EXPORT DIVERSIFICATION AND ECONOMIC GROWTH: EVIDENCE FROM CROSS-COUNTRY ANALYSIS

(In case of post-soviet countries)

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Abstract

This study examines the influence (effects) of export diversification in economic growth across post-soviet countries. In a sample of seven countries for the period 1997-2019 the dynamic panel estimation reveals that export diversification is important determinant of economic growth, Estimating the impacts of other variables are also important. These variables are: lagged growth, trade openness, investment, Education, Agriculture/GDP ratio, Manufacturing/GDP ratio, Services/GDP ratio, Population growth. It is found that countries with more diversified exports generally experienced faster economic growth. Results of the study indicates that export diversification has an influence on economic growth. A positive relation between export diversification and growth is established and it suggests that countries with a higher rate of export diversification (less concentration) experience a higher rate of economic growth. Moreover, the results show both export diversification and export growth are robust determinants of growth rates while trade openness is not robust. This suggests that for countries striving to achieve economic growth, export diversification should go along with the growth of its exports.

Keywords: *Export Diversification, Herfindahl Index, Gross Domestic Product (GDP)*

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Introduction

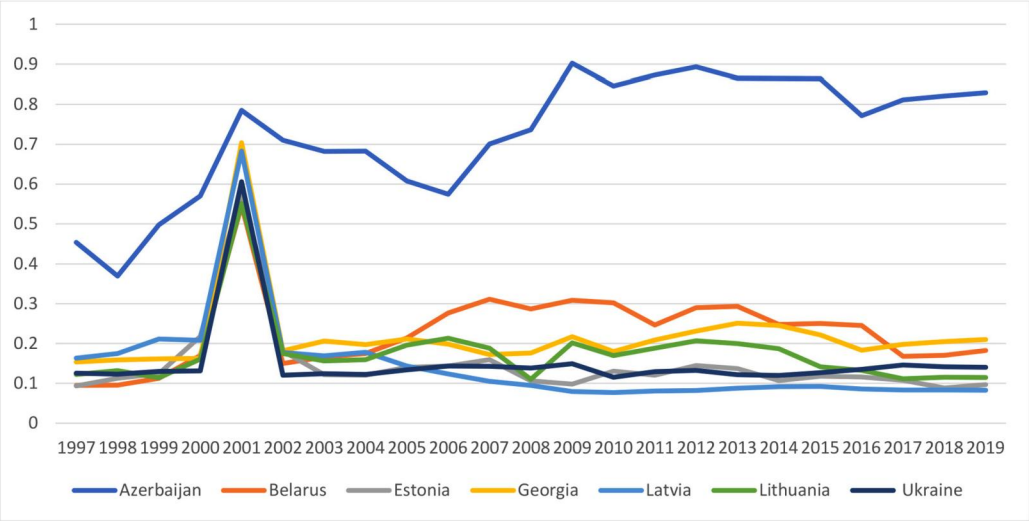
Export Diversification is one of the important aspects of the economic policy pursued by the country to reduce its vulnerability to economic change (Koren, 2013). This possibility is especially important in case of developing countries usually characterized by low diversification of economic structure. (Cadot, 2011). Theoretically, increasing the diversity of manufactured goods, has a positive influence on the productivity and economic growth. (Grossman, 1991); Hence, not surprisingly, this issue has a big focus in the economic growth models.

Many studies use the phenomenon of concentration, mainly consisting of commodity and market concentration, to assess export diversification. Countries with commodity concentrations are characterized by volatility in market prices, which is reflected in the exchange rate. Due to this fact, its believed that with the diversified trade portfolio and expanding exports, it's possible to maintain export stability and providing long-term economic growth. At the macro level, the high level of country's specialization in economy implies the efficient use of resources (Ricardo, 1817). Specialization is an integral part of economic development, allowing developing countries to trade with rich countries. (Kaulich, 2012). It also enables production concentration and high productivity activities. Export diversification includes an export commodity group in an export portfolio that can be both vertical and horizontal. In case of horizontal diversification, there exists changes in the export complex elements of the primary sector in such a way, to reduce the effect of fluctuations in international commodity prices or implement the export focused new sectors. Vertical diversification through the help of innovation, increases the added value of existing products by processing the main production commodities.

