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Economies in Transition: How Does Export Promotion Facilitate Growth at Intensive and Extensive Margins

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ABSTRACT

The primary goal of this paper is the empirical assessment of the effects proceeded from exports on the economic growth of transition economies from both extensive and intensive margins. Preferred estimation methods are Granger causality test and panel regression/cointegration estimators. The study found that fostering export-oriented growth policy triggers technological progress/productivity increase through spillover effects attached to international trade (intensive growth). On the other hand, increasing trade volume/exports stimulate capital accumulation and simultaneously enhances the demand for imported capital and intermediate goods that further complements capital accumulation (extensive growth).
Keywords: intensive growth, extensive growth, export, total factor productivity, capital accumulation
JEL Codes: F11, F14

INTRODUCTION

Since the 90s of the last century, several countries have embarked on the transition process from centrally planned to market economy. Some chose to make a gradual transition while others applied so-called shock therapy referring to the rapid changes in national economic policies.

The transition process of these countries was oriented on market liberalization corresponding to the promotion of the private sector, aggressive privatization, creation of liberal investment climate, and encouragement of market competition. All these were added up to encourage firms to innovate, expand, and explore the foreign export markets. Hence, the export expansion was perceived as the driving force of economic growth.

Theoretically, fostering exports is considered a key determinant for sustainable economic growth (*Michaely*, 1977; *Feder*, 1983; *Darrat*, 1987; *Dritsakis*, 2006, etc.), especially in transition economies (*Funke and Ruhwedel*, 2005; *Kaminski et al.*, 1996). Exports appear to resolve the problem of a small domestic market that does not allow to maintain adequate demand growth (*Taban and Aktar*, 2008). Basically, export markets are boundless and cannot impose any restriction on a demand growth (*Agosin,* 1999); it is a catalyst for income growth as a component of aggregate demand (*Herzer et al.,* 2002). Unfortunately, several empirical studies regarding export-led growth (ELG) policy landed conflicting results, meaning that homogenizing export-oriented

growth is not a priori model for sustainable economic growth. Accordingly, the goal of this study is the empirical assessment of the exports/ELG policy and its effects on transition economies.

The rationale of the study is the following: During the transition process, an outward-oriented growth model can quickly escalate economic growth if implemented properly. Trade policies like export-led growth (ELG) have a bigger space to facilitate technology/knowledge spillovers that in turn increases productivity (intensive growth). Besides, increasing trade turnover by prioritizing exports can trigger capital accumulation by increasing the demand for imported capital and intermediate goods (extensive growth). Following these steps by slowly facilitating gains from ELG policy to the R&D and education will trigger the country's overall potential and create an adequate base to develop into a competitive, innovative economy.

LITERATURE REVIEW

The transition process implies the stage of economic development moving from centrally planned economy to market economy. The path through which transition was going to happen derived from two viewpoints: One claimed rapid "big bang" reform style, while another suggested a gradual set of reforms (*Svejnar,* 2002). Eventually, whatever is the path, a keystone in the transition process should remain the export performance (*MacBean*, 2000). Accordingly, export-oriented growth (ELG) was perceived to be the most efficient policy during the transition process.

The nexus of ELG theory is that exporting on large scales increases factor productivity and correspondingly economic growth. Several studies were dedicated to the empirical assessment of the export-led growth theory. Early works were carried out by *Michaely* (1977), *Heller and Porter* (1978), *Balassa* (1978), *Tyler* (1981), *Feder* (1983), etc... Later work corresponds to *Jung and Marshal* (1985), *Darrat* (1987), *Dritsakis et al.* (2006), *Silaghi* (2009), etc...

Michaely (1977) argued that the rapid expansion of export production can boost economic growth in developing countries. Hence, his results confirmed the positive relationship between exports and growth. On the other hand, *Heller and Porter* (1978) re-examined the potential growth-enhancing character of export with some changes in Michael's model. As Heller mentioned in his work, "*Michaely* (1977) complained that his predecessors in this task had erred because they correlated the growth rate of a national product with a growth rate of exports, and since exports are themselves part of the national product,… a positive correlation of two variables is almost inevitable, whatever their true relationship" (*Heller and Porter*, 1978); but Heller and Porter noticed that Michaelly made the same mistake, thus provided the corrected model of their predecessors regarding the issue. As so, Heller and Porter showed a higher correlation coefficient (0.45) than those of Michaely's (0.38). Eventually, they agree with Michaely that the minimum threshold of economic development is necessary before the relationship between export and economic growth to take-off (*Heller and Porter,* 1978).

