Self-Sufficiency in Slovak Agriculture: A Pipe Dream

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In Slovakia, the agricultural policy over the last years has been focused on increasing food self-sufficiency. Already in 2014 the Ministry of Agriculture, under the leadership of Ľubomír Jahnátek, aimed to increase the food self-sufficiency rate to 80%. Gabriela Matečná, who has led the ministry from 2016 until 2020, spoke about reaching 70% self-sufficiency within ten years[1]. This has been a reaction to the low productivity in the agricultural sector, which could not keep up with the fast-developing industry and services sectors after the fall of communism.

During the COVID-19 crisis, self-sufficiency was hailed as a necessary criterion for ensuring food availability. Thus, the new government formed in March 2020 has not buried this objective – on the contrary, it mentions it as a priority in its Program manifesto. Why is self-sufficiency such a popular goal among Slovak politicians? Is it not just an empty political promise which, in the end, no government has been able to fulfil?

In order to find the answer to these questions, one shall first look at what it means to be self-sufficient in food production, where Slovakia stands, whether this goal is economically defensible, and if the problems in the agricultural sector can be linked to low self-sufficiency. It is also crucial to examine the political efforts to increase food self-sufficiency more closely and analyze their results. Let us explore these aspects together.

> IN TODAY'S GLOBALIZED WORLD, COMPLETE SELF-SUFFICIENCY IS VERY DIFFICULT TO ACHIEVE

WHAT IS SELF-SUFFICIENCY?

Since Adam Smith´s *Wealth of Nations*[2], understanding international trade and cooperation is a crucial topic for the comprehension of economics and the benefits of trade. However, the debate whether a state should rely mainly on its own resources and activity of citizens is still in place.

In today's globalized world, complete self-sufficiency is very difficult to achieve. Even a simple sandwich requires a huge amount of work and a high degree of cooperation – from growing the wheat for bread, to extracting the salt, processing the meat (or producing a vegan alternative), not to mention the fact that even meat typically comes from factory farming, which requires a number of actions before the final *product* reaches the consumer. We could go on like this by analyzing the production process of each meal. If we were even able (with a slight simplification) to manage and prepare it self-sufficiently, it would be very expensive in terms of allocated time and resources.

[1] *Topky.sk* (2020) "SNS chce do desiatich rokov dosiahnuť podiel slovenských potravín v obchodoch na úrovni 70%". Available [online]: https://www.topky.sk/cl/10/1860403/SNS-chce-do-desiatich-rokov-dosiahnut-podiel-slovenskych-potravin-v-obchodoch-na-urovni-70- [in Slovak]

[2] Smith, A. (2002) *The Wealth of Nations*. Oxford, the United Kingdom: Bibliomania.com Ltd.

Moreover, this cooperation is not driven by any politician, but by consumers (with their demand) and entrepreneurs trying to respond with their supply. Needless to say, this article will not deal with self-sufficiency of smaller units (families, municipalities, regions), as the current political goal is to achieve self-sufficiency within the borders of Slovakia.

Food self-sufficiency at the country level is defined by the Food and Agriculture Organization (FAO) as "*the extent to which a country can satisfy its food needs from its own domestic production*"[3]. The term can therefore be expressed by the following equation:

Domestic consumption =< Domestic production

Self-sufficiency can thus be simplistically considered as a state where entrepreneurs of a specific country produce more or the same amount of food than is consumed by its inhabitants. It depends on what is produced within the boundaries of the observed country, but also on what the average citizen consumes. In this respect, a distinction is often made between self-sufficiency in the production of different products, such as milk, fruit, vegetables, etc.

Given the climate in Slovakia, it does not make sense to strive for high self-sufficiency in citrus fruit production in the region, even though there is a demand for it. This is also one of the arguments against achieving 100% self-sufficiency. Slovak consumers would have to give up their demand for oranges, lemons, and other *exotic* fruits that are not grown here, or their production would be too expensive to be profitable.

[3] Food and Agriculture Organization (2016) *Food Self-Sufficiency and International Trade: A False Dichotomy?*, p.2. Available [online]: http://www.fao.org/3/i5222e/i5222e.pdf

Defining a target value for self-sufficiency in agri-food products is, therefore, difficult. Just as there are cultural, demographic, economic, or social differences between countries, the question of the *ideal* proportion of domestic food is also unclear. Let us then look at different approaches to self-sufficiency and their (possible) implications.

HOW SELF-SUFFICIENT IS SLOVAKIA?

In order to better understand the whole issue in the Slovak context, it is useful to examine the current level of self-sufficiency

SELF-SUFFICIENCY CAN THUS BE SIMPLISTICALLY CONSIDERED AS A STATE WHERE ENTREPRENEURS OF A SPECIFIC COUNTRY PRODUCE MORE OR THE SAME AMOUNT OF FOOD THAN IS CONSUMED BY ITS INHABITANTS

in domestic agri-food production. Self-sufficiency is often measured by:

- the balance of foreign trade in agri-food products;
- the ratio of domestic production to average domestic food consumption[4].

