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THE ROLE OF EXPORTS IN ECONOMIC GROWTH OF GEORGIA

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1. RESEARCH BACKGROUND AND OBJECTIVES

After the fall of the "Iron Curtain", post-Soviet states embarked on the transition process from centrally planned to the market economy. Some chose to make a gradual transition while others applied so-called shock therapy referring to the rapid change in national economic policy. In this regard, Georgia is one of those that chose the rapid 'big bang' reform style.

Georgia's transition was strictly oriented on market liberalization corresponding to the promotion of the private sector, aggressive privatization, creation of a 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. The export expansion was perceived as the driving force of the growth during the transition. Hence, Georgia developed one of the most liberal trade regimes in the world and exhibited new patterns and possibilities to grow. Export expansion became the real deal for the country that could solve the typical problems attached to the small market economies. Theoretically, fostering exports is considered a key determinant for economic growth (Michaely 1977; Feder 1982; Darrat 1987; Dritsakis 2006, etc.), especially in transition economies. Exports appear to resolve the problem of a small domestic market that does not allow to maintain adequate demand growth (Taban & Aktar 2012; Agosin 1999).

During the transition period, Georgia made a lot of effort to promote outward-oriented growth, but results were moderate and could not maintain rapid growth over the period. Besides, Georgian exports exhibit a high level of inconsistency regarding external trade shocks due to the low level of product and market diversification.

Accordingly, the goal of this work is the empirical assessment of the exports regarding economic growth by unfolding the mechanics of the export-driven growth and its incomplete application by Georgia which should be the reason

for the relatively moderate performance of Georgian exports.

The study assumes that Georgia has a better chance to enhance productivity through the export-driven market competition and spillover effects rather than aggressive investment in human capital or R&D and innovation from the very beginning. This path of economic development is not a myth but contrary, one of the most realistic ways to succeed.

The preference of the export-oriented growth model is gauged as follows: Georgia, among some other transition economies, has never been considered as an innovative country or contributed to the global technological progress. Technological advancement does not come for granted, it takes time and depends on the accumulation of knowledge which is the biggest problem for countries like Georgia.

In this context, an outward-oriented growth model can quickly escalate economic growth if implemented properly. Trade policies like export-led growth have a bigger space to facilitate technology and knowledge spillovers.

As far as the emphasis is on the importance of export trading, the objectives of the dissertation are formulated as follows:

- Examine the role of exports in economic growth at intensive margins - From this perspective, the study argues that export expansion is an important source in stimulating technological progress through productivity increase.
- Examine the role of exports in economic growth at extensive margins – Regarding extensive growth, the study argues that fostering export-oriented policies can generate higher capital accumulation through various channels including increasing demand for imported capital and intermediate goods.
- Identify the determinants of export performance complementing economic growth – In this case, the study argues that fostering export market diversification, along with a diversified export product portfolio dominated by manufactured exports further complements economic growth.

2. METHODOLOGY

2.1 Introduction

To fulfill the objectives of the dissertation, the current study estimates three econometric models based on panel data analysis, hence, Georgia is analyzed from the perspective of a transition economy:

- 1st MODEL: The role of exports in economic growth at intensive margins.
- 2nd MODEL: The role of exports in economic growth at extensive margins.
- 3rd MODEL: Determinants of export performance complementing economic growth.

Chapter 2 is organized as follows: It starts with the research questions and hypotheses including theoretical background, followed by the econometric models to be estimated (section 2.2 and 2.3). Section 2.4 presents the applied research methods and section 2.5 describes the scope of the employed data.

2.2 Research questions and hypotheses

Based on the revised literature and the insights made regarding the Georgian economy, the study proposes three hypotheses by answering three research questions (RQs):

RQ1: How does export expansion stimulate economic growth at intensive margins?

H1*: Fostering export expansion/ELG policy complements economic growth through productivity increase.*

There is vast literature suggesting that the power of exports resides in the stimulation of technological progress, which is usually assessed in terms of total factor productivity (Dilling et al. 2015, Wagner et al. 2007, Girma et al. 2004, Delgado et al. 2002, Alcala et al. 2002, among others).

Fostering export expansion is associated with increased specialization and better allocation of resources leading to productivity gains, hence, intensive growth. Besides, considering export as the main source of economic growth, fostering export-led growth policy (ELG) can enhance the inflow of foreign investments through market openness. e.g., the ELG theory implies the acceleration of economic growth through the market openness (reduced trade barriers, increased trade openness, etc.) in exchange for market expansion (Palley 2011). As far as trade openness is one of the main determinants of FDI, it can trigger a larger investment inflow in the economy (Liargovas 2012). From this perspective, increased foreign investments mean increased finances, and proper management of these finances increases the efficiency of production sectors, leading to intensive economic growth.

RQ2: How does export expansion stimulate economic growth at extensive margins?

H2*: Fostering export expansion stimulates capital accumulation.*

From the outward-oriented growth perspective, chasing ELG policy considers the promotion of market liberalization which in turn expands the boundaries of a country and generates higher demand for exported goods. Besides, integration into the global market imposes competitive pressure on local firms, which increases the desire of the firms to survive. In this context, a sense of survival stimulates export expansion, increases capital investments, and utilization of export earnings to finance the importation of capital and

intermediate goods that are direct sources for capital accumulation (Feddersen et al. 2017; Bhagwati 2007; Akpokodje 2000; Emery 1967).

