EXPORT DIVERSIFICATION IN THE CEFTA 2006 REGION. A „U“ SHAPE PATTERN

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Abstract: The main purpose of this paper is to evaluate patterns among export diversification along with the economic development in the CEFTA 2006 region. The pattern, which is evaluated here, is a hump-shaped pattern, which states that diversification and re-concentration of export and has a „U“shape relationship with GDP per capita. Hump-shaped pattern suggests that countries add products to their export basket during the early stages of economic development, while high-income countries remove goods for which they have lost a comparative advantage. Consequently, countries are slower to specialize in exporting products in which they have a comparative advantage, which leads to a humpbacked appearance. It may be concluded that one of the driving forces for export diversification is certainly GDP per capita, where diversification and later re-concentration take place mainly through extensive margins. On the other hand, intensive margins do follow the same pattern as extensive margins. Furthermore, extensive margins represent export diversification to new markets, where intensive margins present export diversification of new products. Export diversification is closely related to commodity export dependence. The country is considered to be commodity export-dependent when more than 60 percent of its total merchandise exports are composed of commodities. In these terms, countries with lower export diversification usually suffer from slow development, non-diversified economic structures, macroeconomic instability, economic volatility, "Dutch disease", political instability, poor political and economic governance, etc. Empirical studies reveal that export diversification can promote economic growth and reduce economic volatility. Greater diversification of exports contributes to greater resilience to exogenous shocks as well as stronger long-term growth and development of the country. With greater export diversification of products and greater geographical diversification (extensive and intensive margins), the risk of exogenous negative impacts is reduced. To test the U-shaped hypothesis, we used Herfindahl–Hirschman index as a measurement for export diversification. In this paper, we used secondary data from the UNCTADstat database for export. Data for GDP per capita were gathered from the World Bank database. After calculating the mentioned index for export diversification/specialization for CEFTA 2006 region, we presented a link between mentioned indexes with GDP per capita. Our results reject the null hypothesis, which states that there is a U-shaped relationship between export diversification and GDP per capita in the CEFTA 2006 region. In the CEFTA 2006 region, countries do not follow the path of higher diversified export at lower GDP per capita, and later specialization in exporting products with an increase of GDP per capita, in a product that which they have comparative advantages. The examined period in this paper was from 2007 to 2020 (13 years). Future studies could examine what the main drivers for export diversification are in CEFTA 2006 region. Also, it would be interesting to examine which margins, extensive or intensive, are the main drivers for diversification and later re-concertation at an individual level of each country.
Keywords: export, diversification, specialization, U shape, CEFTA 2006

1. INTRODUCTION

The world economy is now characterized by great interdependence of national economies, in a way that is unprecedented in human history. International trade remains the main link between national economies: however, countries trade not only in goods but also increasingly in services, intellectual property, etc. (Bjelić et al. 2013). Imports and exports of goods are a major component of international trade, where the export of certain goods of a country can significantly contribute to the overall prosperity of that country. Closely related terms for export diversification are certainly export concentration. In today's literature, a country is considered to be commodity export-dependent when more than 60 percent of its total merchandise exports are composed of commodities (Laurent 2021). In this context, a country is considered dependent on the export of a particular good if the same good is represented in 60 percent of all exports. In terms of export dependence in CEFTA 2006 region, only Montenegro is dependent on minerals, ore and metals exports (Nkurunziza 2021). Furthermore, the high

concentration of exports is an important factor influencing the development of an economy. On the one hand, high export commodity dependence and a high degree of concentration are commonly associated with less developed countries, such as most countries in Africa and sub-Saharan Africa, Asia, South America, Latin America, and the Caribbean. On the other hand, countries such as Norway have a high level of export concentration, where this country has the second-largest gross domestic product per capita in the world. Furthermore, research to date indicates that commodity dependence is in most cases related to less developed countries, even landlocked developing countries. It is considered that in 2018-2019, 101 countries were dependent on goods, which represents more than half of the countries in the world. In the mentioned period, about two-thirds of developing countries were dependent on exporting the goods, ie 64% of them, and on the other hand, about 13% of developed countries were dependent on the export of goods in the same period (Nkurunziza 2021).