TRADE BALANCE

Critics of low food self-sufficiency regularly point to the foreign trade balance in the agri-food sector. In Slovakia, it has been negative in recent years, i.e. the value of imports of agri-food products has exceeded the value of exports. The total value of the balance in 2019 was EUR -1.812 bn[5]. However, this is a monetary figure, which means that the amount does not reveal much about the structure of imports and exports of agri-food products.

The 2019 Slovak Green Report suggests that the product groups that dominated imports by value were beef, pork, and poultry meat, soft and alcoholic beverages and vinegar, as well as dairy products, eggs and honey. For exports, the food groups with the highest value were cereals, milk, dairy products, eggs and honey, chocolate, coffee, bakery goods, rapeseed, malt, poultry meat, sausages and salami, sunflower seeds, and sugar.

Is Slovakia specific in this regard? Germany has also had a negative balance of trade in agri-food products for many years. Despite the fact that it is a larger market, with both large and small farms and an economy that is one of the most competitive in the world, self-sufficiency in terms of the balance of trade is by no means the norm[6].

> A DISTINCTION IS OFTEN MADE BETWEEN SELF-SUFFICIENCY IN THE PRODUCTION OF DIFFERENT PRODUCTS, SUCH AS MILK, FRUIT, VEGETABLES, ETC.

The same is true in Italy, where the soil and climatic conditions are favorable for growing many crops, and the country is renowned for its cuisine. Romania also has a negative trade balance. However, the agricultural sector there is characterized by poor productivity, which is also the result of a government policy that first restricted the creation of larger farms, then promoted collectivization, only to later seek to break them up again. It is thus a problem of political instability rather than one of low self-sufficiency[7].

[4] Food and Agriculture Organization (2016) *Food Self-Sufficiency and International Trade: A False Dichotomy?*. Available [online]: http://www.fao.org/3/i5222e/i5222e.pdf

[5] Ministry of Agriculture and Rural Development of the Slovak Republic (2020) *Zelená správa za rok 2019*. Available [online]: https://www.mpsr.sk/zelena-sprava-2020/122---16206/ [in Slovak]

[6] Statistisches Bundesamt – BMEL (2019) *Deutscher Agraraußenhandel.* Available [online]: https://www.bmel-statistik.de/fileadmin/daten/AHG-0041010-0000.pdf [in German]

[7] *MDR.de* (2016) "Selbstversorger statt Global Player". Available [online]: https://www.mdr.de/zeitreise/stoebern/damals/rumaenien156.html [in German]

Table 1: List of Countries According to the Balance of Trade (BOT) in Agri-food Products

Balance of Trade (BOT)	Self-Sufficiency
Countries with Negative BOT	Austria
	Croatia
	Cyprus
	Czech Republic
	Estonia
	Finland
	Germany
	Greece
	Latvia
	Luxembourg
	Malta
	Portugal
	Romania
	Slovakia
	Slovenia
	Sweden
	United Kingdom
Countries with Positive BOT	Belgium
	Bulgaria
	Denmark
	France
	Hungary
	Ireland
	Italy
	Lithuania
	Netherlands
	Poland
	Spain

Source: FAOSTAT and WTO Trade profiles (2019) Available [online]: https://www.wto.org/english/res_e/statis_e/trade_profiles_list_e.htm

> GIVEN THE CLIMATE IN SLOVAKIA, IT DOES NOT MAKE SENSE TO STRIVE FOR HIGH SELF-SUFFICIENCY IN CITRUS FRUIT PRODUCTION IN THE REGION, EVEN THOUGH THERE IS A DEMAND FOR IT

However, other competitive countries such as neighboring Austria[8] or the Czech Republic[9] retain a similar negative balance. Out of the 28 EU countries (including the UK), only eleven had a positive balance of trade in agricultural products in 2019, according to FAO figures.

The data on trade balances in agricultural and food products vary slightly from one statistic to another, but they are consistent in one of the indicators relevant for the topic of self-sufficiency – in which countries food exports outweigh food imports in value terms. The structure also confirms what has been repeatedly pointed out in the agricultural and food sector in the past: imports are dominated by higher value-added products and, conversely, exports by lower value-added products in Slovakia.

This trend suggests that the negative trade balance is not the result of low self-sufficiency, but rather a problem with the structure of agricultural and food production in Slovakia. The dominance of crop production over livestock production is also a major contributory factor. This may also be due to the low appetite of foreign investors to open new food processing plants. Investment in recent years has focused on modernizing or expanding existing enterprises rather than on building new ones.

DOMESTIC PRODUCTION VERSUS DOMESTIC CONSUMPTION

A second approach to measure self-sufficiency is to analyze the production and consumption of different types of food.

Proponents of food self-sufficiency as a policy goal argue that it is nonsense to focus on exotic fruits, but that self-sufficiency should be achieved in *typically Slovak* crops[10]. They often cite, for example, potatoes, which thrive in our latitudes, or apples [See: Table 2].

