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Export Structure and Economic Performance in Transition Economies

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Abstract:

Purpose: *The current paper assesses the effects of export product structure on the economic growth in transition economies.*
Design/methodology/approach: *The preferred estimation methods are Pedroni/Kao panel cointegration, along with FMOLS and Granger causality tests. The employed dataset corresponds to 11 transition economies over the period of 1997-2017.*
Findings: *The results of empirical estimation showed that manufactured exports are not always the source of high economic growth as suggested by a vast literature. It appeared that the growth in transition economies has a higher response to the changes in exports of primary goods rather than manufactures.*
Practical Implications: *Considering current trade patterns and the high demand elasticity attached to manufactured exports, the study concludes that selected transition economies should incorporate somewhat balanced trade policy fostering both exports of primary commodities and manufactures, where earnings from commodities should be facilitated to support rise of manufactures as it exhibits larger demand and potential to deploy technology/knowledge spillovers, thus, further complement economic growth.*
Originality/value: *The paper represents valuable addition to the empirical literature concerning the exports and economic growth, especially for the selected sample corresponding to the remaining transition economies after massive transformation in 2004/2007 when several European states successfully completed the transition process.*

Keywords: *Exports, primary commodities, manufactures, export structure, economic growth, transition economies.*

JEL codes: *F14, F43, O47.*

Paper type: *Research study.*

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1. Introduction

After the collapse of communism, several Eastern European and Asian states abandoned the socialist economic system and start pursuing the principles of a market economy. They adopted a wide range of market-based reforms reflected in the Washington Consensus representing a standard package of policy recommendations that served as a remedy for the economic instability/crisis. The reform package mostly covered economic liberalization, strengthening property rights, promotion of foreign investments, removing trade barriers, etc. From this period, fostering free trade became a cornerstone of economic development strategy.

Opening borders, along with the expansion of export markets induced boundless opportunities for local firms to increase sales and simultaneously, complement economic growth. In this regard, the performance of exports, inter alia, depends on the composition of exports. As the vast economic literature suggests, the dominance of manufactures in the export portfolio can trigger higher economic growth than exports of primary goods. The reason is a high demand elasticity and the ability of manufactured exports to generate positive externalities in terms of technology transfer (Santos *et al.*, 2013; Hesse, 2008). Among others, fostering an efficient export strategy with the right assortment of the export portfolio requires a healthy environment. Unfortunately, most of the transition economies suffer from endemic political instability. The point is that undeveloped socio-political environments cannot facilitate technology-oriented growth/trade policies, hence results found in the vast literature supporting the prominence of manufactured exports in generating high economic growth through the technology/knowledge spillovers could be controversial for transition economies. For instance, Fosu (1996) and Xu (2000) provide interesting evidence that at a certain level of development, economies can experience a larger growth effect while exporting primary commodities.

Apparently, there is no universal framework to determine a trade structure that will guarantee superior export performance and correspondingly economic growth; hence, conducting empirical research in line with economic theory is the only way to ascertain the right composition of exports. In this context, the current paper assesses the effects of disaggregated exports on economic growth and suggests the preferred structure of the export portfolio to generate a relatively high growth effect in selected transition economies.

The paper after the introduction is organized in the following way: Section 2 corresponds to the literature review covering both empirical and theoretical work concerning the role of exports in the economic development of transition economies and the importance of the export composition. Section 3 describes the collected data and the preferred estimation methods. Section 4 presents empirical results and their evaluation with reference to previous literature. Lastly, section 5 draws an inference from the presented empirical findings.

2. Literature Review

The question regarding the role of exports in economic development has come a long way. Today, exports are perceived to mitigate the problem of a small domestic market that does not allow to maintain adequate demand growth (Taban *et al.*, 2012). In this context, the export market appears to be boundless that can facilitate a larger demand for tradable goods (Santos *et al.*, 2013). Besides, fostering exports encourages product specialization, productivity growth, efficient allocation of resources, and exploitation of economies of scale (Liargovas, 2012; Awokuse, 2007; De Loecker, 2007; Alcala, 2004; Emery, 1967). As a cherry on top, export expansion can enhance capital formation by financing imports of capital and intermediate goods (Emery, 1967; Akpokodje, 2000) while it affects the taxation system of the economy (Liapis *et al.*, 2012; 2014; Galanos *et al.*, 2014).

