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FOOD GEOGRAPHICAL INDICATION IN ENHANCING AGRICULTURAL AND TOURISM PERFORMANCE

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Abstract

Food Geographical Indication (GI) are labels that guarantee consumers that this is an original food product of the highest quality whose origin is linked to a specific region. The aim of the study was to determine the current state of GI, i.e. the number and spatial distribution in the EU and to examine their relationship with the performance indicator of agriculture and tourism in the EU. At the time of writing the paper in the EU Geographical indications register, 1,507 food products were recorded, which were unevenly distributed in the members of the Union. Most of them are in the southern Mediterranean member states, while their number is decreasing towards the north of Europe. The results of the paper reject the assumption of a positive correlation between the number of GIs and the performance of agriculture in the EU28. Indeed, the leading EU members in terms of agricultural output are also those with relatively few GIs. On the other hand, most GIs are found in EU member states with below-average developed agriculture but with an important role of tourism in their economy. The conclusion of the paper is that in most countries with less developed agriculture, GIs cannot significantly improve unfavourable macroeconomic agricultural indicators but have a multiplier contribution to the development of the tourist offer and tourism in general.

Key words**:** *correlation, EU, Food Geographical Indication, tourism, performance of agriculture*

INTRODUCTION

One of the most important goals of the European Union's agricultural policy is to ensure a sufficient amount of safe and quality food. With the rise in living standards, consumers in EU countries are showing an increasing interest in quality foods with traditional characteristics. This causes a growing demand for foodstuffs specifically related to the geographical area in which they are produced.

During the 1990s, the European Union established a unique system that allows the protection of the names of agricultural and traditional products that are either related to a particular geographical area in terms of quality and special characteristics or the method of their production follows traditional recipes and / or methods. In June 1993, the European Union adopted Regulation 2081/92 laying down criteria for obtaining quality labels for agri-food products from a geographical area: Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI). In 1999 (Regulation 1804/99), protection was extended to Traditional Specialties Guaranteed (TSG) products whose specific characteristics are conditioned by the method of manufacture and traditional composition. These markings on the product packaging, next to the name, guarantee the consumer the purchase of an authentic and controlled product, of recognized quality and local origin.

The European Commission keeps a record of geographical quality labels in eAmbrosia – EU Geographical Indications registers. This base was launched in 2019 replacing previous databases for wine (e-Bacchus), spirits (e-

Spirit-Drinks) and food (Door). It includes a list of product names (agricultural products and foodstuffs) registered as PDO, PGI or TSG as well as the names for the registration of which it has been applied [22].

At the beginning of 2021, 3,736 products were recorded in the database, divided into four groups: (1) food, (2) wine, (3) spirit drinks, (4) aromatized wines. The subject of this paper are Food Indications, which make up 1,507 or 40.3% of all quality labels in the register.

An observation of the items and their distribution among the members of the European Union reveals a noticeable spatial inequality. Albuquerque et al. [2] conclude that the largest number of registered products is found in the countries of southern Europe, continuously increasing in comparison with the countries of northern Europe. In her dissertation, Bitota [5] from the Faculty of Agricultural Sciences, Uppsala in Sweden researched the reasons why, at the time of the research, there were only three protected products in Sweden while in France there were 170. The author concludes that the labelling system in France is suitably presented and functions very well. On the other hand, producers and consumers in Sweden are not sufficiently informed about the benefits and are generally more cautious in their opinions on the extent in which food protection systems would encourage the consumption of thus labelled foods.

Unlike their counterparts in Sweden, it seems that Croatian producers are more familiar with the benefits of product geo-labelling. This is confirmed in the research by Mesic et al. [16] who, using a sample of 30 Slavonian kulen producers, found that a significant share of producers (43%) is fully familiar with geographical indications, and that they have very positive expectations from the impact of GI on the increased competitiveness of Slavonian kulen producers.