When comparing production and consumption, it is clear that Slovaks consume significantly less wheat, maize, and poppy seeds than is produced within Slovakia's borders.

[8] Bundesministerium für Landwirtschaft, Regionen und Tourismus (2020) *Grüner Bericht* 2020, p. 7. Available [online]: https://www.bundeskanzleramt.gv.at/dam/jcr:561568c4-1e66-4bc9-a8d2-9d931907563a/29_12_ber_20_NB.pdf [in German]

[9] Ministry of Agriculture of the Czech Republic (2020) *Výsledky agrárního zahraničního obchodu ČR v roce 2019*. Available [online]: http://eagri.cz/public/web/mze/ministerstvo-zemedelstvi/zahranicni-vztahy/agrarni-zahranicni-obchod/vysledky-agrarniho-zahranicniho-obchodu-19.html [in Czech]

[10] *Webnoviny.sk* (2020) "Slovenskí potravinári sú rozhorčení, zo zahraničia denne príde až 823 kamiónov plných mäsa a zeleniny". Available [online]: https://www.webnoviny.sk/nasvidiek/slovenski-agropotravinari-su-rozhorceni-zo-zahranicia-denne-pride-az-823-kamionov-plnych-potravin/ [in Slovak]

Table 2: Production of selected crops in Slovakia (1990, 2000, 2018, 2019) versus 2018 consumption

Production in Slovakia (in tons)	1990	2000	2018	2019	Consumption 2018
beans	2,433	2,259	127	74	2,103
corn	369,646	440,365	1,515,835	1,444,812	5,160
grapes	140,297	61,092	52,418	43,044	22,543
poppy	3,442	584	2,700	3,496	2,779
potatoes	778,707	418,842	169,953	182,421	271,369
soy	4,374	4,814	104,525	116,939	n/A
sunflower	56,060	117,344	201,614	128,265	n/A
wheat	2,082,682	1,254,310	1,927,926	1,939,132	465,356

Source: Statistical Office of the Slovak Republic

> THE NEGATIVE TRADE BALANCE IS NOT THE RESULT OF LOW SELF-SUFFICIENCY, BUT RATHER A PROBLEM WITH THE STRUCTURE OF AGRICULTURAL AND FOOD PRODUCTION IN SLOVAKIA

In cereals and oilseeds, there is even several times higher production volume than consumption. However, this is not the result of the state promoting self-sufficiency in cereal production. It is partly a consequence of the fact that the demand for wheat, maize, and sunflowers is also influenced by the high demand in the non-food sector – particularly for biofuel production.

It is also worth mentioning that, in regards to livestock production, hen eggs and their origin are regularly debated. For several years now, we have observed that consumers are not only interested in their price, but increasingly in the way hens are kept. Slovakia is about 90% self-sufficient in egg production, but most of the production is from hens kept in cages[11]. What is also

[11] *Webnoviny.sk* (2019) "V produkcii slepačích vajec nie sme úplne sebestační, problémy spôsobuje aj podstielkový chov". Available [online]: https://www.webnoviny.sk/nasvidiek/v-produkcii-slepacich-vajec-nie-sme-uplne-sebestacni-problemy-sposobuje-aj-podstielkovy-chov/ [in Slovak]

Table 3: Energetic self-sufficiency in EU member states

Country	Energetic self-sufficiency coefficient (average)			Dynamics (1990–1999 = 100)	
	1990-1999	2000-2009	2004-2009	2000-2009	2004-2009
Bulgaria	94	99	101	104	107
Croatia	91	89	91	98	101
Czech Republic	109	104	106	95	97
Estonia	84	78	82	93	98
Hungary	120	117	120	97	100
Lithuania	105	107	110	102	105
Latvia	89	88	93	99	104
Poland	100	101	104	102	104
Romania	97	89	91	92	93
Slovakia	100	104	107	105	108
Slovenia	69	69	69	100	99
EU-12	101	99	101	98	101
Austria	95	96	96	100	100
Belgium and Luxembourg	112	99	98	88	87
Denmark	157	147	146	94	93
Finland	106	105	103	99	98
France	138	129	126	93	91
Germany	105	102	101	97	96
Greece	95	82	79	86	83
Ireland	140	114	108	81	77
Italy	85	76	73	89	86
Netherlands	116	114	116	98	100
Portugal	67	64	63	95	94
Spain	96	91	88	95	92
Sweden	95	91	88	96	93
United Kingdom	84	76	75	91	89
EU-15	103	96	94	93	92
EU	102	97	96	94	93

Source: Sadowski, A. and A. Baer-Nawrocka (2016) "Food Self-Sufficiency of The European Union Countries – Energetic Approach", [in]: *Journal of Agribusiness and Rural Development.* Available [online]: https://www.researchgate.net/publication/310388610_FOOD_SELF-SUFFICIENCY_OF_THE_EUROPEAN_UNION_COUNTRIES_-_ENERGETIC_APPROACH

> THE SLOVAK AGRICULTURAL AND FOOD SECTOR IS FACING THE PROBLEM OF PRODUCING FOOD WITH LOW ADDED VALUE

happening here is that, despite the country's high self-sufficiency, consumers and some restaurants are buying foreign eggs from free-range or organic farms instead.