Nexus between exports and economic growth has been addressed by many scientists. Early empirical work corresponds to Michaely (1977), Balassa (1978), Tyler (1981), and Feder (1983); the authors used simple OLS analysis and found a significant positive relationship between the two. Among others, later work includes Jung *et al.* (1985), Darrat (1987), and Dritsakis *et al.* (2006), who applied causality analysis, along with OLS estimations to provide a more comprehensive answer regarding the topic; the results of these research came in line with previous empirical work by confirming the positive link between exports and economic growth, and landing support on export-driven growth policies.

Among others, Kaminski *et al.* (1996), Awokuse (2007), and Saglam *et al.* (2018) are those who empirically assessed the relationship between exports and economic growth specifically in transition economies. According to Kaminski *et al.* (1996), promoting exports by dynamic adjustments through macroeconomic stabilization and price liberalization policies significantly complements economic growth in transition economies. As for Awokuse (2007) and Saglam *et al.* (2018), although authors support export-led growth development (ELG), keeping a balance between ELG, domestic-demand-led growth (DDL), and import-led growth (ILG) policies is a better strategy to generate high economic growth.

The success of exports alone depends on various factors. Among them, a structure of the export portfolio has great importance (Santos *et al.*, 2013, Hausmann *et al.*, 2007). Preference regarding what to export follows certain guidelines; consider the Heckscher-Ohlin (H-O) model that assumes homogenous production technology and introduces varying capital/labor endowments across countries. Within this framework, countries export what they can produce efficiently according to the relative abundance of factors of production and import those products that rely on scarce resources (Ohlin, 1933). For instance, advanced economies export technology-intensive goods due to a high capital to labor ratio, while relatively poor countries export more labor-intensive goods or simply primary commodities due to a low level of capital-labor ratio (McCann, 2007). In this context, Schott (2006)

regarding Chinese exports seems to be even more interesting. The author casts doubt on determining export structure according to factor endowments. As China is a more labor-intensive economy, one should expect the composition of an export portfolio to be dominated by labor-intensive goods; but in practice, we get quite the opposite scenario (Schott, 2006). The results from Schott (2006) do not fall far from early work by Wassily Leontief, who found that some countries with high levels of capital accumulation appear to prefer exporting a labor-intensive product, e.g., USA (Leontief, 1953). Thus, he doubted the validity of the H-O model, and the phenomenon became known as Leontief Paradox. However, the assumptions/predictions of the H-O model are still held in terms of primary commodities and the model represents a useful tool in international trade theory.

Profit margins, along with the ability of various export industries to generate high economic growth is another important issue to be considered. Although having diversified export product basket is found to be an important source of high export performance and/or economic growth (Funke *et al.,* 2003), the dominance of manufactures, especially high-tech manufactures in the export portfolio can push economic growth even further (Cuaresma *et al.,* 2005). Manufactured exports are perceived to facilitate larger knowledge/technology diffusion than exports of commodities (Herzer *et al.,* 2006). The reason is linked to a high demand elasticity attached to manufactured exports (Dodaro 1991; Hesse, 2008; Santos *et al.,* 2013).

On the other hand, a couple of studies showed that the growth effects of both manufactures and primary commodities vary across countries due to asymmetric levels of economic development. E.g. Fosu (1996) and Xu (2000) suggest that at a certain level of development, economies generate higher growth effect when they export primary goods. The reason can be an inability of an economy to foster adequate manufacturing production from the beginning and also the importance of primary goods produced in transition/developing world to be, inter alia, the main source of production inputs for developed economies; accordingly, demand for these commodities is high and so is the effect on economic growth in transition/developing countries. Apparently, Fosu (1996) and Xu (2000) outlined the underestimation of primary commodities in economic growth but could not verify sustainable growth prospects in the long term.

Other notable studies concerning export composition are Greenaway (1999) and Cuaresma *et al.* (2005), among others. Greenaway (1999) examined the link between exports and economic growth in a panel of 69 developing countries. The results of the study show a strong positive relationship regarding aggregate exports and economic growth. As for disaggregated exports, only fuels, metals, and textiles reach the significance level, while machinery, food, and other primary commodities were found to be insignificant. Cuaresma *et al.* (2005) assessed the role of export composition in economic growth through a random-effects model for 45 developing and industrialized countries over the period of 1981-1997. The study found that selected developing economies benefit from trade openness through better resource

allocation driven by competitive pressure attached to international trade. Although the results favored the promotion of high-tech exports, the authors see the remaining export sectors as an important source of finances for restructuring the exports towards technology-intensive production.

