78.7
out of which: replaceable	3,225,588	2,877,229	2,418,033	2,421,586	2,430,850	75.4
irreplaceable	367,603	337,545	316,457	378,093	396,039	107.7
Trade balance						
In total	-370,694	-683,251	-1,055,137	-1,045,470	-1,277,455	344.6
out of which: replaceable	84,379	-168,067	-470,871	-443,920	-673,924	-798.7
irreplaceable	-455,073	-515,184	-584,267	-601,550	-603,531	132.6

Source: Statistical Office of the Slovak Republic; National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

We have a long-term positive trade balance with agricultural products, the financial volume of which decreased by 46.9% for substitutable commodities in the period under review. In 2019, we have imported agricultural products with a total value of 876.4 million EUR, which compared to the base year of 2015 is 4.2% less. Of this, the import of substitutable agricultural products accounted for 67.7% (in 2015, up to 76.8%). A significant part of the import of agricultural products is made up of non-substitutable commodities for us, which must be imported to ensure domestic consumption. In addition, in the off-season, a significant part of the import is made up of fresh fruit and vegetables, which, given the level of costs and the structure of our production, are cheaper to import from countries with a more favourable climate. In the same period, we exported the mentioned products for 913.9 million EUR. Compared to the base year of 2015, the export of agricultural products overall decreased by 25.2%.

The unfavourable situation in the Slovak Republic's foreign trade with food products continues, as in 2019 up to 102.9% (in 2018 108.1%, in 2017 108.8%, in 2016 up to 143.0% and in 2015 even 182.8%) of our total agro-food balance was generated by food products and semi-finished products. In 2019, we imported food products for a total of 3,228.0 million EUR (compared to the base year 2015 by 5.9% more), of which up to 77.8% (in 2015 even 80.0%) represented the import of substitutable food products. In the monitored five-year period, there was a significant slowdown in the export of food products. In 2019, we placed the mentioned products on foreign markets with a total value of 1,913.0 million EUR, while compared to the base year, this is a decrease of up to 19.3%. Of the stated value, the export of substitutable food products accounted for 83.6% (in the base year of 2015, even 87.5%). The aforementioned development was reflected in the significantly passive trade balance of the food industry, which generated a deficit of 677.5 million EUR in 2015 (of which 53.6% accounted for substitutable commodities), in the last year of the analysis in question, it generated a record deficit of 1,315.0 million EUR (of which 69.3% accounted for substitutable products).

Share of Slovak products on the domestic market

It is very important for the Slovak agro-food sector that as many Slovak products as possible are sold through the network of retail chains. How competitive they are on the domestic market can be derived from the data on the share of Slovak food production on the domestic market. To determine it, we used two methodological approaches, which are described in detail in the methodological part of the paper.

Determining the share of Slovak products from sales and the financial volume of foreign trade

Taking into account the above facts, it is evident from the following figure that in 2019 (compared to 2015), the share of Slovak products on the domestic market decreased in more than half of the branches of the food industry.

As for the key branches that ensure the basic nutrition of the population, in the period 2015-2019, the share of products of the Slovak dairy and meat industry in the business network decreased. On the contrary, we note a significantly positive development in the poultry industry (+16.6%).

The mentioned industries process products of animal production, while the first two have to supplement their raw material base with imports from abroad due to the lack of self-sufficiency in the production of milk and pigs. The share of Slovak milling industry products in 2019 reached 47.2%, which in our opinion is not an optimal situation considering the high surplus of wheat on the Slovak market. Bakery products are characterized by a lower shelf life with the predominance of fresh bread and pastries, whose foreign trade exchange is not as intense as in other branches. Despite this, their share in the domestic market is decreasing (-6.8%). The mentioned development is influenced to a small extent by the growth in the offer of

baked goods in retail stores from imported frozen semi-finished products.

Among the industries producing beverages, despite a slight decline, the brewing and malting industry maintains the best position with a 77.3% share of the Slovak market. The beverage industry covers 39.8% and the wine industry 56.9% of the domestic market, with growing demand for Slovak wine, the situation is opposite for non-alcoholic beverages of domestic origin. The specific development of the monitored indicator for individual branches of the food industry in the period 2015-2019 is presented in Table 6.