RQ3: What are the ways to improve export trading to further complement economic growth?

H3*: Fostering manufactured exports, along with export market and product diversification improves export performance and correspondingly economic growth.*

Diversification of export markets increases the demand for the exported products, hence, higher export sales and correspondingly economic growth. Besides, market diversification can become a source of technology diffusion and knowledge spillovers during exploration of the new markets (De Loecker 2007) which in turn generates higher economic growth through productivity increase (Santos et al. 2013; Coe et al.1995).

Furthermore, market diversification can enhance the flow of investment, force exporter firms to innovate, and maintain the continuum of productivity gains (Grossman et al. 1991; Kali et al. 2007). Among other things, market diversification is a useful tool to handle the risk of market fluctuation, stabilize export earnings (Ghosh et al. 1994) and lower the demand uncertainty for the local firms, thus giving them a stimulus to innovate (Juvenal 2013).

As for the export product portfolio, the dependence of a nation on a limited variety of exported goods can trigger severe implications imposed by the trade shocks or price instability of those goods (Baliamoune 2011). Although having a diversified export product basket is found to be an important source of improved export performance and higher economic growth (Funke et al., 2003), the dominance of manufactures in the export portfolio can push

economic growth even further (Cuaresma et al., 2005). Manufactured exports are perceived to facilitate larger knowledge spillovers and 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).

2.3 Econometric models

2.3.1 The role of exports in economic growth at extensive margins.

To investigate the role of exports in economic growth at intensive margins I tested the first hypothesis (***H1****: Fostering export expansion/ELG policy complements economic growth through productivity increase.*) by estimating the following model:

First, I defined economic growth in terms of gross domestic product (GDP) and assessed it within a framework of the Cobb-Douglas production function, where the main determinants of GDP are capital proxied by gross fixed capital formation (GFCF), the total labor force (LF), and technological progress. Besides, I included institutional quality variable proxied by government effectiveness index (GEI) (due to its importance when assessing growth in transition economies) and added inflation (INF). As for technological progress, the study assumes that export (EX) is one of the main determinants of technological progress. As a result, economic growth (GDP) is presented as the function of the following variables:

$$GDP = f(GFCF, LF, INF, EX, GEI) \quad (1)$$

and the model to be estimated is written as:

$$lnGDP_{it} = \beta_0 + \beta_1 lnGFCF_{it} + \beta_2 lnLF_{it} + \beta_3 lnINF_{it} + \beta_4 lnEX_{it} + \beta_5 lnGEI_{it} + u_{it} \quad (2)$$

where *lnGDP* is the dependent variable, *lnGFCF*, *lnLF*, *lnINF*, *lnEX*, *lnGEI* are independent variables, u_{it} is the error term, β_0 is the constant, $\beta_1, \beta_2 \ldots \beta_5$ are the coefficients to be estimated, *i* is the cross-sectional unit (country) and *t* is the time dimension. All the variables are logarithm transformed. The regressors are expected to have positive signs except for *lnINF*.

To strengthen the assumption regarding exports and technological progress, I utilized exports and total factor productivity (TFP), along with exports and GDP in the panel Granger causality test to check if the lagged values of exports add explanatory power in forecasting total factor productivity and GDP, where the total factor productivity is a proxy for technological progress.

The estimation of the presented model and determination of causality between EX, TFP, and GDP captures the effects of export expansion on economic growth at intensive margins, by this answering the 1st research question (RQ1):

RQ1*: How does export expansion stimulate economic growth at intensive margins?*

2.3.2 The role of exports in economic growth at extensive margins.

To examine the role of exports in stimulating economic growth at extensive margins, I tested the second hypothesis (***H2****: Fostering export expansion stimulates capital accumulation.*) by estimating the following model:

First, I presented capital accumulation proxied by gross fixed capital formation (GFCF) as the function of gross savings (GS), an inflow of foreign direct investments (FDI), credit availability to private sectors (CAPS), exports (EX), imports of capital and intermediate goods (IMCI), and inflation (INF):

$$GFCF = f\,(GS, FDI, CAPS, EX, IMCI, INF) \quad (3)$$

and the model to be estimated is written as:

$$lnGFCF_{it} = \beta_0 + \beta_1 lnGS_{it} + \beta_2 lnFDI_{it} + \beta_3 lnCAPS_{it} + \beta_4 lnEX_{it} + \beta_5 lnIMCI_{it} + \\ + \beta_6 lnINF_{it} + u_{it} \quad (4)$$

where *lnGFCF* is the dependent variable, *lnGS*, *lnFDI*, *lnCAPS*, *lnEX*, *lnIMCI*, *lnINF* are independent variables, u_{it} is the error term, β_0 is the constant, $\beta_1, \beta_2 \ldots \beta_5$ are the coefficients to be estimated, *i* is the cross-sectional unit (country) and *t* is the time dimension. The variables are logarithm transformed. The regressors are expected to have positive signs except for *lnINF*.