As we can see, the significance of exporting primary commodities is well recorded in academic literature. Among conventional benefits, proper management of the commodity market can enhance manufacturing sectors, widen the sources of production inputs, and stimulate imports of capital/intermediate goods that are the cardinal source of capital accumulation (McKinnon, 1964; Xu, 2000). Historically, many countries developed successful manufacturing industries through gains from primary exports. Hence, ignoring the importance of the commodity market can result in missed opportunities regarding the smooth transition between economic development stages.

3. Theoretical Framework

Since the emphasis is put on the importance of exports/export structure in economic growth, theoretical framework of the study is based on neoclassical production function, where capital and labor are main determinants of aggregate output, and components of disaggregated exports are assumed to be, inter alia, important source of labor productivity or simply technological progress.

Augmentation of the production function with exports as a source of technological progress is justified as follows: Export expansion is perceived to stimulate productivity increase through the competitive pressure (Ramos, 2001), technology transfers, and knowledge spillovers (De Loecker, 2007) triggered by international trade. Usually, enacting export-led growth (ELG) policy entails fostering economic growth through the market openness (reduced trade barriers, increased trade openness, etc.) in exchange for market expansion (Palley, 2011). From this standpoint, as far as the trade openness is the main determinant of FDI (Demirhan, 2008), it can encourage an inflow of foreign investments (Liargovas, 2012) and subsequently boost spillover effects even further. Besides, there is evidence that export-driven economies are inclined to direct those investments in the most productive sectors. As a result, it increases specialization (Emery, 1967), along with productive efficiency (Alcala, 2004).

In this context, estimating the relationship between economic growth and disaggregated exports allows us to specify the preferred export structure for better economic performance. The current study employs disaggregated exports as presented in Santos *et al.* (2013): (1) fuels, ores and metals, (2) food and agricultural raw materials, and (3) manufactured exports. Importance of the selected export product categories is determined according to the following literature:

- Fuels, ores, and metals; (2) Food and agricultural raw materials: At a certain level of development, economies generate higher growth effects when they export primary goods (Fosu, 1996; Xu, 2000). A selected sample of countries represents transition economies with a high concentration of commodity exports and turbulent manufacturing sectors; hence, a high growth effect can be expected from this export product category.
- Manufactured exports: Manufactured exports are perceived to facilitate larger knowledge/technology diffusion than exports of commodities (Herzer *et al.,* 2006). Purely from a theoretical perspective, growth effects proceeded from manufactured exports should be the highest, but the current composition of exports, along with a middling level of economic development in selected transition economies can produce conflicting results.

4. Materials and Methods

Since the aim of this study is the empirical assessment of the effects proceeded from disaggregated exports to economic growth in transition economies, preferred estimation methods are Pedroni and Kao cointegration tests, along with fully modified ordinary least squares (FMOLS), Granger causality estimators and various specification/diagnostic tests:

Pedroni (2004) proposes a residual-based panel cointegration test with a null hypothesis of no cointegration. The test allows slope coefficients to be heterogeneous across panel cross-sectional units and does not impose any restriction regarding the exogeneity of regressors. Accordingly, Pedroni applies seven residual-based panel cointegration statistics, where the first four is based on pooling the data along the within-dimension and the last three is based on pooling along the between-dimension; the advantage of these tests is that they pool only the information concerning the possibility of existing cointegrating vector that comes from the statistical properties of the estimated residuals (Pedroni, 2004).

Kao test is based on Engle-Granger (1987) residual-based cointegration test, which applies Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) type tests for the null hypothesis of no cointegration in panels. The test considers homogeneity of cointegration vectors across individuals. Unlike to Pedroni cointegration test, Kao specifies individual intercepts for every cross-section units and homogeneous coefficients on the first stage regressors. In other words, the Kao cointegration test pools all the residuals from each cross-section in the panel and assumes all the cointegrating vectors to be the same in the cross-sections (Hoang, 2010).

Fully modified OLS (FMOLS) is a semi-parametric estimator proposed by Phillips and Moon (1999) to estimate the coefficients of the long run cointegration for non-stationary panels. FMOLS estimator is robust to main OLS assumptions including autocorrelation, heteroskedasticity, and endogeneity.