Table 6. Share of Slovak food products in the domestic market (%)

Industry	2015	2016	2017	2018	2019	Difference 2019-2015 (%)
Milk industry	66.2	62.8	62.3	61.0	59.1	-7.2
Meat industry	39.4	36.5	37.4	39.0	38.1	-1.3
Poultry industry	26.4	33.8	27.1	29.9	42.4	16.6
Milling industry	42.6	44.7	45.5	64.2	47.2	4.6
Bakery industry	38.8	34.6	34.2	22.7	32.0	-6.8
Brewery-malt industry	83.1	79.3	77.8	75.9	77.3	-5.8
Distillery industry	22.7	28.6	25.6	15.2	6.0	-16.7
Starch industry	58.7	57.3	52.6	55.3	48.0	-10.7
Fat industry	16.8	19.5	13.5	13.9	13.0	-3.8
Sugar industry	20.3	22.6	21.2	61.9	59.1	38.8
Confectionery industry	15.8	17.7	18.4	17.3	17.1	1.3
Beverages industry	59.2	59.6	53.1	49.0	39.8	-19.4
Wine industry	51.3	46.1	47.9	52.1	56.9	5.6
Canning industry	26.5	30.3	30.2	39.4	37.9	11.4
Freezing industry	18.6	6.3	4.1	11.3	10.0	-8.6
Fishing industry	23.9	15.5	12.0	21.2	24.4	0.5

Note: calculation from sales and financial volume of foreign trade; data on fat industry and confectionery industry are estimated by National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics because of high re-exports

Source: Statistical Office of the Slovak Republic; National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

Determining the share of Slovak products from the natural volume of production and foreign trade

The development of the shares of Slovak products on the domestic market, calculated from the natural volume of production and indicators of foreign trade, was different in the period 2015-2019.

The specific values are shown in Table 7, while it is evident that in some cases they differ considerably from the values calculated on the basis of the previous methodological procedure.

Considering the development of the monitored indicator in the monitored period, Figure 3 shows the trend of its development in two consecutive 3-year periods, with both variant calculations. The results show that, regardless of the methodological approach, in the second half of the monitored period (2017-2019), the share of Slovak dairy, bakery, brewing-malt, beverage and freezing industry products in the domestic market clearly decreased. On the contrary, the share of Slovak products of poultry and milling industry clearly shows increasing tendencies. The development in other branches is diametrically different in both methodological procedures with positive development in wine and canning industry when calculated from financial volumes and in meat industry when calculated from natural volumes of production and foreign trade.

Table 7.Share of Slovak food products in the domestic market (%)

Industry	2015	2016	2017	2018	2019	Difference 2019-2015 (%)
Milk industry	60.7	41.1	40.2	51.3	47.0	-13.7
Meat industry	44.8	42.6	49.5	51.7	46.5	1.8
Poultry industry	37.5	28.5	30.2	42.4	41.6	4.1
Milling industry	78.2	78.9	81.9	74.1	80.1	1.9
Bakery industry	14.1	11.8	11.2	14.9	14.6	0.5
Brewery-malt industry	73.0	67.6	67.6	62.7	65.2	-7.8
Beverages industry	64.7	66.2	64.1	61.8	62.8	-1.9
Wine industry	33.0	42.4	26.5	35.3	40.2	7.2
Canning industry	34.1	25.3	22.3	25.8	19.1	-14.9
Freezing industry	36.6	65.0	30.2	12.3	16.6	-19.9

Note: calculation from natural volumes of production and foreign trade
Source: Statistical Office of the Slovak Republic; Radela s.r.o.,Ministry of Agriculture and Rural Development of the Slovak Republic, National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