As far as imported capital and intermediate goods are direct sources for capital accumulation, I also employed a panel Granger causality test to check if the lagged values of exports (EX) add explanatory power in forecasting imported capital and intermediate goods (IMCI).

Estimation of this model and causality between EX, IMCI, and GFCF captures the effects of export expansion on growth at extensive margins, by answering the 2nd research question (RQ2):

***RQ2**: How does export expansion stimulate economic growth at extensive margins?*

2.4.3 Determinants of export performance complementing economic growth.

In this context, the study assumes that export product and market diversification, along with export product structure dominated by

manufactured goods are the important determinants of export performance that can further complement economic growth. Accordingly, to estimate the effects of the above-listed export determinants on the economic growth, I tested the third hypothesis (***H3****: Fostering manufactured exports, along with export market and product diversification improves export performance and correspondingly economic growth.*) by estimating the following model:

First, I disaggregated the total exports on the right side of the equation (2) and present it only in terms of manufactured (MEX) and commodity exports (CEX), along with two additional variables representing export product (PCON) and market concentration (MCON). Hence, economic growth (GDP) is presented as the function of the following variables:

$$GDP = f\,(GFCF, LF, INF, GEI\ MEX, CEX, PCON, MCON) \qquad (5)$$

and the model to be estimated is written as:

$$lnGDP_{it}=\beta_0+\beta_1 lnGFCF_{it}+\beta_2 lnLF_{it}+\beta_3 lnINF_{it}+\beta_4 lnGEI_{it}+\beta_5 lnMEX_{it}+\beta_6 lnCEX_{it}+\beta_7 lnPCON_{it}+\beta_8 lnMCON_{it}+u_{it} \qquad (6)$$

where *lnGDP* is the dependent variable, *lnGFCF*, *lnLF*, *lnINF*, *lnGEI*, *lnMEX*, *lnCEX*, *lnPCON*, *lnMCON* are independent variables, u_{it} is the error term, β_0 is the constant, $\beta_1, \beta_2 \ldots \beta_5$ are the coefficients to be estimated, *i* is the cross-sectional unit (country) and *t* is the time dimension. The variables are logarithm transformed and are expected to have positive signs except for *lnINF*, *lnPCON*, and *lnMCON*.

After the estimation of the above-mentioned model, I tested a causality between product (PCON) and market (MCON) concentration, along with manufactured (MEX) and commodity (CEX) exports, and gross domestic product (GDP).

By estimating the presented model, along with the testing causal relationship between the selected variables, I will answer the 3rd research question (RQ3):

***RQ3**: What are the ways to improve export trading to further complement economic growth?*

2.5 Research methods

The following is the procedure and the methods used in the estimation of the above-listed models:

- Checking the stationarity of the variables
- Testing the cointegration relationship
- Estimating coefficients for the cointegrated variables
- Testing causality between the variables

Checking the stationarity of the variables: Before checking the stationarity of the variables, I tested cross-sectional independence in each variable. Cross-sectional dependence simply means the interdependence of cross-sectional units within a panel; violation of the assumption regarding cross-sectional independence can produce biased results. Hence, I employed the Pesaran CD (cross-sectional dependence) test in the Eviews software, which is based on the Pesaran (2004).[1]

Usually, we apply 2nd generation unit root tests if the assumption of cross-sectional independence is violated in the employed variables, otherwise, 1st generation unit root tests are perfectly suitable. The point is that 2nd generation unit root tests loosen the assumption of cross-sectional independence.

[1] Technical details for the Pesaran CD test in the Eviews statistical package can be found here: http://www.eviews.com/help/helpintro.html#page/content%2Fpanel-Panel_Equation_Testing.html%23ww191025.

Alternatively, it is also possible to apply the 1st generation unit root tests in the presence of cross-sectional dependence if we demean the variables, as suggested by Levin, Lin, and Chu (2002).

Due to the presence of cross-sectional dependence in the panels, I used Breitung, Pesaran CIPS, and CADF 2nd generation panel unit root test, along with Im, Pesaran, and Shin (IPS) 1st generation panel unit root tests on demeaned variables. All the above-listed panel unit root tests were implemented in the Stata software by using the following commands: "xtcips" command for the Pesaran CIPS,[2] "xtunitroot breitung" command for the Breitung,[3] "pescadf" for the Pesaran CADF,[4] and "xtunitroot ips" command for the IPS panel unit root test.[5]

Testing the cointegration relationship: To test the presence of the cointegration of the variables I applied the Kao panel cointegration test. Kao test is based on Engle-Granger (1987) residual-based cointegration test, which applies DF and ADF type test for the null hypothesis of no panel cointegration. It 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). The Kao cointegration test was implemented in the Eviews software[6].

Estimation of the coefficients for the cointegrated variables: After confirming the presence of cointegration, I proceed to the estimation of

[2] Estimation procedure for the Pesaran (2007) CIPS in the Stata software can be found here: XTCIPS: Stata module to compute Pesaran panel unit root test in the presence of cross-sectional dependence. The link: https://ideas.repec.org/c/boc/bocode/s457850.html

[3] Technical details of the Breitung (2000) test in the Stata software can be found here: https://www.stata.com/manuals13/xtxtunitroot.pdf

[4] Technical details of the test are described in Lewandowski (2006). Description of the test in the Stata software can be accessed here: https://fmwww.bc.edu/RePEc/bocode/p/pescadf.html.