Aside from the contribution to the food market development, products with a geographical indication give added value to the rural area in which they are protected, and are aimed at revaluing the range of local origin products. In their research, Spilková and Fialová [20] emphasize that the labels aim to encourage regional development, as the vast majority of products carrying these labels come from Less Favoured Areas. Academic circles are increasingly discussing food as a distinguishing component and its potential for contributing to the tourists' decision to visit a destination. Different countries also use different approaches when linking food and tourism. Concepts such as gastronomic or culinary tourism or food tourism are being developed [17]. Furthermore, the labels, in addition to being present on the food product, also represent the locality and the recipe (culinary secret), thus representing the history of that tourist destination [18].

According to Hall et al. [12] and Hjalager & Richards [13] the experience of tasting specific food in a tourist destination has added value both on the supply side and on the demand side of the tourist experience. Food is very often a key aspect of a travel experience or may be key to understanding the culture of an area [11]. Another important part of the tourist offer are specific gastronomic specialties and national cuisines, both directly related to geographic food labels. Duvnjak [8] conducted a survey on a sample of 107 adult respondents and found that tourists at a rural tourist destination are most attracted to the gastronomic offer. More than half of the respondents (65%) believe that food at a rural tourist destination should come from nearby family farms, and 39% of respondents said that when they are consuming food it is important that the product has at least one local origin label. Balabanova [3] concludes that the introduction of a system for the protection of rural gastronomy in the EU has contributed to the awakening, preservation and improvement of the local food production quality and the development of entrepreneurship and self-employment in rural areas. He mentions the example of France, which promotes cheeses, wines, seafood and other agri-food products through the cooperation of local organizations and travel agencies. In this way, the rural area and local food producers are developing synergistically. A similar idea of mutual cooperation between the food production and tourism sectors in

Spain is emphasized by Xosé et al. [23], underlining the importance of local food products as a resource for gastronomic tourism. Combining food and tourism affects the development of tourism, and at the same time promotes the quality of agricultural products, which further develops the local gastronomic offer.

MATERIALS AND METHODS

The aim of this paper is to analyse the use of the Food Geographical Indication Scheme in the European Union countries and to determine their statistical connection with the development indicators in agriculture and tourism.

In the first part of the paper the displayed results will show:

a. the number of protected products in EU member states in absolute and relative amounts (number of labels per 106 ha of used agricultural land.), and

b. the representation of certain product categories among protected products.

The paper used secondary data from the EU geographical indications register (eAmbrosia). A similar survey was conducted by Velčovská & Sadílek in 2014 [22], and this paper will identify any changes in the leading countries and product categories in the protection processes that occurred in the meantime.

In the second part of the Results section, a correlation analysis will be conducted in order to determine the relationship between the number of protected products and development indicators in agriculture and tourism. The first assumption of the paper is that there is a measurable and statistically significant positive contribution of food protection to the total value of agricultural output. To this end, the correlation between the number of GIs per million inhabitants of EU members and agricultural output per unit of labour will be investigated. Another assumption of the paper is that there is a connection between the number of GIs and the economic tourism indicators of EU member states. This assumption is based on the fact that food and culinary delights play a crucial role in the tourists' demands [6], [15], [19].

In order to confirm the second hypothesis, the GI number will be matched with the Tourism Intensity indicator, which is expressed by the number of overnight stays in the receptive country per capita. The analysis will be conducted on the example of EU member states and UK (N = 28) according to data for 2018. Due to the relatively small sample and lack of normal distribution, a nonparametric test of the Spearman correlation coefficient will be used. The correlation will also be displayed graphically using a Scatter Plot.

RESULTS AND DISCUSSIONS

The results of the GI number analysis are determined as the situation on January 26, 2021 when there were 1,507 food products in the Food Register, which ispart of the EU geographical indications register eAmbrosia. Compared to March 2013, when 1,146 product items certified with PGI, PDO or TSG label were registered in the DOOR database [22], this is an increase of 31.5%.