CALORIC APPROACH TO SELF-SUFFICIENCY

When it comes to concerns about ensuring enough food in the event of a border closure, it is not accurate to look at the foreign trade balance expressed in euros. What is important is the volume of *biomass* and the calorific volume produced in the country concerned. So, the question is: In the event of a border closure, will Slovakia be able to cover the population's caloric needs with its domestic production?

A 2016 Polish study suggests that Slovakia is one of the countries that are calorically self-sufficient. Therefore, fears of *starvation* occurring in the country are misplaced. Slovakia has even seen an increase in self-sufficiency since 1990 [See: Table 3].

To calculate the self-sufficiency coefficient, the study correlated the energy intake from agricultural production produced in each country with the energy intake of the products consumed (from domestic and imported production). An index value above 100 means that the country is an exporter of energy value, an index less than 100 means the opposite – the country is an importer of calories. EU Member States with an index greater than 100 were mostly lowland countries with warm climate and fertile soils. Unfortunately, we are currently not aware of any other study with reliable and more up to date data to assess self-sufficiency in calorific values, although it is in our opinion a more accurate way to look at self-sufficiency.

COMMON EXPECTED POSITIVE IMPACTS PEOPLE ATTRIBUTE TO SELF-SUFFICIENCY POLICIES

As we mentioned in the introduction to this article, many people in Slovakia are calling for the promotion of self-sufficiency because of its promise of better agriculture. What are the common expected positive impacts people attribute to self-sufficiency? Let us look at their justification.

THE PURSUIT OF SELF-SUFFICIENCY IN POLITICS WILL BOOST DOMESTIC PRODUCTION

Consumers expect more quality homegrown food from self-sufficiency. But promoting self-sufficiency and promoting the production of certain crops and livestock are two different things.

Self-sufficiency depends on production and consumption. For example, if Slovaks drink less milk, Slovakia's self-sufficiency in milk may increase even without an increase in production. The Slovak agricultural and food sector is facing the problem of producing food with low added value. The aim is, therefore, to stimulate the production of crops and products with higher added value.

The Institute of Agricultural Policy at the Slovak Ministry of Agriculture and Rural Development points out that in Slovakia, the predominant crops are cereals and oilseeds, which are less labor-intensive and lower in price than fruit, vegetables or livestock farming[12]. The cultivation of cereals and oilseeds is also conditioned by historical and economic development. The collectivization of cooperatives during socialism is partly responsible for the fact that the average size of fields in Slovakia is one of the largest in the European Union[13].

> SUBSIDY SUPPORT LINKED TO THE SIZE OF AGRICULTURAL LAND PRESERVES THE *STATUS QUO*

Subsidy support linked to the size of agricultural land preserves the *status quo*. Cereals and oilseeds are especially advantageous to grow on large fields, and the management of them is linked to economies of scale. The second reason for growing large volumes of oilseeds (about 10% of Slovak agricultural land)[14] is their use for biofuel production. This gives growers a guaranteed purchase of their produce, which makes growing oilseeds advantageous regarding the stability of their business.

This situation cannot be easily changed by self-sufficiency policies. It requires more significant reforms, such as a major rethinking of the objectives of existing subsidy policies that incentivize lower value-added production, changing the extremely fragmented land ownership and making it easier to do business, e.g., by encouraging sales directly from farm backyards.

Last but not least, production can also be supported by foreign investors. In order to attract capital and know-how, it is essential to build a favorable and stable business environment that does not discourage potential entrepreneurs with pointless regulations and high fines.

SELF-SUFFICIENCY IS ECOLOGICAL, DUE TO LOWER CO2 EMISSIONS

There is a wide-spread hypothesis regarding self-sufficiency: by encouraging self-sufficiency in Slovakia, CO2 emissions will decrease because Slovaks will *buy local* products that do not need to be transported from other parts of the world. This assumption is, however, wrong. There are several reasons for this:

1. **Local production crosses political borders.** This means that for citizens living in Bratislava, food produced in the Austrian Burgenland region is closer than food imported from Zemplín region, which is located in the very east of the country. Slovak products are not automatically closer to the final consumer. This applies for other countries too – the larger the

[12] Ministry of Agriculture and Rural Development of the Slovak Republic (2021) *Záverečná správa revízie výdavkov na pôdohospodárstvo a rozvoj vidieka.* Available [online]: https://www.mpsr.sk/zaverecna-sprava-revizie-vydavkov-na-podohospodarstvo-a-rozvoj-vidieka/1263-184-1263-16615/?year=2021& [in Slovak]

[13] *The Slovak Spectator* (2020) "Large Fields in Slovakia Pose Risks to Environment". Available [online]: https://spectator.sme.sk/c/22406674/large-fields-in-slovakia-pose-risks-to-environment.html

[14] *Aktuality.sk* (2020) "Repka: Spása pre naše zúbožené poľnohospodárstvo alebo žltý armagedon?". Available [online]: https://www.aktuality.sk/clanok/794232/repka-spasa-pre-nase-zubozene-polnohospodarstvo-alebo-zlty-armagedon/ [in Slovak]

country, the more important it is to consider this factor.