[5] The IPS panel unit root test is based on Im, Pesaran, and Shin (2003). Technical details for the IPS test (xtunitroot ips) are described in Bornhorst and Baum (2001).

[6] Technical details of the estimation procedure in the Kao cointegration test can be accessed here: http://www.eviews.com/help/helpintro.html#page/content%2Fcoint-Panel_Cointegration_Testing.html%23ww191865.

coefficients for non-stationary panels by employing panel Fully modified OLS (FMOLS) in the Eviews software.

The panel FMOLS is a semi-parametric estimator proposed by Phillips and Moon (1999). The FMOLS estimator is robust to autocorrelation and endogeneity assumptions, besides, by specifying the robust long-run covariance it allows for heterogeneity of error variance.[7]

Causality testing: For causality analysis, the current study uses Dumitrescu-Harlin (DH) panel non-causality test. Similar to a time-series Granger (1969) causality test, panel DH causality test refers to the augmentation of the autoregression of the variable by including lagged values of another variable to check if it adds explanatory power to the regression, which is adjusted to panel data as proposed by Dumitrescu et al. (2012). The test allows coefficients to be different for each cross-section unit but assumed to be time-invariant (Lopez et al. 2017). The Dumitrescu-Harlin panel non-causality test was implemented in the Stata software by using the command "xtgcause".[8] The command "xtgcause implements the procedure to detect Granger causality in panel datasets proposed by Dumitrescu and Harlin (2012) (Lopez et al. 2017).

2.6 Data

For the empirical estimation of the models, the study employs panel datasets with 11 cross-section units over 22 years (1997 to 2018), where cross-section units represent transition economies corresponding to Albania, Armenia, Azerbaijan, Georgia, Belarus, Ukraine, Moldova, Northern Macedonia,

[7] Technical details of the estimation procedure in panel FMOLS estimator in the Eviews software can be accessed here:
http://www.eviews.com/help/helpintro.html#page/content/pancoint-Technical_Details.html
[8] Description of the estimation procedure for the "xtgcause" command is presented in Lopez et al. (2017). "Testing for Granger causality in panel data", The stat Journal, 17(4), 972-984.

Russia, Kazakhstan, and Kyrgyzstan. Hence, Georgia is analyzed from the perspective of a transition economy.

The data was collected from the United Nations Conference on Trade and Development (UNCTAD), the Conference Board (CB), and the World Bank databases including World Development Indicators (WDI) and World Integrated Trade Solution (WITS) databases.

A sampling of the employed panel data is based on the country classification by United Nations (UN); precisely the list of transition economies from the "World Economic Situation and Prospects" (WESP) annual report published by the UN.[9] The list is reported below in Table 8.

Table 8. The list of transition economies according to the UN country classification.

South-Eastern Europe	Commonwealth of Independent States and Georgia	
Albania	Armenia	Moldova
Bosnia and Herzegovina	Azerbaijan	Russia
Montenegro	Belarus	Tajikistan
Serbia	Georgia	Turkmenistan
North Macedonia	Kazakhstan	Ukraine
	Kyrgyzstan	Uzbekistan

Source: UN, WESP Report 2018, Table B, Page 141.

Unfortunately, not all the above-listed countries were included in the sample due to data unavailability. Some transition economies do not provide data for selected variables or have over 50% missing data points, e.g., Bosnia and Herzegovina, Serbia, Montenegro, Turkmenistan, and Uzbekistan. In the case of Serbia and Montenegro, it is more complicated because data

[9] The report is a joint product of the United Nations Department of Economic and Social Affairs (UN/DESA), the United Nations Conference on Trade and Development (UNCTAD). Source: https://www.un.org/development/desa/dpad/document_gem/global-economic-monitoring-unit/world-economic-situation-and-prospects-wesp-report/

unavailability is caused by the separation of these states in 2006. Hence, data is only partially available.

From an empirical perspective, it is acceptable to merge the data of both countries and treat them as one but unfortunately, some variables employed in this study still have only half of the data, e.g., either for Serbia or Montenegro.

Although the transition process for the selected sample started earlier in the 90s of the 20th century, I only included the period from 1997 to 2018. The reason is that the data before 1997 is not fully available for the selected variables. Similarly, I could not include the data for 2019 simply because it is not reported yet for all the variables.

3. EMPIRICAL RESULTS

3.1 Results for the role of exports in economic growth at intensive margins.

Before proceeding to the estimation of the model concerning exports and growth at intensive margins, I applied the Pesaran CD test for cross-sectional dependence on each variable. The result of the test shows the presence of cross-sectional dependence in all variables except for LF as we reject the null hypothesis of cross-sectional independence (see Table 13).

Table 13. Pesaran CD test for cross-sectional dependence

Variables	GDP	GFCF	LF	INF	GEI	EX
p-values	0.000	0.000	0.287	0.000	0.000	0.000

Null hypothesis: Cross-sectional independence.

Source: Author's calculations

Hence, I applied 2nd generation unit root tests to check the stationarity of the selected variables.