Balassa (1978) investigated the relationship between export and economic growth for the countries with the already existing base level of industrial development. He founds that ELG theory performs better for those countries than import substitution policy. According to Balassa, ELG generates incentives to promote sales both within and outside the domestic market, hence, improving resource allocation, increasing market capacity, facilitating technology diffusion and simultaneously increasing production efficiency (*Balassa,* 1978).

Tyler (1981) assessed the relationship between export end economic growth by employing a sample of 55 developing countries, excluding less developed ones due to the certain threshold of the level of industrial development necessary to experience ELG policy benefits. The results confirmed the positive association between the growth and exports, suggesting that "countries which neglect their export sectors through discriminatory economic policies run the considerable risk of having to settle for a lower rate of economic growth" (*Tyler,* 1981).

Feder (1983) analyzed the sources of growth besides capital accumulation and labor force in semi-industrialized countries for the period between 1964 and 1973. According to the results, firstly, marginal factor productivities were found higher in export sectors rather than non-export sectors, and secondly, concentrating resource allocation to export-intensive sectors can trigger economic growth (*Feder,* 1983).

Unlike his predecessors, *Jung and Marshall* (1985) provided causality results concerning export and economic growth for the sample of 37 countries. The results cast doubt on the validity of the ELG policy as far as just 4 countries show support for the policy.

Darrat (1987), *Jung and Marshal* (1985) and some other later studies are emphasizing the importance of causal relationships and criticizing the previous works for simply applying OLS regression and ignoring the possible causality between the variables. Therefore, they are shifting the methodological preference for incorporating causal relationships. As so, *Darrat* (1987) empirically assessed the effects of ELG policy on economic growth for a special case of "growth miracle", "Gang of four", or as often referred to, "Asian tigers" corresponding to Hong Kong, Taiwan, South Korea and Singapore for the period between 1955 and 1982. The results confirmed the positive association of export to economic growth, but the causality test failed to land support on the ELG policy (*Darrat*, 1987).

Dritsakis et al. (2006) analyze the relationship between exports and economic growth in 3 export giants, namely the European Union (EU), the USA and Japan through the multivariate Johansen cointegration test and causality in terms of error correction model (ECM). The results of the Johansen test confirm the long-term cointegration and bilateral causal relationships between the variables of the EU and the USA. On the other hand, no causal and cointegrating relationship was found for Japan.

The efficiency of ELG policy regarding transition economies is well recorded in the following empirical literature: *Kaminski et al.* (1996), *Funke and Ruhwedel* (2005), *Awokuse* (2007), *Saglam et al.* (2018).

Kaminski et al. (1996) evaluated the export performance in transition countries, hence, concluded that prioritizing trade liberalization by removing major trade bar-

riers contributes more to export performance and correspondingly economic growth than relaxing import controls; but one should bear in mind that neither way is successful if implemented alone, instead, liberal foreign trade regime along with stabilization, currency devaluation measures should be executed simultaneously. As so, export success appeared not as "the objective of transition, rather a significant component and an indicator of progress" (*Kaminski et al.,* 1996).

Funke and Ruhwedel (2005) conducted a study regarding the importance of export variety for economic growth in transition economies. From this perspective, export variety represents one of the main determinants of export performance and correspondingly success of export-oriented growth. Accordingly, the results showed that "productivity gains from export variety are empirically relevant to Eastern European transition economies, i.e. GDP per capita is linked to the widening of the product spectrum; however, the importance of variety in determining per capita income depends upon the characteristics of the sector" (*Funke and Ruhwedel*, 2005).

Awokuse (2007) tested the role of both export and import in the economic growth of CEEC countries through the multivariate cointegration VAR methods. The results support both ELG and ILG policies.