Granger causality test refers to the augmentation of autoregression of a variable by including lagged values of another variable to check if it adds explanatory power to the regression. In a panel system, the data is stacked (common coefficients) and the causality test is run in the standard way. The null hypothesis of the test states that variable y does not Granger cause x and vice versa; in other words, no explanatory power added by the x's lagged values.

The employed panel dataset corresponds to 11 transition economies over the period of 1997-2017 collected from the World Bank database. Selected transition economies are Albania, Armenia, Azerbaijan, Belarus, Moldova, Macedonia, Georgia, Ukraine, Russia, Kazakhstan, and Kyrgyzstan. A sampling of the countries was guided according to data availability.

The regression model presented in the study is based on a Cobb-Douglas production function, where economic growth (GDP) is expressed as the function of labor force (LF) and capital accumulation proxied by gross fixed capital formation as percentage of GDP (GFCF); the model is further expanded by consumer price index (CPI) as a proxy for inflation and disaggregated export variables corresponding to a total value of (1) fuels, ores, and metals (FOM), (2) food and agricultural raw materials (FARM), and (3) manufactured exports (MEX). All the variables are in real terms and logarithm (Log) transformed. Description of the selected variables and the expected signs are presented below:

- **GDP (Dependent variable)** is the sum of gross value added by all resident producers plus any product taxes and minus any subsidies not included in the value of the products. GDP represents a dependent variable in the model.
- **GFCF (+)** includes land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchase; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.
- **LF (+)** comprises people ages 15 and older who supply labor to produce goods and services during a specified period. It includes people who are currently employed and people who are unemployed but seeking work as well as first-time jobseekers.
- **CPI (-)** is the measure of inflation corresponding to the annual percentage change in the cost of acquiring a basket of goods and services.
- **MEX (+)** corresponds to the commodities in SITC section 5 (chemicals), 6 (basic manufactures), 7 (machinery and transport equipment), and 8 (miscellaneous manufactured goods), excluding division 68 (non-ferrous metals).
- **FARM (+)** corresponds to the commodities in SITC section 0 (food and live animals), 1 (beverages and tobacco), 4 (animal and vegetable oils and fats), SITC division 22 (oil seeds, oil nuts, and oil kernels), as well as SITC section 2 (crude materials except fuels) excluding divisions 22, 27 (crude fertilizers and minerals

excluding coal, petroleum, and precious stones), and 28 (metalliferous ores and scrap).

- **FOM (+)** corresponds to the commodities in SITC section 3 (mineral fuels, lubricants), along with SITC section 27 (crude fertilizer, minerals); 28 (metalliferous ores, scrap); and 68 (non-ferrous metals).

Selected variables are inflation-adjusted according to the consumer price index (CPI) with the base year of 2010. Expected signs of the variables are in the parentheses following the name of corresponding variables and the descriptions of the variables are taken from the World Bank database.

5. Methodology

As mentioned earlier, the FMOLS regression model in this study has the following form: The dependent variable is GDP followed by a set of regressors including GFCF, LF, CPI, MEX, FARM, and FOM. The model is applied to an unbalanced panel dataset with 11 cross-section units over the period of 1997-2017 (total obs. 224).

A precondition of the FMOLS regression requires all the variables to be non-stationary and integrated of order 1. Therefore, we employed a couple of unit root tests according to a balanced/unbalanced type of data and the results of the Breusch-Pagan Lagrange Multiplier (LM) test for cross-sectional dependence. In this context, the Breusch-Pagan LM test is a useful statistical tool to verify the correct type of unit root test and avoid biased results imposed by the presence of cross-sectional dependence in the variables. The null hypothesis of the test is cross-sectional independence; rejecting the null ($p < .05$) means that series are cross-sectionally dependent, hence, 2nd generation and/or 1st generation unit root tests with subtracted cross-sectional mean should be applied to determine the order of integration/stationarity in the selected variables. Usually, these tests allow/deal with cross-sectional dependence in the panels and do not produce biased results. The results of the Breusch-Pagan LM test is presented below:

Table 1. *Results of the Breusch-Pagan LM test for cross-sectional dependence.*

Variables	**GDP**	**GFCF**	**LF**	**CPI**	**MEX**	**FARM**	**FOM**
Breusch-Pagan LM Probability	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source*: Author's own calculations.*

As Table 1 suggests, all the variables suffer from cross-sectional dependence as we reject the null of cross-sectional independence (p values < .05). Therefore, 2nd generation and/or 1st generation unit root tests with subtracted cross-sectional mean are more appropriate. As far as the data is unbalanced, we employed Pesaran (2003) cross-sectionally augmented ADF (CADF) test among 2nd generation unit root tests, and Fisher-type Augmented Dickey-Fuller test from 1st generation unit root tests.