Among 1507 GIs, the majority are those with PGI labels (784). PDOs (659) follow, while TSG labels (64) are the least numerous. Compared to 2013, the number of PGI labels increased by 236, the number of PDO labels increased by 99, while the number of products with TSG labels increased by 26 more than in 2013.

Table 1. Geographical Indication Labels type share (N=1,507)

Label type	PGI	52.0 %
	PDO	43.7 %
	TSG	4.3 %

Source: Author's processing according to the data from "eAmbrosia – the EU geographical indications register"[8].

Considering the product categories, the most common are fresh and processed fruits, vegetables and cereals. This category was the most represented in 2013 as well, with approximately the same share [22]. In terms of share, meat and meat products hold the second place and thus, combined with the

leading category, account for half of all Geographical Indication Labels.

Table 2. The most common food categories in the GI register (January 26, 2021)

Product category	Fruit, vegetables and cereals, fresh or processed	404	26.8 %
	Meat. fresh and processed	367	24.4 %
	Cheeses	255	16.9 %
	Oil and fats (butter, margarine. oil etc.)	143	9.5 %
	Bread, pastry, cakes, biscuits etc	100	6.6 %
	Fresh fish, molluscs, crustaceans etc	57	3.8 %
	Beers	27	1.8 %
	Pasta	12	0.8 %
	Other	142	9.4 %

Source: Author's processing according to the data from "eAmbrosia – the EU geographical indications register"[8].

When observing the geographical distribution, it is noticeable that GIs are most numerous in the Mediterranean EU member states. Italy has the most labels (312), followed by France (257) and Spain (203). These three EU members have 51.2% of all labels in the Union. The concentration of GI distribution is evident from the fact that the cumulative share of 21 EU member states is less than 20%. There are no GIs in Estonia and Malta (Fig.1). Due to the differences in the area size and population of EU member states, a more objective picture of GI quantity and their importance to the local economy is likely to be obtained by an indicator of relative GI numbers calculated by the ratio of GI to population in EU member states.

Expressed in this way, Portugal is the leading country with 10.6 GI per million inhabitants. Countries with more GIs include Slovenia (12.4 GI per million population) and Greece (10.6 GI per million population) (Fig. 2).

Among the eight leading countries in terms of the relative number of GIs, as many as seven of them are part of the Mediterranean geographical area.

