

## GEOGRAPHIC SUSTAINABILITY AND GEOGRAPHIC CONCENTRATION OF BULGARIAN EXPORT

*The paper presents results from a survey of geographic stability and the geographical concentration of Bulgarian export. An innovative approach has been used through the approbation of specially developed coefficients. The results show that Bulgarian export over the last fifteen years has been balanced in terms of its geographical structure. At the same time, it is highly sustainable concerning the main partner countries, and they remain unchanged over the whole period under review.*

*JEL: F14; F19*

### 1. Introduction

In the years after the establishment of the new structure of the Bulgarian economy (1995-2000), export becomes one of the leading factors for the economic growth of the country. A study proves that “in the commodity trade Bulgaria cannot rely on lasting competitive advantages” (Zlatinov, 2018). A question remains open – in this case how does Bulgaria realize its export – with episodic deals or long-lasting and stable relations with long-standing contractors? The answer to this question imposes studying Bulgaria’s commitment to its main trading partners. On the other hand, the answer to this question is also important at the firm level because it is considered that “exporting firms on equal other terms have a stronger market position than those selling only on the domestic market” (Tasseva, 2016). The current study aims to analyze Bulgaria’s established foreign trade relations, by studying two parameters – geographic concentration and geographic sustainability. For the stated goal, Bulgarian export for the period 2001-2017 is studied.

### 2. Geographic Concentration

Studying the commitment of certain economy with the economies of the other countries – main trade partners, is done using the geographic concentration of the export. Herfindahl-Hirschman Index (HHI) is used to calculate the foreign trade concentration. In economic

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theory and practice, it has been accepted as a conditional measure of market concentration. It can establish the existence of a monopoly or a competitive market. HHI is considered a measure of the extent to which a market is dominated by a small number of large firms and a large number of small firms, i.e. it shows the degree of concentration on a certain market. The authors prove that Herfindahl-Hirschman Index has certain weaknesses when used to study the foreign trade (Galabova, Nestorov, 2018). The authors suggest the use of a Geographic Concentration rate (GCr) of a group of goods. For the purposes of the current study the suggested rate is modified for application for not only for a group of goods but also for the entire export of a country. It is calculated as a rate, which is the share of the sum of the first five countries in the geographic distribution of the export or respectively import in the sum of the deals with all countries. Mathematically it is presented using the formula:

$$GCr = \frac{\sum_{i=1}^5 topD}{\sum_{i=1}^n D}, \quad (1)$$

where:

GCr - Geographic Concentration rate of export;

D – value of foreign trade deals with  $n$  countries;

top – members of a ranked row of deals.

The geographic concentration rate of export can be calculated for each separate studied time period, for example, a year. Its values change from 0 to 1. The lower the respective value, the lower the geographic concentration, in other words, diversification is achieved. On the contrary, the higher its value, the higher the geographic concentration. The scale suggested by Galabova and Nestorov (2018) for interpreting the values of the rate calculated for a group of commodities, can be used also for the results of the whole export (see Table 1).

Calculations for GCr of the Bulgarian export for the period 2001-2017 are presented on Figure 1.

Table 1

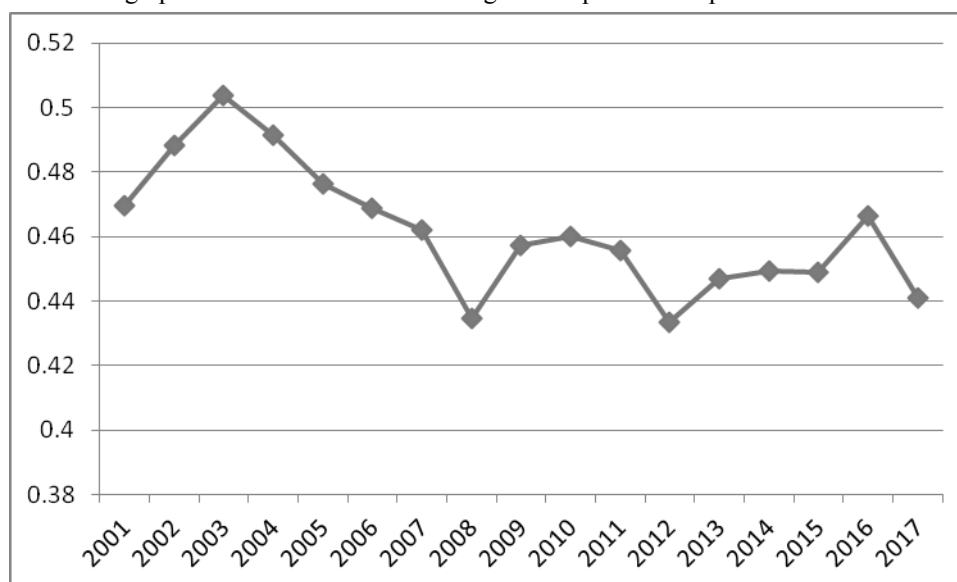
Interpretation of GCr values

GCr value	Interpretation
0.0 – 0.2	Highly diversified geographic structure
0.2 – 0.4	Diversified geographic structure
0.4 – 0.6	Balanced geographic structure
0.6 – 0.8	Concentrated geographic structure
0.8 – 1.0	Highly concentrated geographic structure

Source: Galabova, Nestorov, 2018.