Commodity dependence is closely linked to slow development, non-diversified economic structures, income volatility, macroeconomic instability, Dutch disease, political instability, poor political and economic governance, poor financial flows, low social development, and high exposure to shocks such as shock made by the COVID-19 pandemic or even the shocks casued by the climate changes. On the other hand, although most research to date has shown the positive effects of export diversification on increasing welfare, a number of researchers has also discussed the negative effects of export diversification. In this context, arguments questioning the practicality of diversification relate to resource-rich and scarce developing countries (Naude, 2011). Furthermore, in some countries, it will not be possible to diversify exports in certain sectors without government influence, where such measures may reduce the welfare of those countries if fiscal resources are used in these processes (Derosa, 1992). There are also doubts about the causality between export diversification and growth, as well as nonlinearities in the diversification process. In this sense, diversification and specialization have been studied as an endogenous outcome of the country's development phase (Acemoglu, 1997; Imbs, 2003). Also, the negative effects of diversification can be seen in the phenomenon of "white elephants". Such negative effects are based on the wrong policies of states to stimulate export diversification in certain sectors, where this type of promotion of export diversification is difficult to make a profit (Dennis, 2011).

In previous empirical research, when examining the relationship between patterns of export diversification and economic development, a connection in form of "hump" or the letter "U" was noted. (Imbs, 2003, Klinger and Lederman, 2006, Koren & Tenreyro, 2007, Cadot et al, 2011, Parteka, 2007, Naude, 2011, Mealy, 2019, Easterly et al, 2009, Mealy et al, 2018, Lee, 2019). Previous studies that have observed this form of U-shape, have dealt with the cause-and-effect relationships of economic development and export diversification, where most studies have examined the relationship between GDP per capita and export diversification. The hump-backed relationship between export diversification and economic development can be seen in countries that are adding products to their export basket during the early stages of economic development, while high-income countries remove goods for which they have lost a comparative advantage. Consequently, countries are slower to specialize in exporting products in which they have a comparative advantage, which leads to a hump-backed or U-shape appearance. Cadot at. el (2011) document that extensive margins drive this pattern, implying that countries add products to their export baskets during the early stages of economic development. At the simplest form, extensive margins represent export diversification to new markets, where intensive margins present export diversification of new products. In this research, we will test above mention U-shape hypothesis in economic integration CEFTA 2006. Testing this hypothesis, it will be seen whether there is a "hump-back" relationship in the signatories of the CEFTA 2006 agreement between export diversification and GDP per capita.

2. MATERIALS AND METHODS

In the previous researches, measuring the degree of export diversification ie the concentration of export was examined using different indices, where the most common method is the usage of the Herfindal-Hirschman index (HHI)(Mania 2019, Dutt, Mihov and van Zandt, 2008, Banga, 2006, Dennis, 2011, Cadot, 2011, Agosin, 2012, Naude, 2011, Lee, 2021, Parteka, 2007, Imbs, 2003, Siswana, 2021, Klinger and Lederman, 2006). On top of that, some researchers used as well a Theil's T index (Mania, 2019, Cadot, 2011, Agosin, 2012, Parteka, 2007, Alomari, 2020, Papageorgiou, 2012 / 2015, Lee, 2021, Imbs, 2003) and Gini index (coefficient) (Cadot, 2011, Agosin, 2012, Lee, 2021, Imbs, 2003, Parteka, 2007, Needleman, 1978) for measuring export diversification. Keeping that in mind, in this research, we use the most common method for measuring the degree of export diversification, i.e. HHI, for the CEFTA 2006 region. Gross domestic product per capita data is extracted from World Bank, and export data is extracted from the UNCTADstat database. The disaggregation level for export, i.e. number of products exported, is at the three-digit SITC, Rev. 3 level. The examined period is between 2007 and 2020 (13 years).

In this section, we estimate HHI measures for export diversification:

$$HHI = \frac{\sqrt{\sum_{i=1}^{n}\left(\frac{Xij}{Xj}\right)^2} - \sqrt{\frac{1}{N}}}{1-\sqrt{\frac{1}{N}}}$$, where H_j is country group index, x_{ij} is a value of export for product i and country j $Xj = \sum_{i=1}^{n} Xij$, and n = number of products (SITC Revision 3, at 3-digit group level). An index value closer to 1 indicates a country's exports are highly concentrated. On the other hand, values closer to 0 reflect exports are more homogeneously distributed among a series of products

3. RESULTS

After evolution of the previous work, regarding hump-shape relationship between export diversification and GDP per capita, we have provided an appropiate test for a U- shaped relationship based on work of Lind (2010) and Coke-Hamilton (2019). In that content, relationship between GDP per capita and Herfindal-Hirschman index (HHI) was tested using regression econometric model: log hhi= logsqert (per capita) + log per capita.