2. **Transportation accounts for an insignificant part of greenhouse emissions in agriculture.** Emissions and the environment are more influenced by pesticides used, whether there is a need to use heated greenhouses or whether the climate in a given country is naturally favorable, how much fuel is used in ploughing, etc. There are many studies on this subject.

   To illustrate this, here is an example from a British study which looked at the carbon footprint of apples, lettuce and cherries. Lettuce, which is mainly produced in Great Britain, with some being imported from Spain, had the lowest carbon footprint (44-45 kg CO2/ton). Cherries were imported from North America (7,751 km transport distance on average) by air, which meant that their carbon footprint per ton of fruit was higher than that of apples, which were imported even further from New Zealand by ship (8,767 km transport distance). While apples emitted 2.4 times more CO2 than lettuce, cherries emitted up to 80 times more[15].

   Another study compared apples and concluded that apples imported from New Zealand to Britain produced less CO2 than those grown in Britain. In the same analysis, the authors looked at onions, where there was an anomaly – the energy used to grow them was higher in Britain, but the CO2 emissions were lower, because of the different energy mix used in New Zealand (greater use of diesel).

> IT IS ESSENTIAL TO BUILD A FAVORABLE AND STABLE BUSINESS ENVIRONMENT THAT DOES NOT DISCOURAGE POTENTIAL ENTREPRENEURS WITH POINTLESS REGULATIONS AND HIGH FINES

   To look at other European countries, a study completed in 2000 compared the production of cut flowers and concluded that their production in the Netherlands was more CO2 intensive than that in Kenya, including their imports into the Netherlands. In summation, the amount of greenhouse gases emitted cannot be reduced to the transport distance alone[16].

[15] Saunders, C., Barber, A., and G. Taylor (2006) *Food Miles – Comparative Energy/Emissions Performance of New Zealand's Agriculture Industry*, p.71. Available [online]: https://ucanr.edu/datastorefiles/608-324.pdf

[16] Vringer, K. and K. Blok (2000) *The Energy Requirement of Cut Flowers and Consumer Options to Reduce It.* Available [online]: https://www.researchgate.net/publication/263696068_The_energy_requirement_of_cut_flowers_and_consumer_options_to_reduce_it

3. **Specialization** – the magic word that allows producers to focus on mass food production. Specialization saves resources – instead of dozens of chocolate factories, there is only one. Instead of pouring concrete and tying steel in multiple cities, there is only one place, where machines are used to their full potential. Thus, specialization is in many cases also an ecological choice.

Despite the wide-spread assumption that self-sufficiency means more local food, economic theory and empirical evidence showed that this is far from true. Borders are a political construct, which often ignores the natural, social and historical connections between regions.

Despite the trend to buy local, we need to emphasize that international trade and cooperation help to provide food also for people living in cold climate or desert areas. It would be costly in terms of finance but also ecology to produce everything locally. Self-sufficiency based on national borders is, therefore, not ecological. It is thus a truly selfish and nationalistic approach.

> THE AMOUNT OF GREENHOUSE GASES EMITTED CANNOT BE REDUCED TO THE TRANSPORT DISTANCE ALONE

FOOD SELF-SUFFICIENCY MEANS GREATER FOOD SECURITY

In the public debate, self-sufficiency is often confused with food security. In this respect, it is important to define the concept of food security, which means that *"all people at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life"*[17]. This definition suggests that the origin of food does not determine its quality and availability.

In the past, international trade and cooperation, not government policies of self-sufficiency and isolation, have won the fight against famines. Nevertheless, advocates of self-sufficiency policies often argue that it is important for a country's food security, as the domestic market will lose its regular food supply if borders are closed.

There has been a long-standing argument in Slovakia that there is insufficient fruit production. However, the motivation to grow fruits also depends on storage capacity. In 2020, it was said that Slovakia produces around 50,000 tons of fruit, but not even half of this can be properly stored nationally[18]. Fruit production from Slovakia is, therefore, also going to warehouses abroad. Thus, it is not sufficient to produce enough in volume; it is crucial to analyze whether the infrastructure is in place to ensure that produced food reaches consumers – which means enough vehicles, refrigerators, freezers, packaging plants, etc. This is also an issue in connection with the state food reserves in Germany, but it is also a problem for

[17] Food and Agriculture Organization (2011) *Statistical Pocket Book*, p. 250. Available [online]: http://www.fao.org/3/i2493e/i2493e06.pdf

[18] *Polnoinfo.sk* (2019) "Sklady pomôžu, ale nevyriešia všetko". Available [online]: https://polnoinfo.sk/sklady-pomozu-ale-nevyriesia-vsetko/ [in Slovak]

> IN THE PUBLIC DEBATE, SELF-SUFFICIENCY IS OFTEN CONFUSED WITH FOOD SECURITY

Slovakia – the warehouses may be full, but who will ensure that food is further processed and distributed?