According to Tables 2a, 2b and 2c, selected variables are mostly non-stationary (I (1)) at levels ($p > .05$) and become stationary at 1st differences ($p < .05$).

***Table 2a**. Results of Pesaran (2003) CADF.*

Variables	Levels		1st differences
	No trend	Trend	No trend
GDP	0.986	0.980	0.112
GFCF	0.790	0.283	0.001
LF	1.000	1.000	0.999
CPI	0.001	0.678	0.016
MEX	0.997	0.994	0.002
FARM	1.000	0.594	0.065
FOM	0.757	0.991	0.002

***Note:** Lag length is set at 2 according to the average lag length for each cross-section unit in panels for every variable suggested by the Akaike criterion. H1 = non-stationary.*
***Source:** Author's own calculations.*

***Table 2b**. Results of Fisher-type (Augmented Dickey-Fuller) panel unit root test (levels).*

Variables	Inv. Chi 2		Inv. normal		Inv. logit		Modified inv. Chi 2	
	Trend	No trend	Trend	No trend	Trend	No trend	Trend	No trend
GDP	6.324	0.999	4.112	0.998	4.336	0.997	-2.363	0.989
GFCF	0.001	0.591	0.179	0.446	0.025	0.450	0.000	0.626
LF	0.207	0.005	0.986	0.483	0.979	0.174	0.221	0.001
CPI	0.056	0.299	0.68	0.513	0.68	0.468	0.042	0.327
MEX	0.796	0.800	0.765	0.988	0.819	0.994	0.801	0.804
FARM	0.544	0.567	0.806	0.811	0.818	0.835	0.582	0.603
FOM	0.993	0.725	0.997	0.822	0.996	0.848	0.974	0.743

***Note**: Lag length is set at 1 according to the average lag length for each cross-section unit in panels for every variable suggested by the Akaike criterion. H1 = nonstationary.*
***Source**: Author's own calculations*.

***Table 2c**. Results of Fisher-type (Augmented Dickey-Fuller) panel unit root test (1st differences).*

Variables	Inv. Chi 2	Inv. normal	Inv. logit	Modified inv. Chi 2
GDP	0.002	0.000	0.001	0.000
GFCF	0.000	0.000	0.000	0.000
LF	0.000	0.001	0.000	0.000
CPI	0.000	0.000	0.000	0.000
MEX	0.000	0.000	0.000	0.000
FARM	0.000	0.008	0.003	0.000
FOM	0.000	0.000	0.000	0.000

***Note**: Lag length is set at 1 according to the average lag length for each cross-section unit in panels for every variable suggested by the Akaike criterion. H1 = nonstationary.*
***Source**: Author's own calculations.*

After confirming all the variables to be I (1), Pedroni and Kao panel cointegration tests were employed to check the existence of long run cointegration relationship. The results from the Kao test showed that selected variables are cointegrated as we reject the null of no cointegration. Similarly, Pedroni tests supported the presence of cointegration in 4 tests out of 7 (see Tables 3 and 4).

Table 3*. Results of the Pedroni panel cointegration test.*

Cointegration Tests		**With trend**		**Without trend**	
		Statistic	**Probability**	**Statistic**	**Probability**
Within Dimension	**v-Stat.**	-0.611	0.729	-0.175	0.569
	Rho-Stat.	2.858	0.997	1.886	0.970
	PP-Stat.	-3.005	0.001	-2.640	0.004
	ADF-Stat.	-3.148	0.000	-2.736	0.003
Between Dimension	**Rho-Stat.**	3.998	1.000	3.155	0.999
	PP-Stat.	-4.017	0.000	-3.334	0.000
	ADF-Stat.	-3.995	0.000	-3.572	0.000

Note*: Lag length is set according to the Akaike criterion.*
Source*: Author's own calculations.*

Table 4*. Results from the Kao cointegration test.*

ADF	**t-statistic**	**Prob**
	-5.055	0.000

Note*: Lag length is set according to the Akaike criterion.*
Source*: Author's own calculations.*