Below presented Chart 1 shows the dynamics of the export concentration indexes of seven post-soviet countries through 1997-2019.

Chart 1

HH Market Concentration Index for Seven Post-Soviet Countries[1]



Export concentration is estimated via Herfindahl Index. Figure №2 shows that the export concentration of Azerbaijan is characterized by an upward trend, meaning that its economic structure is not diversified. Export concentration index in Georgia is characterized by an upward trend until 2014, although since 2014 the trend of this index begins slightly decreasing, which means the diversification of export structure of Georgia. In case of Belarus, the export diversification index tends to decline. Latvia, Estonia, Lithuania and Ukraine have the lowest concentration index within the given countries.

On the basis of abovementioned analyses, it's interesting to study the impact of export diversification on the economic growth across post-soviet countries.

Literature Review

In the economic development structural models striving to gain sustainable economic growth is described through export diversification. (Chenery, 1979). Less sustainability of export services is a key reason for justification the necessity of export diversification, as products are often characterized by the fluctuation of market prices, and countries depended on these products feel export instability. Under such instable condition, companies avoid to take risks, and making investments as a result, which in a long-term will lead to the macroeconomic uncertainty. (Ghosh, 1994), (Bleaney, 2001). Accordingly, export diversification can stabilize export income in the long-term. Expansion of export goods can be seen as a dynamic impact of export diversification on revenue. In this regard, "Agosin" develops a model of export diversification and growth where countries below the technological frontier widen their comparative advantage by imitating and adapting existing products (Agosin M. R., 2007).

AL-Marhubi – in his study through the regression equation presented relation between export diversification and economic growth. On the basis of the research, diversification positively influences economic growth. (Al-Marhubi, 2000). AL-Marhubi's finding was justified by specific models. Agosin via cross-sectional regression analyses indicated strong impact of export diversification on GDP per capita. Lederman Maloney, Amin Gutirrez de Pineres-ma and Ferrantino revealed the link between export diversification and economic growth in Chile, as well as their findings showed that Chile makes profits through diversification. (Lederman, 2007), (Amin Guitierrez de Pineres, 2000) (Herzer D. a.-L., 2006).

Hausmann, Hwang and Rodrik in theoretical and empirical studies proved export diversification profitability and export's impact on economic growth. They believed that comparative advantage doesn't lead to economic growth. Investment diversification in new activities leas to the economic growth. (Hausmann R. a., 2003) (Hausmann R. J., 2006). According to Hausmann and Rodrik's model, entrepreneurs throughout elaborating

[1] UNCDATSTAT: United Nation Conference on Trade and Development https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=120

new product meet indefinite costs. Successful development of new products is beneficial to the public, buy losses due to failures have a negative impact on the private sector. (Hausmann R. a., 2003).

The role of the government in this model is crucial for industrial growth and support to entrepreneurship, stipulating them to invest in new entrepreneurial activities. In many cases, manufacturers are unable to predict demand for their manufactured and exported consumer products. Since manufacturer exports products and foreign consumer gets acquainted with the product and its peculiarities, its available to increase demand. As other local manufacturers of similar products observe their success and failure, imitation is an externality that can promote growth. Agosin and Bravo-Ortega showed the creation of such demand on the case of Chile's wine export. (Agosin M. R., 2007) .