Another FAO study compared the self-sufficiency rate with the number of people below the adequate nutrition intake level in several countries. Despite high self-sufficiency rates in food production, poor countries had a relatively higher hunger rate compared to rich countries[19]. This means that hunger does not depend on self-sufficiency, but on wealth.

Furthermore, self-sufficiency always implies a reduction in foreign competition. Let us imagine a situation where there is a massive devaluation of domestic production, e.g., due to a weather disaster. If the policy of self-sufficiency favors domestic over foreign products, the resumption of trade relations with foreign countries is not automatic. There are several well-known cases of retaliation in global trade (in food or non-food products) where one restriction has triggered another.

The most recent example of a trade war between two superpowers is the one between the United States and China. The U.S., under the pretext of supporting local businesses, introduced new tariffs on the imports from China, which retaliated by announcing tariffs on U.S. imports. Tariffs in certain imports have increased (from 8% to 21%) and resulted in a decline in mutual trade[20]. Although tariffs and other trade barriers have been significantly reduced in the world since World War II, trade wars are still a real threat today.

Openness and a connection to the world market is important in the event of a disaster in the home country. We do not have to think only of natural disasters such as floods or droughts. Chemical contamination can also render agricultural produce unfit for consumption for many decades. In Slovakia, for example, we are talking about sites where the soil is contaminated as a result of previous industrial activity[21]. In our quest for self-sufficiency, we keep ignoring these threats.

As analyzed in the first part of this article, the threat of starvation in the event of a border closure does not apply, as there is sufficient food production in Slovakia in terms of calories. Although there is a mismatch between agricultural production and consumer preferences. The dynamics of the development of self-sufficiency is also interesting – the so-called *new* EU

[19] Food and Agriculture Organization (2016) *Food Self-Sufficiency and International Trade: A False Dichotomy?*, p.4. Available [online]: http://www.fao.org/3/i5222e/i5222e.pdf

[20] World Trade Organization (2020) *An Economic Analysis of the US-China Trade Conflict*. Available [online]: https://www.wto.org/english/res_e/reser_e/ersd202004_e.pdf

[21] Soil Science and Conservation Research Institute (2010) *Soil Science and Conservation Research Institute.* Available [online]: https://www.vupop.sk/dokumenty/rozne_monitoring_pod_slovenska.pdf [in Slovak]

member states[22] have rather seen an increase in calorific self-sufficiency, while the *old* member states[23] have stagnated or experienced a decrease. This development may be a consequence of the enlargement of the common market, strengthening competition, and changing consumer behavior.

To sum up, the most recent evidence-based argument which implies that self-sufficiency is not as important for food security as it seems, were the hard lockdowns during the COVID-19 pandemic in 2020. Only the short-term lack of products like flour and yeast occurred[24]. This happened despite the fact that Slovakia is a major producer of flour and self-sufficient in this product.

HIGHER SELF-SUFFICIENCY MEANS HIGHER EMPLOYMENT

The agri-food sector is seen as a place where we can simply move the unemployed and low-skilled workers. However, agriculture today is not about giving people a shovel and sending them out to dig. As well as in other sectors, there is a shortage of skilled labor too.

AGRICULTURE TODAY IS NOT ABOUT GIVING PEOPLE A SHOVEL AND SENDING THEM OUT TO DIG. AS WELL AS IN OTHER SECTORS, THERE IS A SHORTAGE OF SKILLED LABOR TOO

There are a number of multinationals in the agri-food sector that are relying on open markets. Several such companies, which also have a significant impact on employment or tax revenues, operate in Slovakia. A well-known Slovak confectionery producer has increased its sales especially in neighboring countries but imports raw materials for its production from abroad: "*We import a lot of raw materials from abroad. We get flour from Hungary, powdered milk and fresh egg yolks from Poland, nuts from Portugal*"[25].

This company alone employs more than 1,000 employees and has paid more than EUR 2 million in income taxes[26]. By looking at the twenty largest employers in the food processing sector in Slovakia listed in the FinStat database, only three firms on this

[22] EU 12 or *new EU member states* are countries which joined the EU in 2004 or later, e.g. Slovakia, Poland, Czechia, etc.

[23] EU 15 or *old member states* are countries which have been members of the EU before 2004, e.g. Germany, Austria, France, etc.