Tables 14a and 14b report the results of Pesaran CADF, CIPS, and Breitung 2nd generation panel unit root tests. According to the Pesaran CADF test results, the variables are mostly non-stationary at levels and stationery at 1st differences (except for EX and GDP when a trend is specified at level). Similarly, Breitung also confirms the non-stationarity of all the variables at levels and stationarity at 1st differences. As for Pesaran CIPS, it shows non-stationarity of the variables at levels except for EX and GDP with trend and GFCF when excluding trend. However, the overall results of the three tests suggest the non-stationarity of the variables at levels and stationery at 1st differences (see Table 14a and 14b).

Table 14a. Pesaran CADF and Breitung 2nd generation unit toot tests

Variables	Pesaran CADF (p-values)			Breitung (p-values)		
	Levels		1st differences	Levels		1st differences
	No trend	trend		No trend	trend	
GDP	0.84	0.022	0.000	0.801	0.615	0.008
GFCF	0.239	0.765	0.004	0.701	0.398	0.014
LF	1.000	1.000	0.948	0.617	0.738	0.017
INF	0.626	0.995	0.000	-	-	-
GEI	0.282	0.457	0.001	0.282	0.237	0.000
EX	0.329	0.001	0.000	0.907	0.451	0.000

The null hypothesis of both tests is all the panels contain unit root (are non-stationary). lag length is 2 according to the average lag length for each cross-section unit in panels for every variable suggested by the Akaike criterion.

Source: Author's calculations

Table 14b. Pesaran CIPS 2nd generation unit toot test

Variables	Test statistics		
	Levels		1st differences
	No trend	Trend	
GDP	-2.107	-3.093***	-3.788***
GFCF	-2.330**	-2.258	-3.724***
LF	-0.959	-1.456	-2.993***
INF	-	-	-
GEI	-1.844	-2.309	-4.162***
EX	-1.951	-3.030***	-3.935***

Null hypothesis is homogenous non-stationary. 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%); *, **, and *** significance at 1%, 5%, and 10%, respectively. lag length is 2 according to the average lag length for each cross-section unit in panels suggested by Akaike criterion.

Source: Author's calculations

As far as all the variables tend to be non-stationary at levels and stationery at 1st differences, I proceeded to the Kao cointegration test, which confirmed the presence of a cointegration relationship as the null hypothesis of no cointegration was rejected (see Table 15).

Table 15. Kao cointegration test

ADF	p-value
	0.000

Null hypothesis: no cointegration.

Source: Author's calculations

Next, I estimated the coefficients of cointegrated variables by the panel FMOLS estimator. According to the results, all the variables have expected signs and are statistically significant. Besides, residuals are normally distributed, and cross-sectional dependence is absent as we cannot reject null hypotheses of normality and cross-sectional independence (see Table 16).

Table 16. Panel FMOLS regression results

Dependent variable GDP, Method: Panel FMOLS, Obs. 231.		
Variables	Coefficient	p-values
GFCF	0.38	0.000
LF	0.40	0.000
INF	-0.01	0.000
GEI	0.05	0.000
EX	0.25	0.000
$R^2 = 0.99$		
Normality of residuals (H_0 = Normally distributed), p-value=0.19		
Pesaran CD test for residuals (H = Cross-sectional independence), p-value=0.23		

Source: Author's calculations

Lastly, I used the Dumitrescu Hurlin (DH) panel non-causality test to check if exports Granger-causes GDP. Besides, to strengthen the assumption regarding the ability of exports to stimulate productivity increase, I also utilized exports (EX) and total factor productivity (TFP) in the DH panel non-causality test. The causality test was applied to 1st differences of the variables as it requires stationarity. According to the results, EX Granger-causes both GDP and TFP as we reject the null of no causality (see Table 17).

Table 17. Dumitrescu Hurlin panel non-causality test results

Null hypothesis	p-values
EX does not Granger-cause GDP	0.000
EX does not Granger-cause TFP	0.010

Source: Author's calculations

Overall, all the selected variables appeared to be a significant contributor to economic growth (GDP) as shown in regression results; The variables GFCF and LF have positive signs and are statistically significant with coefficients 0.38 and 0.40, respectively. As expected, inflation has a negative impact on GDP with a coefficient equal to -0.01. The variable for institutional quality (GEI) also shows a positive effect on GDP with a coefficient equal to 0.05. Lastly, EX as the main variable of interest shows a positive sign with a coefficient of 0.25 (see Table 16).

3.2 Results for the role of exports in economic growth at extensive margins.

Similarly, to the previous estimation, first I tested the cross-sectional independence in each variable by applying the Pesaran CD test, which showed

that all the variables are cross-sectionally dependent as we reject the null of cross-sectional independence, except for IMCI (see Table 18).

As some of the variables are unbalanced and cross-sectionally dependent, I checked the stationarity of the variables by the Pesaran CADF unit root test that does not require balanced panels, along with IPS 1st generation unit root test with subtracted cross-sectional mean which mitigates the impact of cross-sectional dependence as suggested by Levin, Lin, and Chu (2002).

The results of the tests show that all the variables are non-stationary at levels and stationery at 1st differences (see Table 19).

Table 18. Pesaran CD test for cross-sectional dependence

Variables	GFCF	GS	CAPS	FDI	EX	IMCI	INF
p-values	0.000	0.000	0.000	0.000	0.000	0.258	0.000

Null hypothesis: Cross-sectional independence.