Table 1. Linear regression

Linear regression

lhhi	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
lgdppc	.845	4.777	0.18	.86	-8.664	10.354	
lgdp2	-.048	.286	-0.17	.866	-.618	.521	
Constant	-5.517	19.913	-0.28	.782	-45.153	34.118	

Mean dependent var	-1.831	SD dependent var	0.447
R-squared	0.001	Number of obs	82.000
F-test	0.048	Prob > F	0.953
Akaike crit. (AIC)	105.636	Bayesian crit. (BIC)	112.857

****p<.01, **p<.05, *p<.1*

Source Authors' own calculations

From linear regression (table 1), we can see that there is actually no relationship between depended and independent variables, i.e. HHI and GDP per capita (R-squared 0.001). This relationship could be explained by vast differences between examined countries in CEFTA 2006 region. On top on that, exception of linear relationship could be by virtue of different examined time span. Namely, the movement of the HHI index cannot be explained by the movement value of gross domestic product per capita in CEFTA countries.

Table 2. Quadratic relations

Specification: f(x)=x^2
Extreme point: 8.742918
Test:
H1: Inverse U shape
vs. H0: Monotone or U shape

	Lower	bound	Upper	bound
Interval	7.334		9.095	
Slope	0.136		-0.034	
t-value	0.229		-0.074	
P>	t	0.410		0.470

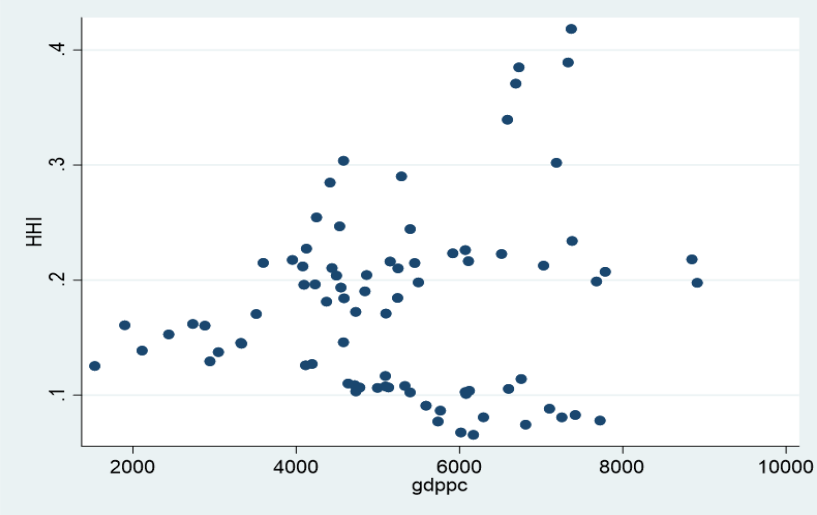
Overall test of presence of a Inverse U shape:
t-value = 0.07

P>	t	=	.47

Source Authors' own calculations

Based on the test results shown in Table 2, it is advertised that there is no quadratic relationship between the variables. That is, it is not possible to determine the existence of a connection corresponding to the shape of the letter U or the inverse letter U.

Figure 1. Export diversification (Herfindal-Hirschman index) and GDP per capita relationship for CEFTA region 2006, 2007- 2020.



Source Authors' own calculations

The graphical presentation further confirms the previous conclusions from table 1 and 2. Based on the scattering diagram, the existence of the investigated relationship between the Herfindal-Hirschman index and GDP per capita cannot be observed in a joint relationship of countries in CEFTA 2006 region.

4. CONCLUSIONS

Export diversification presents an important factor for macroeconomic stability in developing countries, where less diversified export is usually the main characteristic of less developed countries. Export diversification is closely related to commodity export dependence, where the country is dependent on export if more than 60 percent of its total merchandise is made of commodities. At CEFTA 2006 region, only Montenegro is commodity export-dependent on minerals, ore, and metals. Export diversification is closely related to GDP per capita, where these two usually have a U-shape relationship. After implementing econometric analysis, it is concluded that CEFTA 2006 region does not follow the pattern of U-shape relationship between economic development and export diversification. In today's literature, there were several studies about the U-shape relationship among export diversification/concertation and GDP per capita, but this hypothesis was rarely conducted on regional integration CEFTA 2006, or even in the case studies in Southeast Europe.

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