[24] *TA3.com* (2020) "Ľudia pre nákazu vykupujú tovar, obchody majú vianočné tržby". Available [online]: https://www.ta3.com/clanok/170855/ludia-pre-nakazu-vykupuju-tovar-obchody-maju-vianocne-trzby [in Slovak]

[25] *Trend.sk* (2015) "Blackout a zatvorené hranice by bol kolaps štátu, myslí si Pavol Jakubec". Available [online]: https://www.trend.sk/biznis/blackout-zatvorene-hranice-bol-kolaps-statu-mysli-pavol-jakubec [in Slovak]

[26] Finstat database (2021) *I.D.C. Holding, a.s.* Available [online]: https://www.finstat.sk/35706686 [in Slovak]

list had *private - domestic* ownership; the rest were *international private* (6) and *foreign* (11)[27]. These investors would probably not have invested in Slovakia if the government would have pursued a policy of self-sufficiency. They built the plant, created new jobs, and brought in capital.

While ownership does not indicate whether a firm uses more Slovak than foreign resources, these are generally also export-oriented companies. Sales and jobs are thus also dependent on exports, not just on domestic demand. The list of the largest companies in the food sector by sales in 2015 shows that there are only a few companies that produce solely for the Slovak market[28].

In addition, several companies focus on the production of intermediate products such as cocoa paste or alcohol[29]. Their specialization allows for high-volume production, which lowers the unit cost of production. Further processing steps can thus take place in different locations, often in different countries, where other intermediate or final products are produced for sale. Thanks to open borders, a larger market and higher production volumes, the unit cost of production falls, and, as a result, domestic consumers can also enjoy cheaper products.

NEGATIVE ASPECTS OF THE ENDEAVOR FOR SELF-SUFFICIENCY IN SLOVAKIA

Slovakia is part of the European Common Market, within which the European Commission oversees the free movement of goods and services. This is governed by the principle of non-discrimination of products from individual member states. Several attempts to restrict products from abroad have been stopped as they distort the competitive environment.

In Bulgaria, for example, they recently passed a law requiring chains to sell 90%

THANKS TO OPEN BORDERS, A LARGER MARKET AND HIGHER PRODUCTION VOLUMES, THE UNIT COST OF PRODUCTION FALLS, AND, AS A RESULT, DOMESTIC CONSUMERS CAN ALSO ENJOY CHEAPER PRODUCTS

[27] Finstat database (2021) *Firmy s finančnými údajmi - databáza hospodárskych výsledkov slovenských firiem.* Available [online]: https://finstat.sk/databaza-financnych-udajov [in Slovak]

[28] *Trend.sk* (2015) "Najväčšie firmy Slovenska - potravinársky priemysel". Available [online]: https://www.trend.sk/trend-archiv/najvacsie-firmy-slovenska-potravinarsky-priemysel [in Slovak]

[29] *TERAZ.sk* (2012) "O slovenskú vodku majú záujem v Číne, už tam vypravili prvý kontajner". Available [online]: https://www.teraz.sk/najnovsie/o-slovensku-vodku-maju-zaujem-v-cin/31126-clanok.html [in Slovak]

> THE SLOVAK MARKET IS ONE OF THE SMALLER ONES AND THE POSSIBILITY TO EXPORT ABROAD LEADS TO ECONOMIES OF SCALE, WHICH ALLOWS DOMESTIC CONSUMERS TO AFFORD CHEAPER SLOVAK PRODUCTS

of dairy products from domestic producers and to reserve a special area in the store for domestic products. The European Commission has called on the country to repeal the law, as it violated the principle of the free movement of goods[30].

Similarly, in 2020, the Commission also warned Romania, which had implemented a similar law. Slovakia was also in the spotlight, when the European Commission stated that a law highlighting/favoring the marketing of Slovak products violated the rights of retailers to design and choose their own products[31]. At the beginning of 2021, a similar issue was addressed in neighboring Czech Republic, when a draft law on the minimum share of home-produced food on the Czech market was on the table[32]. These laws ignore the fact that domestic producers often also offer their products on foreign markets, and if each country applied similar principles, the common market and its benefits would not work in practice. The largest companies in the food sector in Slovakia are often also significant exporters (the share of exports in sales is more than 50% for some of them)[33].

The Slovak market is one of the smaller ones and the possibility to export abroad leads to economies of scale, which allows domestic consumers to afford cheaper Slovak products. Not to mention food companies, which are also important employers. Stable jobs cannot be created by legislating limitations on foreign competitors. On the contrary, such policies will contribute to the introduction of similar restrictive measures in the target markets for Slovak production. What if politicians in countries from which we refuse to buy apples suddenly return our cars?