Diversification aspects are the key factors for supporting economic growth. For instance, Romer indicated diversification as the production factor (Romer P. M., 1990). On the basis of empirical studies, Imbs and Wacziarg elaborated theoretical model of countries' stipulating activities, meant inside country diversification and specialization (Imbs, 2003). The reason for the diversification of the economy can be based on both the advantage and the distribution of investment risk. According to some of the suggestions, Engel's effect implies that as income increases, economic agents require the diversity of consumer goods. Hence, Acemoglu and Zilibotti generated investment risk distribution idea, which means that diversification is endogenous process and manufacturers invest in a variety of risk sectors followed by diversification.

Research Methodology and Empirical Model

Evaluation of the impact of export diversification on economic growth was conducted through dynamic regression equation. Hence, the study utilized dynamic panel model elaborated by Arellano and Bond based on GMM (Generalized Method of Momentum) Method (Arellano, 1991). The GMM estimator overcomes overcome problems existed in "OLS" regression, derived from cross-data regression. Via considering the first difference of regression equation, we exclude stational effect of observable country's specific. Also, there is no problem of endogeneity within the explanatory variables because we can use lagged values of these explanatory variables as instruments.

For evaluating export diversification and economic growth the following equation is utilized:

$$\Delta Y_{i,t} = \alpha\gamma_{i,t-1} + x'_{i,t} + \gamma_t + \eta_i + \nu_{i,t'}$$

Where – denotes the log difference of income per capita in t period, – is the log initial income, – is a vector of potential determinants of growth, – captures sample-wide time effects, – are the unobserved time-invariant country-specific effects, and – is the residual error component.

Research encompasses 7 countries (Georgia, Azerbaijan, Estonia, Latvia, Lithuania, Ukraine, Belarus) data through 1997-2019 period. Due to the research objective, focus is made on the Solow regression growth model, where export diversification is calculated according to the bilateral trade flow in 1997–2019 (Feenstra, 2005), and which is based on four-digit „SITC" classification. For calculating export concentration per country is utilized Herfindahl Index, over the above mentioned period of time and since this index is used as an indicator of the export concentration, it's expected that it will have negative correlation with GDP growth.

The study also uses regression variable such as the openness, Agriculture/GDP ratio, Services/GDP, and Manufacturing/GDP ratio.

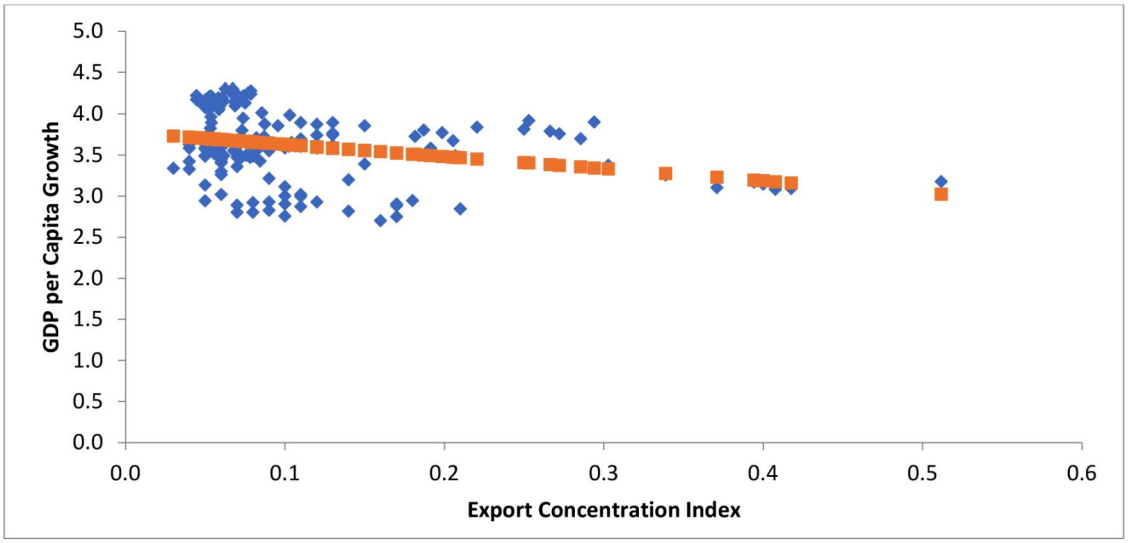
As mentioned above, macroeconomic variables are depended on cross-regression and the evaluation of "GMM" supports them to overcome problems of endogeneity. Strategy presented in the study, according to which investments in the Solow growth model investments and population growth variables as well as export concentration is endogenous. In "GMM" model there is used a Lagged levels, as instrumental variable.