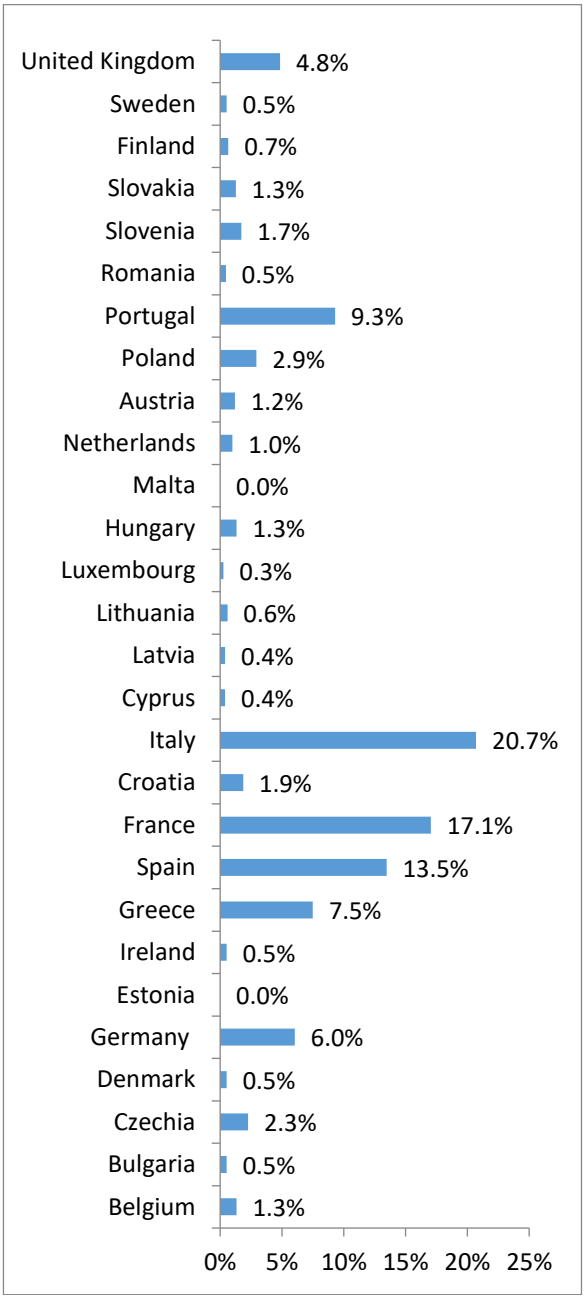

Fig. 1. Share of EU members Geographic Indication Label in total EU labels.
Source: Author's processing according to data from "eAmbrosia – the EU geographical indications register", on January 26, 2021 [8].

On the other hand, the bottom of the list is occupied by the northern European members, Sweden and the Netherlands with less than one GI per million inhabitants. The disinterest of consumers and food producers towards

labelling in Sweden was also confirmed by Bitota Mudibu Sparf in her 2010 dissertation [5].

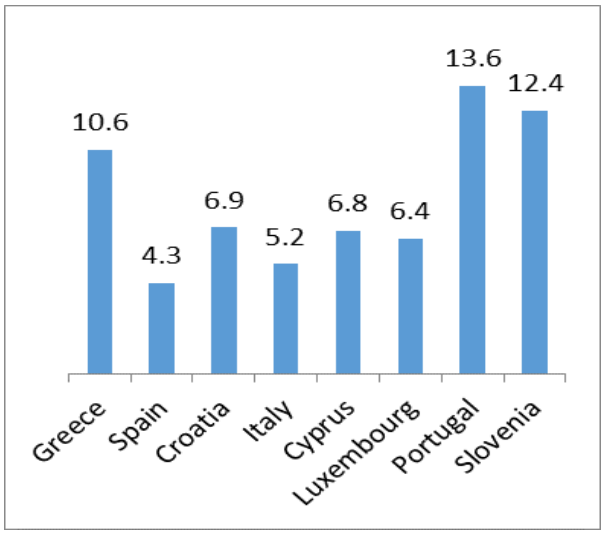

Fig. 2. GI number per million inhabitants – eight leading EU member states
Source: Author's processing according to data from "eAmbrosia – the EU geographical indications register", on January 26, 2021 [8].

The author states that Swedish consumers and producers may not be sufficiently informed about the advantages of GI. Furthermore, representatives of two Swedish companies agreed that the geographical indication is good as a system of protection, but they are not so convinced that the geographical indication label can enhance their already strong trademarks. The Swedish government might also be sceptical about the benefits of a labelling system. The fact that the most food produced in Sweden is consumed locally may be one of the reasons why there is not as much interest in product labels. If their production were intended for export, it is likely that producers would have an economically justified interest in protecting their products with designations of origin or geographical origin. Bitota [5] states that Scandinavian producers are hesitant with the labelling system. The needs of such a labelling system are difficult to combine and understand in the countries of northern cultures. In these countries, food products are often associated with industrial value and quality based on standardization and hygiene. On the other hand, there is a small portion of those familiar with such a system (in France 10-12% are not familiar with PDO, while in Scandinavia 10-12% of consumers are familiar with it).

Although the Netherlands is the world's leading country considering the value of food exports per capita, only 15 food items have a GI label, among which there are only four types of cheese. This data contradicts the conclusions reached by Balogh and Jambor [4] who found that countries exporting cheeses with a PDO label have a comparative advantage over other countries without GI cheeses.