Saglam et al. (2018) compared the performance of domestic demand and ELG strategies to European transition economies. The paper employed panel data from 1990 to 2015 with 16 cross-sectional units and applied Westerlund ECM panel cointegration along with heterogenous panel causality tests. The results indicate the significance of both strategies and show bidirectional causality regarding economic growth.

Apparently, ELG policy is a crucial part of the development process in transition economies and the success of it goes through market liberalization which is another cornerstone in the transition process. Market liberalization is a source of new market access, enlarged trade partners, improved spillover effects, and boosted foreign investments that should be directed in sectors with high production efficiency to further complement economic growth (*Bernatonyte and Normantiene*, 2009). Accordingly, international trade and its conventional benefits are presumed as the cardinal source of economic growth regarding transition economies (*Kokko,* 2002*; Malovic and Zdravkovic,* 2017). International trade is the one that can bring together both intensive and extensive growth factors. The ability of international trade to facilitate positive externalities concerning technology transfers and knowledge spillovers stimulates intensive growth as follows: Countries can compensate for the lack of intermediate goods through the imports, thus, manage to increase productivity via technology diffusion, leading to intensive growth (*Belitz,* 2013; *Madsen,* 2008). Similarly, one way to leverage intensive growth is the export-driven foreign investment inflow: Considering export as the main source of growth, promotion of the ELG policy enhances the inflow of foreign investment through the market openness, where the market openness is the main determinant of FDI inflow and the important measure for ELG policy. Accordingly, increased foreign investment with proper management increases the production efficiency of both major export and non-export sectors, leading to intensive economic growth.

From the perspective of extensive growth, vast empirical literature suggests that increased exports/trade flow can be a significant source of capital accumulation. For instance, as far as exports are the main component of the total trade flow, fostering exports can trigger capital accumulation/investment due to the necessity of boosting export production (*Feddersen et al.,* 2017; *Bhagwati* 2007). Accordingly, chasing the export expansion stimulates the demand for the importing capital/intermediate goods that in turn boost capital accumulation (*Emery*, 1967; *Akpokodje*, 2000).

MATERIALS AND METHODS

According to the revised literature, the study hypothesized the following statements:

- H1: Fostering export expansion escalates economic growth through productivity increase.
- H2: Increasing trade flow triggers larger capital accumulation.
- H3: Promoting exports enhances capital accumulation by stimulating the demand for imported capital and intermediate goods.

To address the above-mentioned hypotheses, the study employed two regression models, along with three Granger causality tests. The preferred estimation method is panel data analysis. The paper uses a balanced panel dataset with 231 observations for both regression models. Data were collected from the World Bank database. Datasets include 11 cross-section units over 21 years (1997 to 2017). The cross-section units of the panel datasets represent transition economies corresponding to Albania, Armenia, Azerbaijan, Georgia, Belarus, Ukraine, Moldova, Northern Macedonia, Russia, Kazakhstan and Kyrgyzstan. The variables included in the study are gross fixed capital formation (GFCF), total value of trade (TR), gross savings (GS), inflation (INF), total value of exports (EX), imports of capital and intermediate goods (IMCI), gross domestic product (GDP), trade openness (TO), total factor productivity (TFP), and labor force (LF). As mentioned earlier, there are two regression models, along with three Granger causality tests in the study. Hence, the variables presented above are employed in the following way:

- Regression model (1): Dependent variable GDP and explanatory variables GFCF, LF, EX.
- Regression model (2): Dependent variable GFCF and explanatory variables TR, GS, and INF.
- Granger causality test (1): Testing if EX Granger causes GDP.
- Granger causality test (2): Testing if EX and TO Granger causes TFP.
- Granger causality test (3): Testing if EX Granger causes IMCI.

The first regression model captures the effects of export expansion on economic growth, simultaneously providing the evidence for the validity of the ELG policy assessed through the causality relationship between exports and economic growth. In this regression model, exports are assumed to be one of the main sources of technological progress/productivity increase. Accordingly, to strengthen the assumption

regarding exports and technological progress/productivity increase, I utilized exports, trade openness, and total factor productivity in the Granger causality test to check if the lagged values of exports/trade openness add explanatory power to forecasting total factor productivity; where trade openness represents a measure/indicator for the outward-oriented growth (ELG hypothesis) and the total factor productivity is a proxy for technological progress/productivity increase.