Figure 1

Geographic Concentration rate of Bulgarian export for the period 2001-2017



Source: own calculations based on NSI data.

Figure 1 shows that the values of the geographic concentration rate for the studied period vary from 0.43 to 0.51. This corresponds to the share of the five leading export partners of Bulgaria. The variation is in a relatively not wide interval, which shows the absence of rapid processes. According to the proposed guarantees of interpretation, it can be assumed that Bulgarian export has a “balanced geographic structure”.

The interpretation of the indicator gives information about the degree of dependence of a country on its foreign trade partners and on their market situation, political, social and economic environment. It is proved that the greater degree of concentration is unfavorable because it shows a greater degree of dependence and commitment with fewer foreign trade partners and their trading conditions, and vice versa. Greater degree of diversification is rather favorable because it reflects on greater independence and lack of such strong commitment. It shows less vulnerability of the country to external shocks and cataclysms, which can significantly change the geographical distribution of foreign trade.

### 3. Geographic Sustainability

It is important the analysis of a country’s foreign trade relations to take also into account their sustainability over time. Sustainability in the economy can also be defined as “the ability of a system to maintain its basic quantitative and qualitative characteristics with a relatively small change of a parameter, originating from the external or internal

environment of the organization. A specific feature of economic sustainability is that it reflects the state of the economic system in market conditions and guarantees the purposefulness of its movement in the present and the foreseeable future” (Vojcheska, 2013). In order to measure the sustainability of foreign trade, Galabova and Nestorov introduce a foreign trade Geographical Sustainability rate of (GSr) for a group of commodities. In the current study, the rate was modified to be approbated to all export. The rate reflects the changes in the structure over time. Mathematically it is presented by the following formula (2):

$$GSr = \frac{\sum_{i=1}^5 \frac{C}{m}}{5}, \quad (2)$$

where:

GSr – Geographic Sustainability rate of export;

C – number of times the partner country has been on the first five places of the geographic structure by different periods;

m – number of studied periods.

Its values change from 0 to 1. The lower the value, the lower the sustainability of the partner countries in export, in other words, the geographic structure is dynamic. On the contrary, the higher the value of the rate, the higher the geographic concentration – the partner countries remain for a longer time. The scale suggested by Galabova and Nestorov (2018) for interpreting the values of the rate can be used for the whole export (see Table 2).

Table 2

Interpretation of the GSr values	
GSr value	Interpretation
0.0 – 0.2	Highly dynamic geographic structure
0.2 – 0.4	Dynamic geographic structure
0.4 – 0.6	Balanced geographic structure
0.6 – 0.8	Sustainable geographic structure
0.8 – 1.0	Highly sustainable geographic structure

*Source: Galabova, Nestorov, 2018.*

Geographical Sustainability rate calculated for Bulgarian export for the period 2001-2017 amounts to 0.925. This corresponds to a “highly sustainable geographic structure”. Practically, the leading five partner countries in Bulgaria’s export have experienced almost no changes during the studied period. They are: Germany, Italy, Romania, Turkey, Greece. They remain unchanged through almost the whole studied period. It can be concluded that the established foreign trade relations are extremely stable.

Foreign trade theory and practice prove that the greater sustainability for a long period is a favorable development scenario because it shows relative stability and predictability. If

partner countries do not change significantly over the years, it can be argued that the foreign trade policy has a specific geographic focus. On the other hand, with a lesser degree of sustainability of the relations, there are significant changes in the foreign trade structure. If such changes are made in short periods, this speaks of a lack of stability and predictability of the policy. For these reasons, “sustainability of foreign trade relations is one of the important characteristics of foreign the trade” (Tassev, 2012). It should be also taken into consideration that “deepening and expanding of the foreign trade relations can be a key factor for finding the various perspectives for the Bulgarian economy, as well as an accelerator for its development” (Marinov, 2017).

#### **4. Conclusion**

Geographic concentration rate and geographical sustainability rate proposed for a group of commodities are approbated and can be successfully used for the whole export. Export sustainability can also be considered in terms of the structure of the exported commodities in terms of their renewing at the exporter – “green export”. Now there is no validated methodology for calculating such an indicator.

The study of Bulgarian export in the period 2001-2017 shows that it is balanced in terms of its geographic structure. In the different years, the leading five main partner countries form between 43 and 51% of Bulgaria’s total commodity export.

Even with established lasting “trends for globalization and integration of economic relations” (Galabova, 2018), Bulgaria’s export remains highly sustainable concerning the main partner countries. They remain without changes through almost the whole studied period.

A possible explanation could be found in the many Bulgarian firms with foreign ownership and particularly in their “sales” to the parent companies abroad.

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