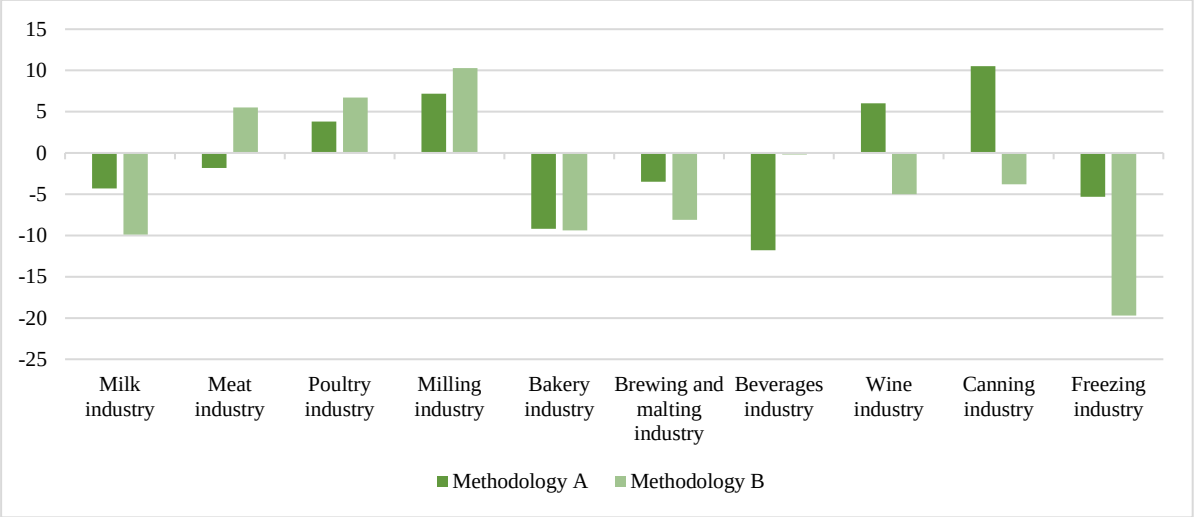

Fig. 3. Change in the share of Slovak products on the domestic market in the period 2014-2016 compared to the period 2011-2013 (%)
Note: Methodology A - calculation from sales and financial volume of trade; Methodology B - calculation from natural volumes of production and trade
Source: Statistical Office of the Slovak Republic; Radela s.r.o.,Ministry of Agriculture and Rural Development of the Slovak Republic, National Agricultural and Food Centre Branch: Research Institute of Agriculture and Food Economics.

Regarding the predictive power of the presented methodological approaches, in further solutions we recommend to apply the first methodological approach to more global aggregations of data (e.g. determination of the share of Slovak products on the domestic market by individual branches of the food industry). With regard to data availability, we recommend to preferably apply the second methodological approach to specific commodities.

CONCLUSIONS

The paper focuses on analyses of the position of the Slovak food industry on domestic and foreign markets. The object of interest were the economic indicators of the food industry, self-sufficiency of the Slovak Republic in selected agro-food commodities, foreign trade exchange and identification of the share of Slovak food products on the domestic market. The research results show that the food

industry in the Slovak Republic is thriving, with revenues exceeding costs in the long term. Despite the above, as a result of high competition on the liberalized EU market and the pressure of retail chains on the price of raw materials, in the monitored period we have recorded a stagnation or a decline in its performance measured by the development of production and sales. What is important is the fact that labour productivity from added value, which is an important economic indicator of the industry's competitiveness, grows over time, which is caused by a decrease in the workforce. The food industry has a sufficient raw material base for the processing of beef and poultry, cereals, oilseeds, sugar and domestically produced peas. With the mentioned commodities, there are surpluses for export abroad. If we consider the level self-sufficiency rate at 80% as the threshold of food security, then we at least reach it for vegetables, milk and eggs. The unfavourable situation is with fruits, potatoes, lentils, beans and pork, where we reach the lowest self-sufficiency rates. On the domestic market, it is a priority to resist the pressure of foreign imports and to increase the share of Slovak products in the domestic retail network. The low competitiveness of Slovak food products is reflected in the massive import of substitutable food products that can be produced domestically.

The mentioned commodities accounted for up to 77.8% of total imports in 2019. Overall, the Slovak Republic has a high deficit with food products, which worsens over time. On the other hand, we export an excessive amount of agricultural raw materials from Slovakia, which are returned in the form of products of the foreign food industry. The identification of the share of Slovak products in the retail network of the Slovak Republic was carried out on the basis of two methodological approaches, which are based on statistically available data, one in financial and the other in kind terms. The results clearly showed that in the period 2017-2019, compared to the previous 3-year period, the share of Slovak products of the dairy, bakery, brewing-malt, beverage and freezing industries on the domestic market decreased. On the contrary, the share of Slovak products of the poultry and milling industry is growing.

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