Source: Author's calculations

Table 19. Pesaran CADF and IPS 2nd and 1st generation unit toot tests

Variables	Pesaran CADF (p-values)			IPS (p-values)		
	Levels		1st differences	Levels		1st differences
	No trend	trend		No trend	trend	
GFCF	0.239	0.765	0.004	0.351	0.434	0.000
GS	0.433	0.877	0.042	0.019	0.140	0.000
CAPS	0.654	0.003	0.001	0.458	0.170	0.000
FDI	0.537	0.130	0.000	0.153	0.041	0.000
EX	0.329	0.001	0.000	0.903	0.260	0.000
IMCI	0.518	0.329	0.002	0.001	0.001	0.000
INF	-	-	-	0.029	0.610	0.000

The null hypothesis for both tests is the non-stationarity of the panels. lag length is 2 according to the average lag length for each cross-section unit suggested by the AIC.

Source: Author's calculations

After confirming that all the variables are non-stationary at levels and stationery at 1st differences, I proceeded to the Kao cointegration test which confirmed the presence of cointegration relationship between selected variables (see Table 20).

Table 20. Kao cointegration test

ADF	p-value
	0.000

Null hypothesis: No cointegration

Source: Author's calculations

Next, I estimated the coefficients by panel FMOLS estimator and checked the causality between the selected variables. The causality test was applied to 1st differences of the variables as it requires stationarity. The results of the panel FMOLS regression and causality test are presented in Tables 21 and 22.

Table 21. Panel FMOLS regression results.

Dependent variable GFCF, Method: Panel FMOLS, Obs. 211.		
Variables	Coefficients	p-values
GS	0.23	0.000
CAPS	0.21	0.000
FDI	0.02	0.016
EX	0.40	0.000
IMCI	0.20	0.000
INF	-0.03	0.000

$R^2 = 0.96$

Normality of residuals (H_0 = Normally distributed), p-value=0.78

Pesaran CD test for residuals (H = Cross-sectional independence), p-value=0.71

Source: Author's calculations

Table 22. Dumitrescu Hurlin panel non-causality test results

Null hypothesis	p-values
EX does not Granger-cause GFCF	0.000
EX does not Granger-cause IMCI	0.004

Source: Author's calculations

The results for the panel FMOLS regression showed the significance of all the variables and correct signs. Besides, residuals are normally distributed and do not indicate cross-sectional dependence.

Estimated coefficients from the panel (FMOLS) regression are as follows: savings (GS) +0.23, credit availability (CAPS) +21, and foreign direct investments (FDI) +0.02, inflation -0.31. The response of GFCF to the changes in exports (EX) and imports of capital/intermediate goods (IMCI) is positive with the coefficients of +0.40 and +0.20, respectively (see Table 21). As for causality, it appears that exports Granger cause both capital accumulation (GFCF) and imports of capital and intermediate goods (IMCI) (see Table 22), by this showing the importance of export expansion to stimulate growth at extensive margins.

3.3 Results for the determinants of export performance complementing economic growth.

Same as in previous estimations, before estimating the model regarding the determinants of export performance complementing economic growth, first I tested the variables for cross-sectional independence by the Pesaran CD test that confirmed the presence of cross-sectional dependence in all variables (except for LF) as I failed to reject the null hypothesis of cross-sectional independence (see Table 23).

Table 23. Pesaran CD test for cross-sectional dependence

Variable	GDP	GFCF	LF	INF	GEI	EX	MEX	CEM	PCON	MCON
p-values	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Null hypothesis: Cross-sectional independence.

Source: Author's calculations

Accordingly, the stationarity of the variables was tested by Pesaran CADF, CIPS, and Breitung 2nd generation unit root tests. The results are reported in Tables 24a and 24b.

Table 24a. Pesaran CADF and Breitung 2nd generation unit toot tests

Variables	Pesaran CADF (p-values)			Breitung (p-values)		
	Levels		1st differences	Levels		1st differences
	No trend	trend		No trend	trend	
GDP	0.992	0.966	0.019	0.483	0.571	0.000
GFCF	0.690	0.288	0.007	0.310	0.578	0.000
LF	1.000	1.000	0.948	0.617	0.738	0.017
INF	0.001	0.157	0.003	0.995	0.240	0.000
GEI	0.282	0.457	0.001	0.282	0.237	0.000
MEX	0.997	0.746	0.000	0.131	0.090	0.000
CEX	0.539	0.686	0.001	0.489	0.467	0.010
PCON	0.606	0.982	0.012	0.089	0.347	0.000
MCON	0.801	0.951	0.107	-	-	-

The null hypothesis of Pesaran CADF and Breitung tests is the non-stationarity of panels. lag length is 2 according to the average lag length for each cross-section unit in the panels suggested by AIC.