The second regression model assesses the effects of international trade on capital accumulation (extensive growth), and lastly, conducting Granger causality test between exports and imports of capital/intermediate goods provides complementary evidence regarding the ability of exports to increase demand for imported capital/intermediate goods that by itself is the main ingredient in capital accumulation.

Accordingly, the first regression model, along with the first and second Granger causality test addresses the first research hypothesis, while the second regression model, along with the third Granger causality test addresses the second and third hypotheses.

EMPIRICAL RESULTS AND THEIR EVALUATION

Panel regression results for the first regression model, along with first and second Granger causality tests

The first regression model employed a balanced panel dataset (231 obs.) with 11 cross-sectional units over 21 years (1997-2017) collected from World Bank Group. The dependent variable is gross domestic product (GDP) and explanatory variables are capital proxied by gross fixed capital formation as a percentage of GDP (GFCF), the total labor force (LF), total export value (EX), and inflation proxied by consumer price index (INF). All the variables are Log transformed.

Before proceeding to the panel unit root testing, I applied the Pesaran CD test for cross-sectional dependence on all the variables. Pesaran CD test helps us to decide between the 1st (in case cross-sectional dependence is absent) and 2nd generation unit root test (if cross-sectional dependence is present). The result of the test shows the presence of cross-sectional dependence in all variables except for LF (*Table 1*). Hence, I proceeded to test the unit root through 2nd generation tests.

Table 1

Pesaran CD test for cross-sectional dependence

Variables	GDP	GFCF	LF	EX	INF
Pesaran CD	0.000	0.000	0.355	0.000	0.000

Table 2a reports the results of Pesaran CADF/CIPS and Breitung 2nd generation panel unit root tests. According to the results, all the variables are non-stationary at levels in Pesaran CADF except for EX when a trend is specified. Similarly, the Breitung test confirms

the non-stationarity of the variables except for GFCF when a trend is excluded. As for Pesaran CIPS, it shows non-stationarity of variables except for GDP and INF when excluding trend, and GFCF with the trend. The differences between results can be the cause of the size of the time dimension that in our case is not large enough. However, the overall results of the three tests suggest the non-stationarity of the variables at levels and stationery at 1st differences (*Table 2a* and *Table 2b*).

Table 2a

Pesaran CADF, Breitung, and Pesaran CIPS second-generation unit root tests at levels

Variables	Pesaran CADF		Breitung		Pesaran CIPS	
	No trend	Trend	No trend	Trend	No trend	Trend
GDP	0.986	0.98	0.781	0.743	-2.489**	-2.331
GFCF	0.79	0.283	0.024	0.163	-2.036	-2.869**
LF	1.000	1.000	0.753	0.806	-0.916	-1.122
EX	0.715	0.001	0.852	0.68	-1.939	-2.311
INF	0.001	0.678	0.939	0.317	-2.315**	-2.435

Note: Critical values for Pesaran CIPS without trend: -2.14 (10%), -2.25 (5%), -2.45 (1%); with trend: -2.66 (10%), 2.76 (5%), -2.96 (1%); lag length is set at 2 according to the average lag length for each cross-section unit in panels for every variable suggested by Akaike criterion. H1 = nonstationary

Table 2b

Pesaran CADF, Breitung, and Pesaran CIPS second-generation unit root tests at 1st differences

Variables	Pesaran CADF	Breitung	Pesaran CIPS
GDP	0.112	0.000	-3.415***
GFCF	0.001	0.000	-3.614***
LF	0.999	0.000	-2.97***
EX	0.000	0.000	-3.536***
INF	0.016	0.000	-3.888***

Note: Critical values for Pesaran CIPS: -2.14 (10%), -2.26 (5%), -2.47 (1%); lag length is set at 2 according to the average lag length for each cross-section unit in panels for every variable suggested by Akaike criterion. H1 = nonstationary.

As far as all the variables tend to be integrated of the same order, I proceeded to the Kao cointegration test. The results of the test indicate the presence of a cointeg-

ration relationship as the null hypothesis of no cointegration could not be rejected (*Table 3*).