Like the Netherlands, many other EU members with highly developed agriculture and good agro-economic indicators, have relatively little food protected by GI. For example, Germany, Denmark and Belgium have less than 2 GIs per million inhabitants. In order to determine the statistical correlation of development indicators with the number of GIs, a correlation analysis was performed. By calculating the Spearman correlation coefficient, the economic indicator agricultural output per annual working unit and the number of GI per capita were matched (Fig. 3).

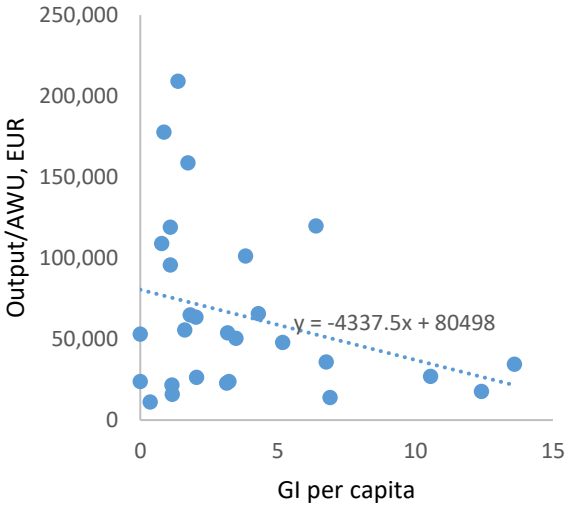

Fig. 3. The correlation between the number of GI and the EU agriculture productivity
Source: author's processing according to data from "eAmbrosia – the EU geographical indications register", on January 26, 2021 and Economic accounts for agriculture (2020) [8].

The presented graph shows a negative correlation, which, expressed by Spearman's correlation coefficient, is -0.19436. Although it is not possible to talk about a statistically significant relationship (r_s = -0.19436), this rejects the first assumption of the paper about the positive contribution of GI to economic performance of agriculture. On the contrary, the members with the most productive agriculture in the Union (Denmark, the Netherlands, Belgium) are also members with a relatively small number of GIs.

Table 3. Order of countries according to agricultural productivity and number of GIs

	Agricutural Output/AWU		GI's	
	EUR	Rank in EU	Number per million inhabitants	Rank in EU
Denmark	209.109	1	1.4	19
Netherlands	177.689	2	0.9	24
Belgium	158.727	3	1.7	17
.....				
Portugal	34.519	18	13.6	1
Slovenia	17.622	25	12.4	2
Croatia	13.972	27	6.9	4

Source: Author's processing according to data from "eAmbrosia – the EU geographical indications register", on January 26, 2021 and Economic accounts for agriculture (2020) [8].

These results differ from the conclusions that the adoption of PDI/PGI is associated with a positive effect on farmers' economic performance presented studies by Diallo [7], Vandecandelaere et al. [21], and Hoang et al. [14]. Given that the establishment of a correlation should never imply the causal relationship, it would be unreasonable to reach a conclusion based on this data that GIs do not create added value in the food sector or improve market access. For example, Croatia is characterized by low-intensity agriculture which does not generate high output, but numerous GIs (6.9 per million inhabitants) have a catalytic effect on related activities such as rural and maritime tourism, which are an important pillar of the Croatian economy. In order to test this assumption, the number of GIs was compared with the tourism indicators of the EU member states (*Tourism Intensity*, *Tourist Receipts to GDP*). *Tourism Intensity* was determined by the ratio of the number of tourist nights per capita in the receptive country. *Tourist receipts to GDP* represents the ratio of income of tourist activity and gross domestic production of the receptive country. In the case of both tourism indicators, a statistically significant positive medium correlation was found, suggesting that countries with a higher relative number of GIs are also those in which tourism is an important economic activity (Fig. 4 and 5, and Table 6).