Source: Author's calculations

Table 24b. Pesaran CIPS 2nd generation unit toot test

Variables	Test statistics		
	Levels		1st differences
	No trend	Trend	
GDP	-2.022	-2.176	-3.530***
GFCF	-1.763	-2.285	-3.274***
LF	-0.959	-1.456	-2.993***
INF	-2.394**	-2.509	-3.985***
GEI	-1.844	-2.309	-4.162***
MEX	-2.199	-2961***	-4.372***
CEX	-2.112	-3.160***	-4.374***
PCON	-2.150	-2.322	-4.987***
MCON	-	-	-

Null hypothesis is homogenous non-stationarity. Critical values without trend: -2.14 (10%), -2.25 (5%), -2.45 (1%); with trend: -2.66 (10%), 2.76 (5%), -2.96 (1%); *, **, and *** are significance at 1%, 5%, and 10%. lag length is 2 suggested by AIC.

Source: Author's calculations

The results from unit root tests show that the variables are mostly non-stationary at levels and stationery at 1st differences as I failed to reject the null hypothesis of non-stationarity in most of the tests (see Table 24a and 24b).

Next, I proceeded to the Kao cointegration test, which confirmed the presence of a cointegration relationship as the null hypothesis of no cointegration was rejected (see Table 25).

Table 25. Kao cointegration test

ADF	p-value
	0.000

Null hypothesis: No cointegration

Source: Author's calculations

After confirming the cointegration relationship, I estimated the coefficients by the panel FMOLS estimator, followed by the causality test between the target variables (see Table 26 and 27). The causality test was applied to 1st differences of the variables as it requires stationarity.

Table 26. Panel FMOLS regression results

Dependent variable GDP, Method: Panel FMOLS, Obs. 223.		
Variables	Coefficient	p-values
GFCF	0.54	0.000
LF	0.51	0.000
INF	-0.07	0.000
GEI	0.04	0.000
MEX	0.02	0.000
CEX	0.28	0.000
PCON	-0.09	0.000
MCON	-0.03	0.000
$R^2 = 0.99$		
Normality of residuals (H_0 = Normally distributed), p-value=0.17		
Pesaran CD test for residuals (H = Cross-sectional independence), p-value=0.65		

Source: Author's calculations

Table 27. Dumitrescu Hurlin panel non-causality test results

Null hypothesis	p-values
MEX does not Granger-cause GDP	0.022
CEX does not Granger-cause GDP	0.261
PCON does not Granger-cause GDP	0.000
MCON does not Granger-cause GDP	0.027

Source: Author's calculations

According to the panel FMOLS regression results, all the variables are statistically significant and have expected signs. Besides, residuals are normally distributed, and cross-sectional dependence is absent. As for the

estimated coefficients, GFCF and LF have +0.54 and +0.51, respectively; inflation has a negative sign with a coefficient of -0.07; both, manufactured and commodity exports have a positive effect on GDP with the coefficients +0.02 and +0.28; market and product concentration, both have negative signs as expected with the coefficients -0.09 and -0.03 (see Table 26). Besides, the results from the Dumitrescu Harlin Granger non-causality test confirmed that manufactured exports, along with product and market concentration variables all granger cause GDP, except for primary commodity exports (see Table 27).

3.4 Evaluation of the results

The results obtained from the estimated models can be summarized in three pillars:

- First, export-oriented growth increases the total factor productivity, hence, technological progress (growth at intensive margins).
- Second, fostering export-oriented growth complements overall capital accumulation, especially by stimulating the demand for capital and intermediate goods (growth at extensive margins).
- Third, diversification of destination markets, as well as the structure of the export portfolio by prioritizing manufactured exports further increases economic growth. The study also showed that fostering export-oriented policy to facilitate all the above-mentioned benefits is significantly affected by institutional quality.

Besides, in the dissertation I presented a descriptive evaluation of the Georgian economy, which I will synthesis with the above-mentioned results in this section.

The progress of Georgia described earlier can be summarized as follows: In the past two decades Georgia managed to increase export production significantly and diversify the market and product portfolio to some extent; but

still, it could not perform well in the global market. The reason for poor performance can be the composition of the Georgian export portfolio, which did not follow the patterns of imported goods in partner countries and remained mostly dependent on exports of primary commodities. Dependency on primary commodities can also be seen from the estimated coefficients, where primary commodities have larger coefficients than manufactured exports. But the causality is shown only for manufactured exports and GDP.

As for destination markets, while the share of Georgian exports to CIS and BSEC[10] member countries was shrinking, Georgia managed to diversify its export market in the European Union (EU). Unfortunately, due to a lack of similarity between the composition of the Georgian export portfolio and the structure of imported goods in the EU area, Georgia could not reach high export performance as it was expected from the beginning. Hence, considering the results obtained from the estimated models, Georgia needs to continue the diversification of the export product portfolio by following the structure of imports in destination markets. Besides, among destination markets, the EU area should be treated exceptionally. Although EU-Georgia trade volume is relatively small considering the market size, it holds great potential to operate at higher levels according to the trade intensity indices, which indicated the low-intensity pattern. On the other hand, the expansion of the export production frontiers should be done by prioritizing manufactured exports as it follows the patterns of import demand in the EU market.