Table 3

Kao cointegration test

ADF	t-statistic	Prob
	-5.918	0.000

Note: H1 = no cointegration.

Eventually, coefficients for panel cointegration relationships were estimated through the FMOLS estimator. The result of the estimated model shows that all the variables have correct signs and are statistically significant (*Table 4*).

Table 4

FMOLS regression model results

Variables	Coefficient	Prob
GFCF	0.137	0.000
LF	0.522	0.009
EX	0.751	0.000
INF	-0.069	0.000
R2 = 0.989		

To check the consistency of the results, I performed a couple of post-estimation tests. Apparently, the FMOLS estimator is robust to the main regression assumptions. Therefore, post-estimation tests correspond only to the normality of residuals and multicollinearity tests. The results of the post-estimation tests are presented in *Table 5* and *Table 6.*

The results of the tests showed that multicollinearity is absent from the model (VIF values are way less than 10) and residuals are normally distributed (*Table 5* and *Table 6*).

Table 5

Jarque-Bera normality test results

Test	Statistic	Prob.
Jarque-Bera normality	2.761	0.251

Note: Jarque-Bera H1 = normally distributed.

Table 6

Variance inflation factor (VIF)

Variable	VIF	1/VIF
GFCF	1.015	0.985
LF	3.304	0.302
EX	2.150	0.465
INF	2.430	0.411
Mean VIF	2.224	

As a next step, I employed a Granger causality test between exports and GDP to validate the importance of ELG policy for transition economies. Besides, to strengthen the assumption regarding the ability of exports to stimulate productivity increase, I also utilized exports (EX), trade openness (TO), and total factor productivity (TFP) in the Granger causality test (*Table 7*).

Table 7

Granger Causality test results

Hypotheses tested	Z-bar Stat.	Probability
EX does not Granger-cause GDP	2.417	0.018
EX does not Granger-cause TFP	5.224	0.000
TO does not Granger-cause TFP	8.865	0.000

Note: H1 = no causality; Lags according to AIC criteria. Variables EX, TO, and TFP are in real growth rates.

The results presented in *Table 6* show that the variables EX Granger-causes GDP, and TO along with EX Granger-causes TFP as we reject the null of no causality.

Overall, the selected variables for the first regression model appeared to be significant contributors to the economic growth: As the main determinants of the aggregate output, GFCF and LF have positive signs and are statistically significant at 1% with the coefficients of 0.137 and 0.522 respectively; inflation has a negative impact on GDP with the coefficient of –0.069; lastly, EX indicates positive impact on GDP with a coefficient of 0.751. Furthermore, Granger causality tests confirm the causal relationship from EX to GDP, as well as from TO and EX to TFP. Accordingly, the results of the first regression model, along with the first and the second Granger causality tests, confirmed the validity of the ELG policy for the transition economies and suggested that the increase in exports enhanced total factor productivity by this stimulating economic growth at intensive margins.

PANEL REGRESSION RESULTS FOR THE SECOND REGRESSION MODEL AND THIRD GRANGER CAUSALITY TEST

The second model uses a strongly balanced panel dataset (231 obs.) with 11 cross-sectional units over 21 years (1997-2017) collected from the World Bank Group database. The dependent variable is capital accumulation proxied by gross fixed capital formation (GFCF) and explanatory variables are total trade turnover (TR), gross savings as a percentage of GDP (GS), and inflation proxied by consumer price index (INF). The variables are in real growth rates.

The results of Pesaran CD test show that all the variables are cross-sectionaly dependent (*Table 8*), hence, I proceeded to stationarity check of the variables by using 2nd generation unit root test, along with 1st generation unit root test with subtracted cross-sectional mean which mitigates the impact of cross-sectional dependence as stated by Levin, Lin, and the Chu. Accordingly, *Table 9* and *Table 10* report the results regarding the stationarity of the variables. The results of the tests show that mostly all the variables are stationary at 1 lag (with and without trend).

After confirming that the variables under consideration are stationary, I proceeded to the estimation of the regression model via POLS, RE, and FE estimators. The results of the regression models show that all the variables have expected signs and are statistically significant (*Table 11*).