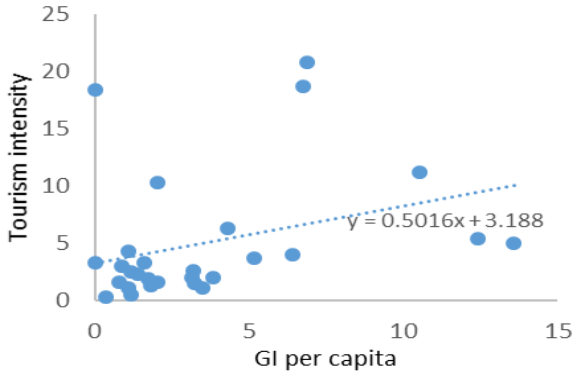

Fig. 4. Correlation between the number of GI and tourism intensity
Source: Eurostat: Tourism statistics for 2018.

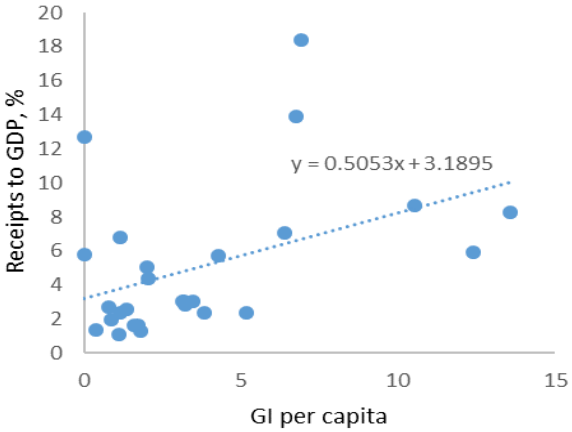

Fig. 5. Correlation between the number of GI and tourism receipts
Source: Eurostat: Tourism statistics for 2018 [9].

Table 4. Correlation between the number of GI, tourism intensity and tourism receipts

	Tourism intensity		Receipts relative to GDP	
	r_s	p (2-tailed)	r_s	p (2-tailed)
Number of GI per capita	0.42595	0.02382*	0.47392	0.01084*

Source: Eurostat: Tourism statistics for 2018 [9].

On the example of Croatia, it would be justified to think of GIs as products that characterize a narrow locality and whose labelling is motivated by the wish to maintain a certain degree of agro-sovereignty in the conditions of growing food imports and increasing foreign trade deficit. Given that they are mainly produced on small and unconnected farms and sold mainly on the doorstep and folk festivals, their market potential is extremely small. Therefore, they cannot have a greater impact on the improvement of macroeconomic agricultural indicators. On the other hand, tourism in Croatia accounts for 18% of GDP with three times the number of foreign tourists compared to the total domestic population. Mass tourism in which only "sun and sea" is offered is not enough to satisfy modern tourists. Eno-gastro tourism, as diversifying tourist content, includes the tasting of certain local food products of the region, which is proved by PDO and PGI labels. The role of GI in Croatian tourism is also shown by the data from the Croatian Ministry of Agriculture, showing that 82 percent of products with a designation of origin or geographical origin are sold in the domestic market [1] which in Croatia comes as a consequence of the role of tourism in the economy.

CONCLUSIONS

The European Union established a unique system in the 1990s to protect the names of traditional products whose quality and special characteristics are influenced by human or natural factors specific to a particular geographical area or produced according to traditional recipes or production methods. A product bearing one of the quality labels consequently becomes more recognizable, potentially achieves a higher selling price and a better market position. From the consumer's point of view, this prevents the possibility of deception about the origin of the product, while the direct connection between the product and a certain geographical area gives additional value and recognisability to that area. Despite the aforementioned benefits of labelling food with geographical indications, the results of the paper reject the assumption of a positive correlation between the number of protected products and the macroeconomic performance of agriculture. EU members are characterized by very uneven production and organizational characteristics of agriculture, which makes it impossible to define the importance of GI for European agriculture in total. On the other hand, the paper confirms the hypothesis that a larger number of GIs occur in countries where tourism plays an important role and in which GIs enable a diversified and enriched tourist offer. Due to the synergistic interaction of agriculture and tourism, it would be more justified to talk about the contribution of GI to the overall economy instead of their contribution to its partial units.

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