Next, the FMOLS regression model was set up to estimate long run coefficients for the existing cointegration relationship. Results of the model are presented in Table 5:

Table 5. *Results of FMOLS regression.*

Variables	**Coefficient**	**Prob**	**VIF**
GFCF	0.178	0.000	1.295
LF	1.645	0.000	1.097
CPI	-0.077	0.000	1.181
MEX	0.093	0.000	5.303
FARM	0.047	0.000	5.322
FOM	0.399	0.000	1.188
R^2 = 0.977. **Joint test for Normality on 'e': Chi2**=2.07, **p**=0.355. **Joint test for Normality on 'u': Chi2**= 1.11, **p**=0.5731.			

Note*: H1 for residual normality test = Normality.*
Source*: Author's own calculations.*

As seen in Table 5, all the variables have correct signs and are statistically significant. Among selected regressors, LF has the largest coefficient, suggesting that transition economies tend to be more labor-intensive producers rather than capital-intensive. Similar results were found in Onalan *et al.* (2018), Santos *et al.*

(2013), and Moschos (1989), where coefficients for labor variables appeared to be significantly higher than of capital in developing and/or developed economies. Furthermore, Inflation rate proxied by CPI has a negative sign, as expected from the beginning and also found in numerous empirical studies including Santos *et al.* (2013), Senhadji *et al.* (2000), Andres *et al.* (1997), Barro (1995), Levine *et al.* (1992). As for the determinants of disaggregated exports including MEX, FARM, and FOM have positive signs with the coefficients of 0.093, 0.047, and 0.399 respectively. The results are consistent with vast literature in terms of signs, but controversy arises regarding the magnitude of the coefficients for MEX and FOM. The most literature suggests that effects proceeded from manufactured exports are higher than from fuels, ores, and metals, while the current study proves the opposite. As the sample of this work corresponds to the set of less developed Eastern-European and post-Soviet transition economies, in most cases with a relatively high concentration of primary commodities in aggregate exports and middling manufacturing industries, it is not surprising to land contrasting results.

Overall, estimated model produced consistent results; residuals are normally distributed as we failed to reject the null of normality ($p > .05$), multicollinearity is not detected (variance inflation factor (VIF) < 10 for each regressor), and the FMOLS estimator itself is robust to autocorrelation, heteroskedasticity, and endogeneity problems (Table 5). The last step of empirical estimation is a Granger causality test to identify the direction of causation for the target variables including GDP, MEX, FARM, and FOM (Table 6).

Table 6*. Results of the pairwise Granger causality test.*

Hypotheses tested	**F-Stat.**	**Probability**
MEX does not Granger-cause GDP	5.279	0.022
FARM does not Granger-cause GDP	10.525	0.001
FOM does not Granger-cause GDP	12.962	0.000
GDP does not Granger-cause MEX	2.500	0.115
GDP does not Granger-cause FARM	0.566	0.452
GDP does not Granger-cause FOM	0.006	0.936

Source*: Author's own calculations.*

The results presented in Table 6 show unidirectional causality running from MEX, FARM, and FOM to GDP, meaning that the growth of exports has been a significant determinant of economic growth in transition economies, hence, promotion of export-led growth (ELG) policy seems to be the most adequate for the selected country sample.

At first, glance, one should conclude that the transition economies will be better off by prioritizing exports of commodities like fuels, ores, and metals as they show the highest growth effect among other export determinant variables. In fact, proper management of the commodity market can stimulate manufacturing production, increase capital accumulation, and widen the sources of production inputs; but the problem arises when it comes to sustainable long-term development. Usually, commodities are inelastic due to a low degree of available product substitutes and exhibit irregular price fluctuations.

Accordingly, developing economies are at risk to experience trade shocks imposed by price instability, as they have a high concentration of primary goods in aggregate exports. On the other hand, manufacturing exports are characterized by high growth rates, a wide range of close substitutes and perfect elasticity (Hausmann *et al.* 2007; Cuaresma *et al.* 2005). Considering the conventional benefits of both primary commodities and manufactured exports, along with the reported empirical results, one way to explain the differential between the magnitudes of growth effect proceeded from MEX and FOM is the endemic problem of socio-political instability attached to transition economies, especially in post-Soviet states. The problem is that undeveloped socio-political environments cannot support efficient technology-oriented growth/trade policies. As a result, economies fail to facilitate FOM earnings in the development of more sophisticated production sectors like manufactured exports.