[30] *SeeNews.com* (2020) "EU Commission Urges Bulgaria to Scrap Law Obliging Retailers to Favor Domestic Foods". Available [online]: https://seenews.com/news/eu-commission-urges-bulgaria-to-scrap-law-obliging-retailers-to-favour-domestic-foods-698875

[31] European Commission (2020) *July Infringements Package: Key Decisions*. Available [online]: https://ec.europa.eu/commission/presscorner/detail/en/INF_20_1212

[32] Czech Parliament (2020) *Amendment Proposal to Law no. 110/1997*. Available [online]: https://kaderavek.cz/_files/200000198-006ad006b0/462293477-Balastikova.pdf [in Czech]

[33] *Trend.sk* (2015) "Najväčšiepodnikypotravinárskehopriemyslu". Available [online]: https://www.trend.sk/trend-archiv/najvacsie-podniky-potravinarskeho-priemyslu [in Slovak]

> PAST CRISES SHOW THAT IF ONE COUNTRY INTRODUCES BARRIERS, OTHER COUNTRIES FOLLOW ITS EXAMPLE

The World Food Security Report, also published annually by the FAO, points out that protectionist trade measures have often been embedded in strategies to increase food self-sufficiency. In low-income countries, this has resulted in increased domestic production of energy-dense foods (such as rice and maize), but at the expense of vitamin- and nutrient-rich crops (mainly fruits and vegetables)[34]. This tendency confirms the hypothesis above that self-sufficiency policies will not ensure quality, safe and affordable food, and may lead to the opposite – jeopardizing food security. The report also highlights the issue of non-tariff barriers – such as various sanitary and phytosanitary regulations in trade, – which increase costs for producers and the price of food for consumers.

In the context of the COVID-19 crisis and concerns about food supplies, the FAO has issued an opinion stating that states should do everything possible to keep markets open and to eliminate barriers to international trade. Past crises show that if one country introduces barriers, other countries follow its example[35].

CONCLUSION: SLOVAK AGRICULTURE AND FOOD INDUSTRY CAN THRIVE WITHOUT SELF-SUFFICIENCY

The good news for the Slovak agri-food sector is that it does not need more self-sufficiency. Its definition is too vague to base policy efforts on it.

However, examples from other countries show that a reliable supply of healthy food from productive and competitive domestic farms is the result of investment and innovation. Skilled workforce, free flow of know-how and investment, and, last but not least, specialization are the keys to making Slovak businesses and products competitive, while meeting the quality demands of domestic and foreign consumers.

Modern agriculture resembles a car factory with sophisticated machines, engineers, and warehouses, rather than an outdated cooperative, which was the last hope for a low-skilled workforce. There are already positive examples in the sector today that are succeeding because of their entrepreneurial determination. Thanks to openness and international cooperation, a number of major employers were able to develop their successful businesses in the food sector.

Specialization has contributed to the export success of instant soup producers in the Upper Nitra region, confectioners in

[34] Food and Agriculture Organization (2020) *Food Security And Nutrition Around The World In 2020*, Available [online]: http://www.fao.org/3/ca9692en/online/ca9692en.html#chapter-executive_summary.

[35] Food and Agriculture Organization (2020) *COVID-19 and the Risk to Food Supply Chains: How to Respond?*. Available [online]: http://www.fao.org/3/ca8388en/CA8388-EN.pdf

the capital, and juice producers in southern Slovakia. In agriculture, the import of technology has led to exceptional projects in fruit and vegetable growing. Innovation, capital investment, and land were enough to build a blueberry farm in the village of Nová Dedina, even without the help of state subsidies[36]. Meanwhile, the Danube Lowland is swarming with tomato growers who, thanks to modern technology and good marketing, achieved a stable position and financial results[37]. These successful farms show that entrepreneurial determination is more important than subsidy schemes and political strategies.

Although it sounds like a *cliché*, the way to encourage entrepreneurs is to simplify the conditions for doing business. For example, poppy growers face excessive bureaucracy unrelated to the prevention of illegal activities (e.g., health declarations)[38]. Significant investment in the food sector in recent years has come mainly from existing companies expanding their production. New food investments are less frequent, which may be related to the changing business environment and the propensity for protectionism.

Farmers and food producers should be concerned first and foremost with their business, not with regulation. In this context, changes in the subsidy system will also play a crucial role, as subsidy schemes in the past have been characterized by their unpredictability and a great amount of reporting. New ideas need a ground for implementation – investment in land consolidation to solve the extremely fragmented land ownership will create a more transparent environment for farmers, entrepreneurs, as well as the general public. These particular reforms should not be reduced to the notion of self-sufficiency.

We all want more local food that is healthy and affordable. We want to see more competitive companies whose productivity and reputation guarantee quality. For this dream state, the agri-food sector needs more than self-sufficiency. It needs reform commitments that create space for cooperation, not isolation.

[36] *Pravda.sk* (2017) "Čučoriedková plantáž bez dotácií. Za vlastné". Available [online]: https://ekonomika.pravda.sk/ludia/clanok/438215-cucoriedkova-plantaz-bez-dotacii-za-vlastne/ [in Slovak]

[37] *Trend.sk* (2015) Kto boli finalisti Podnikateľa roka 2014. Available [online]: https://www.trend.sk/financie/kto-boli-finalisti-podnikatela-roka-2014 [in Slovak]

[38] *SLOV-LEX* (2021) Law No. 1998/139/ZZ. § 5 (5). Available [online]: https://www.slov-lex.sk/static/pdf/1998/139/ZZ_1998_139_20200101.pdf [in Slovak]

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