Research results

As mentioned above, the Solow growth model provides theory based strategy for assessing the relation between export diversification and GDP per capita. 7 countries were examined through 1997-2019 years is provided in Table 1.

Graph 2

Export Concentration and GDP Per Capita



The first column of Table №1 shows the results of „GMM" model. As it's visible from the first column of the table, the initial income is noteworthy factor, that has a little though positive impact on the further economic growth. Besides, education also positively affects the GDP growth; This variable is statistically significant. Statistically significant variable is population growth, which also has a positive impact on GDP growth, that can't be said about investment. Although investments have a positive impact on GDP, this variable is not statistically significant. The openness, is not statistically significant, that has a slight negative impact on economic growth.

An interesting variable for the purpose of our study is the export concentration index, which is negatively and statistically significantly correlated with GDP growth (see Chart №2), meaning that export diversification has a positive impact on economic grow and agrees with the widely shared opinion on the positive correlation between export diversification and economic growth.

Table 1

Estimation of Augmented Solow Growth Model by System GMM

	(1)	(2)	(3)	(4)
Initial income	.0002087***	2.38	.0001891***	.0001543***
	(.0000514)	(.0000517)	(.000043)	.0000554)
Schooling	.0232988***	.012099***	.0280093***	.0226492***
	(.0057025)	(.0036176)	(.0034665)	.0071737)
Population growth	.2057759**	-.0027678	.0291218	.2930644*
	(.085594)	(.0760624)	(.1020806)	.1317566)
Investment	.0005386	.0095754	-.0033552	-.0017292
	(.010862)	(.008241)	(.0075467)	(.0131955)
Export concentration	-.9862806***	-.511399*	1.314754	-.4564217
	(.3608495)	(.2216209)	(.663586)	(.5839162)
Openness	-.0000121	.0004643	.0016731	.000477
	(.0014455)	(.0010744)	(.0011819)	(.0015359)
Agriculture/GDP ratio		-.0619122***		
		(.010266)		
Manufacturing/GDP ratio			-.0414075***	
			(.0116063)	

Services/GDP Ratio				.0117703
				(.0075707)
Constant	1.247279	2.686187	.9981642	.7745185
	(.4736103)	(.3419655)	(.3386618)	(.6455001)
Observation	133	133	133	133
Quantity of the countries	7	7	7	7
Time period	1997-2019	1997-2019	1997-2019	1997-2019

Let's now discuss the following column of the same table, where the following variable are added: Agriculture/GDP ratio, Manufacturing/GDP ratio, and Services/GDP ratio. In this case we have the following condition: unlike the first column, schooling and agriculture/GDP ratio is statistically significant. Other variables in the second column are not statistically significant. Due to our study purpose, export concentration is negatively correlated with GDP per capita. According to the third and fourth columns export concentration is not statistically important variable, though in the third column it's positively correlated and negatively correlated in the fourth column with GDP per capita.

Conclusion

Thus, this study was an attempt to examine the influence of export diversification on economic growth across post-soviet countries. The article analyses the dynamics of export diversification of Azerbaijan, Georgia, Ukraine, Lithuania, Latvia and Estonia. The Herfindahl concentration index was used to measure export diversification. Among these countries, the level of export concentration of Azerbaijan is the highest, while Latvia, Estonia and Lithuania is the lowest. The impact of export diversification on GDP per capita was assessed through dynamic panel regression model based on „GMM" method. Study results show that export diversification positively influences the economic growth.