6. Conclusion

Current paper reports empirical results concerning the effects proceeded from exports to economic growth in transition economies through cointegration and Granger causality analysis. The exports were presented in terms of (1) fuels, ores, and metals (FORM), (2) food and agricultural raw materials (FARM), and (3) manufactured exports (MEX). The results of the study showed the importance of export structure and promotion of outward-oriented growth policy by confirming the strong positive relationship between GDP and disaggregated export components, along with the three-way unidirectional causality running from FORM, FARM, and MEX to GDP.

Although exports of FOM showed the highest growth effect than FARM and MEX, the study concludes that keeping a balanced trade structure by diversifying an export portfolio is necessary to reach sustainable long-term development. In this context, the essence of commodity exports should remain as an important source for financing the expansion of manufacturing sectors which intrinsically have a bigger space to accommodate positive externalities including technology transfers and further complement economic growth at the intensive margin. In fact, many countries developed successful manufacturing industries through gains from primary exports. Hence, ignoring the importance of the commodity market can result in missed opportunities regarding the smooth transition between economic

development stages, but one should bear in mind that relying merely on exports of commodities cannot generate sustainable development in terms of technological advancements.

The results of this study can be qualified as an important contribution to the literature regarding international trade and growth patterns in contemporary transition economies. Further extension of the study can be the introduction of the minimum/maximum threshold level of development that is necessary to experience benefits from outward-oriented growth policy, along with identification of differences between the structural patterns of export portfolio below/above the threshold level of development in selected economies.

References:

Akpokodje, D. 2000. The effect of export earnings fluctuations on capital formation in Nigeria. African Economic Research Consortium, Papers 103.

Akpokodje, D., Godwin, G. 2000. The effect of export earning fluctuations on capital formation in Nigeria. AERC research paper 103, Nairobi: African Economic Research Consortium.

Alcala, F., Ciccone, A. 2004. Trade and Productivity. The Quarterly Journal of Economics, 119(2), 613-646.

Andres, J., Ignacio, H. 1997. Does inflation harm economic growth? Evidence for the OECD, NBER Working Papers 6062, National Bureau of Economic Research, Inc.

Awokuse, T.O. 2007. Causality between exports, imports, and economic growth: Evidence from transition economies. Economics Letters, 94(3), 389-395.

Balassa, B. 1978. Exports and economic growth: Further evidence. Journal of Development Economics, 5(2), 181-189.

Barro, J.R. 1995. Inflation and economic growth. NBER Working Paper, No: 5326, National Bureau of Economic Research, Inc.

Cuaresma, J.C., Worz, J. 2005. On export composition and growth. Working Paper, No: 0309, Department of Economics University of Vienna.

Darrat, A.F. 1987. Are exports an engine of growth? Another look at the evidence. Applied Economics, 19, 277-283.

De Loecker. 2007. Do exports generate higher productivity? Evidence from Slovenia. Journal of International Economics, 73(1), 69-98.

Demirhan, E., Mahmut, M. 2008. Determinants of foreign direct investment flow to developing countries: A cross-sectional analysis. Prague Economic Papers, 17(4), 356-369.

Dodaro, S. 1991. Comparative advantage, trade, and growth: Export-Led growth revisited. World Development, 19(9), 1153-1165.

Dritsakis, N. 2006. Exports and economic growth: An empirical investigation of EU, USA, and Japan using causality tests. International Review of Applied Economic Research, 2, 181-194.

Emery, R.F. 1967. The relationship between exports and economic growth. Kyklos, 20(4), 470-486.

Engle, R.F., Granger, C.W.J. 1987. Co-integration and error correction: Representation, estimation, and testing. Econometrica, 55(2), 251-276.

Feder, G. 1983. On exports and economic growth. Journal of Development Economics, 12(1-2), 59-73.

Fosu, A.K. 1996. Primary Exports and Economic Growth in Developing Countries. The World Economy, 19(4), 465-475.

Funke, M., Ruhwedel, R. 2005. The export variety and economic growth in east European transition economies. Economics of Transition, 13(1), 25-50.

Galanos, Ch., Kantianis, D., Liapis, K., Politis, E. 2014. Quantitative Approach to Measure Tax Competitiveness Between EU Countries. International Journal of Economic Sciences and Applied Research, Volume VII, Issue 3, 7-23.