Table 8

Pesaran CD test for cross-sectional dependence

Variables	GFCF	TR	GS	INF
Pesaran CD	0.000	0.000	0.000	0.000

Note: H1 = no cross-sectional dependence.

Table 9

Pesaran CADF, Breitung, and Pesaran CIPS second-generation unit root test

Variables	Breitung		Pesaran CIPS		Pesaran CADF	
	No trend	Trend	No trend	Trend	No trend	Trend
GFCF	0.000	0.000	-3.495***	-3.886***	0.000	0.000
TR	0.002	0.000	-3.604***	-4.222***	0.001	0.000
GS	0.002	0.442	-2.32**	-2.788**	0.312	0.257
INF	0.018	0.012	-4.014***	-4.047***	0.000	0.009

Note: Critical values for Pesaran CIPS without trend: -2.14 (10%), -2.25 (5%), -2.45 (1%); with trend: -2.66 (10%), -2.76 (5%), -2.96 (1%); lag length is set at 1 according to the average lag length for each cross-section unit in panels for every variable suggested by Akaike criterion. H1 = nonstationary.

Table 10

Fisher-type (Phillips-Perron) panel unit root test

Variables	GFCF		TR		GS		INF	
	No trend	Trend	No trend	Trend	No trend	Trend	No trend	Trend
Inv. Chi 2	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000
Inv. normal	0.000	0.000	0.000	0.000	0.011	0.019	0.000	0.000
Inv. logit	0.000	0.000	0.000	0.000	0.006	0.005	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.

Table 11

POLS, RE, and FE regression model results (dependent variable is GFCF)

Variables	POLS	RE	FE
TR	0.924*** (0.053)	0.924*** (0.054)	0.93*** (0.056)
GS	0.209** (0.11)	0.209* (0.111)	0.292** (0.14)
INF	-0.081* (0.045)	-0.081* (0.045)	-0.093* (0.049)
R2	0.67	0.67	0.678

Accordingly, Hausman and Lagrange Multiplier tests were employed to identify the best model. The results reported in *Table 12* show that the preferred model is POLS.

Table 12

Hausman test and Lagrange Multiplier tests for Random effects (RE)

Hausman Test		LM test for RE (Cross-section)		LM test for RE (Time)		LM test for RE (Both)	
Stat.	Prob.	Stat.	Prob.	Stat.	Prob.	Stat.	Prob.
2.941	0.4	1.684	0.194	0.26	0.609	1.945	0.163

To confirm the consistency of the POLS model, I conducted several post-estimation tests including cross-sectional dependence in residuals, heteroskedasticity, multicollinearity, and autocorrelation tests (*Table 13* and *Table 14*).

Table 13

Results of post-estimation tests: Breusch-Pagan LM, Pesaran scaled LM, and Pesaran CD tests for checking residual cross-sectional dependence; Panel cross-section Heteroskedasticity LR test for detection of heteroskedasticity, and Wooldridge test for autocorrelation

Breusch-Pagan LM Test		Pesaran scaled LM Test		Pesaran CD Test		Hetero. LR Test		Wooldridge Autocorrelation	
Stat.	Prob.	Stat.	Prob.	Stat.	Prob.	LR Stat.	Prob.	F Stat.	Prob
79.286	0.017	2.315	0.02	1.313	0.188	35.699	0.000	5.522	0.04

Note: Breusch-Pagan LM, Pesaran Scaled LM, and Pesaran CD H1 = no cross-sectional dependence; Hetero. LR H1 = no heteroskedasticity; Wooldridge H1 = no autocorrelation.

Table 14

Variance inflation factor (VIF)

Variable	VIF	1/VIF
TR	1.37	0.728
GS	1.37	0.73
INF	1.64	0.61
Mean VIF	1.46	

According to the post-estimation test results, the POLS model suffers from heteroskedasticity, autocorrelation, and cross-sectional dependence in residuals.[1] To deal with these violations of regression assumptions, I have employed heteroskedastic, contemporaneous correlation, and autocorrelation robust standard errors through GLS, Prais-Winston PCSE, and Driscoll-Kraay SCC estimators and re-run the model (*Table 15*).