Greenaway, D., Morgan, W., Wright, P. 1999. Exports, export composition, and growth. The Journal of International Trade & Economic Development, 8(1), 41-51.

Hausmann, R., Hwang, J., Rodrik, D. 2007. What you export matters. NBER Working Paper No. 11905.

Herzer, D., Lehmann, F.D., Siliverstovs, B. 2006. Export-led growth in Chile: Assessing the role of export composition in productivity growth. The Developing Economies, XLIV-3, 44(3), 306-328.

Hesse, H. 2008. Export diversification and economic growth. Commission on Growth and Development, Working Paper No. 21.

Hoang, T.N. 2010. New tests for cointegration in heterogeneous panels. University of New England, Armidale, NSW 2350.

Jung, W.S., Marshall, P.J. 1985. Exports, growth, and causality in developing countries. Journal of Development Economics, 18(1), 1-12.

Kaminski, B., Wang, Z.K., Winters, A.L., Sapir A., Szekely, I.P. 1996. Export performance in transition economies. Economic Policy, 11(23), 421-442.

Leontief, W. 1953. Domestic production and foreign trade: the American capital position re-examined. Proceedings of the American Philosophical Society, 97(4), 332-349.

Liapis, K., Rovolis, A., Galanos, Ch. 2012. Toward a Common Tax Regime for the European Union Countries. European Research Studies Journal, 15(3), 89-108. DOI: 10.35808/ersj/364

Liapis, K., Rovolis, A., Galanos, Ch. 2014. The Tax Regimes of the EU Countries: Trends, Similarities and Differences. In: Karasavvoglou, A., Polychronidou, P. (eds) Economic Crisis in Europe and the Balkans. Contributions to Economics. Springer, Heidelberg. doi.org/10.1007/978-3-319-00494-5_7

Liargovas, P.G., Skandalis, K.S. 2011. Foreign Direct Investment and Trade Openness: The Case of Developing Economies. Social Indicators Research, 106(2), 323-331.

McCann, F. 2007. Export composition and growth. School of Economics University College, Dublin.

McKinnon, R.I. 1964. Foreign Exchange Constraints in Economic Development and Efficient Aid Allocation. The Economic Journal, 74(294), 388-409.

Michaely, M. 1977. Exports and growth. Journal of Development Economics, 4(1), 49-53.

Moschos, D. 1989. Export expansion, growth and the level of economic development. Journal of Development Economics, 30(1), 93--102.

Ohlin, B.G. 1967. Interregional and international trade. Harvard University Press.

Onalan, O., Basegmez, H. 2018. Estimation of economic growth using GREY Cobb-Douglas production function: Application for US economy. Journal of Business, Economics, and Finance, 7(2), 178-190.

Palley I.T. 2011. The Rise and Fall of Export-led Growth. Working Paper, No 675, New America Foundation, Levy Economics Institute, New York.

Phillips, P.C.B., Moon, H.R. 1999. Linear Regression Limit Theory for Nonstationary Panel Data. Econometrica, 67(5), 1057-1111.

Ramos, F.R.F. 2001. Exports, imports and economic growth in Portugal: evidence from causality and cointegration analysis. Economic Modelling, 18(4), 613-623.

Saglam, Y., Egili, A.H. 2018. A comparison of domestic demand and export-led growth strategies for European transition economies: Dynamic panel data analysis. Foreign Trade Review, 53(3), 156-173.

Santos, P.G., Ribeiro, A.P., Carvalho, V.M. 2013. Export-led growth in Europe: Where and what to export? FEP Working Papers No 479.

Schott, P.K. 2006. The relative sophistication of Chinese exports. NBER Working Paper 12173.

Senhadji, A.S., Khan, M.S. 2000. Threshold Effects in the Relationship Between Inflation and Growth. IMF Working Papers 00/110, International Monetary Fund.

Taban, S., Aktar, I. 2008. An empirical examination of the export-led growth hypothesis in Turkey. Journal of Yasar University, 3(11), 1535-1551.

Tyler, W.G. 1981. Growth and export expansion in developing countries: Some empirical evidence. Journal of Development Economics, 9(1), 121-130.

Xu, Z. 2000. Effects of Primary Exports on Industrial Exports and GDP: Empirical Evidence. Review of Development Economics, 4(3), 307-325.