The results of the robust estimators (GLS, PCSE, and SCC) landed the same results as the POLS model. It appears that a 1% increase in total trade flow increases GFCF by 0.886 to 0.933%. In the same way, a 1% increase in GS increases GFCF by 0.209 to 0.332%. As for INF, the value of GFCF decreases by 0.081 to 0.106% on every 1% increase in the inflation rate.

[1] The results of the tests for cross-sectional dependence indicate that 2 out of 3 tests confirms the cross-sectional dependence. Accordingly, I assumed cross-sectional dependence, but still, due to Pesaran CD test that showed no cross-sectional dependence, I ran the corresponding GLS, PCSE, and SCC regressions with and without cross-sectional correlation.

Table 15

GLS, PCSE and SCC regression model results (dependent variable is GFCF)

Variables	GLS (no CS corr.)	GLS	PCSE (no CS corr.)	PCSE	SCC
TR	0.933***	0.926***	0.886***	0.886***	0.924***
GS	0.332***	0.322***	0.257*	0.257*	0.209**
INF	-0.088**	-0.07**	-0.106**	-0.106**	-0.081**
R2			0.635	0.635	0.67

As mentioned earlier, this study also provides complementary evidence regarding the ability of exports/ELG policy to stimulate capital accumulation through the causality analysis between exports and imports of capital/intermediate goods. The rationale behind this claim is as follows: Competitive pressure along with the desire of exporting firms to succeed in the international market triggers investments in R&D, simultaneously, it enhances the demand for the imports of capital/intermediate goods, which are direct contributors to capital accumulation. Accordingly, I conducted a Granger-causality test between EX and IMCI to farther support the argument regarding the growth-enhancing character of exports/ELG policy to complement capital accumulation through stimulation of the demand of IMCI (*Table 16*).

Table 16

Granger causality test results

Hypothesis tested	Z-bar Stat.	Probability
EX does not Granger-cause IMCI	3.049	2.E-06

Note: H1 = no causality.

The results reported in *Table 16* show the causal relationship from exports to imports of capital/intermediate goods as we reject the null hypothesis of no causality.

As we can see from the results of the second regression model and the third Granger causality test, engagement in larger trade activities by prioritizing exports brings together new forces to facilitate the farther expansion of capital accumulation (growth at extensive margins).

FINAL NOTES AND CONSISTENCY WITH LITERATURE

Apparently, adopting the ELG growth model indicates the signs of both, growths at extensive margins (capital accumulation) and the intensive margins (productivity increase) regarding selected transition economies. The results of this study give support to the implementation of ELG policy in transition economies

and confirmed the validity of the claim presented in *MacBean* (2000): Whatever is the path, the export performance should remain a keystone in the transition process (*MacBean*, 2000). These results are also in line with *Kaminski* (1996) where the author showed the prominence of exports as a significant component and indicator of progress while prioritizing trade liberalization within the transition process. Similar results were presented in *Awokuse* (2007) and *Saglam et al.* (2018) that found strong evidence supporting ELG theory regarding CEEC/European transition economies. Among others, the results of the current study are consistent with *Moschos* (1987) showing that the growth of output is mainly generated by export expansion and capital formation in developing countries. Furthermore, the results are relevant to the findings in *Balassa* (1986), where the author states that the outward-oriented countries are more resistant to external shocks and rely less on foreign borrowings, while inward-oriented countries are more vulnerable and borrow extensively abroad (*Balassa*, 1986).

The relationship between capital accumulation and trade/exports is another important issue addressed in this study. It appeared that fostering trade enhances capital accumulation which in turn boosts the aggregate production of a country. Hence, the implementation of ELG policy has twofold benefits reflected in both extensive (capital accumulation) and intensive (spillover effects enhancing technological progress) growth aspects. The results are consistent with *Feddersen et al.* (2017), where the authors found that a "shock to exports is associated with an improvement in capital… and exports Granger-causes capital" (*Fedderson et al.*, 2017). Similarly, the results of this study are in line with *Levine and Renelt* (1992) that found a positive association between trade/exports and investments/capital. Besides, the current study presents the evidence that the demand for imports of capital/intermediate goods that are direct contributors to capital accumulation, is significantly affected by export expansion. Similar results were found in *Emery* (1967) and *Akpokodje* (2000).

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