Successful exploitation of the EU market by following the above-mentioned diversification strategy can further benefit Georgia's intention to decrease the dependency on the Russian market which caused several economic shocks in the recent past. In fact, an Association Agreement with the EU, along with DCFTA (Deep and Comprehensive Free Trade Areas) that took place in 2014,

[10] CIS - Commonwealth of Independent States. BSEC - Black Sea Economic Cooperation Organization

is a remarkable economic phenomenon for Georgia. DCFTA can serve as the main stimulus for the ELG policy by promoting market expansion/access through the harmonization of national and EU regulations, as well as the reduction of the trade barriers.

Regarding the role of exports in economic growth at intensive margins, we can make the following evaluation: Although the results of the study showed the importance of exports in the technological development of a country through various channels including the increase of total factor productivity, transition economies including Georgia have a long way to go. According to the global innovation index, none of the members of the selected sample of transition economies are high performers regarding innovation and/or technological progress.[11] As described earlier, technological advancement does not come for granted, it takes time and depends on the accumulation of knowledge which is the biggest problem for countries like Georgia. Technological progress is not one dimensional to be pursued and reaching success in few aspects will not add much to the overall economic performance. Hence, diversification of the channels to enhance technological progress is the most adequate choice. From this perspective, transition economies, especially Georgia have a better chance to foster technological progress through learning by exporting, fostering the export-driven market competition, and spillover effects rather than aggressive investment in human capital or R&D and innovation from the very beginning.

The evaluation of the results concerning export expansion and growth at extensive margins is as follows: On the one hand, the results of the estimated models suggest that Georgia among other transition economies can foster growth at extensive margins by prioritizing export-led growth, which enhances

[11] The ranking of the countries according to the global innovation index was extracted from the world intellectual property organization (WIPO) annual reports regarding Global Innovation Index from 2010 to 2018. The documents can be accessed here: https://www.wipo.int/publications/en/search.jsp?lang=EN&q=global+innovation+index.

the capital accumulation, especially by increasing the demand for imported capital and intermediate goods. On the other hand, Georgia experiences a couple of problems to achieve high efficiency in this regard. For instance, from the beginning of the transition process, Georgia sold over 17 thousand properties to the private sector but unfortunately, most of the privatized properties/businesses could not handle investment and operational obligations, thus, they were resold or simply stopped operating. From this perspective, abandoned physical capital (e.g., industrial properties) simply does not complement economic growth. Therefore, it is necessary to improve institutional quality reflected in government effectiveness to facilitate proper management of the capital resources of a country. The efficiency of the institutions will create a favorable business and investment environment, promote rule of law, and secure property rights, at the same time it will ensure that the obligations taken by businesses will be met.

Lastly, from a broader economic perspective, it has to be said that located at the crossroads of the two biggest markets, namely Europe and Asia, Georgia can develop into an intercontinental hub and fuel its economy through export earnings. As a transition economy, Georgia should continue prioritization of private-sector driven and export-led growth economy, especially when the country already has a strong institutional and legislative base for the market economy with one of the most liberal trade regimes. As noted in the World Bank accounts, Georgia is set as the exemplary model regarding successful economic transformation, usually referred to as "the star reformer".

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions and consistency with the literature

The goal of this study was to explain the role of exports in the economy of Georgia from a multi-perspective and provide empirical evidence supporting the outward-oriented export-led growth policy. As a small market economy, with insufficient natural resources, it is more necessary rather than a choice to persist on the export-led growth development and further integration with the world market. Georgia has a chance to make the transition process even smoother with learning by exporting. Trade policies like export-led growth (ELG) have enough space to facilitate technology/knowledge spillovers, which in turn raises overall factor productivity. Besides, promoting export-led policy can trigger an inflow of foreign investments, simultaneously generate higher capital accumulation. Following these steps by slowly deploying gains from ELG policy to the R&D and education will trigger a country's overall potential and create an adequate base to develop into a knowledge-based economy. Accordingly, the study assumed that Georgia has a better chance to enhance productivity through the export-driven market competition, technology transfers, and knowledge spillovers rather than aggressive investment in human capital or R&D and innovation during the transition process. This path of economic development is not a myth but contrary, one of the most realistic ways to succeed. Preference for the export-oriented growth model was gauged due to the following facts: Georgia, among some other transition economies, has never being considered as an innovative country or contributed to the global technological progress. Technological advancement does not come for granted, it takes time and depends on the accumulation of knowledge which is the biggest problem for countries like Georgia. Innovation/technological progress is not one dimensional to be pursued and reaching success in few

aspects will not add much to the overall economic prosperity of a nation. Competition is another critical aspect to be considered, where Georgia does not stand a chance against other nations with an already mature technological background. Hence, building a country from scratch should follow certain steps of development and should not doubt the benefits of an outward-oriented growth strategy.

Historical retrospect of the Georgian economy showed that export-oriented growth played a crucial role in economic development. From the beginning of the transition process, Georgia harnessed the benefits of an open market economy. Unfortunately, there were downfalls as well, but the reason was not the conceptual failure of the outward-oriented growth model. Corruption as the endemic problem for post-Soviet states, the unstable political environment, external trade shocks, and on top of everything the wars during the transition process were the main reasons distorting the development process of Georgia. Hence, it can explain the modest performance of Georgian exports.

The results from the empirical estimation give strong support to the implementation of ELG policy as a significant source of growth at both intensive and extensive margins. Hence, confirming the validity of the claim presented earlier from MacBean (2000): Whatever is the path, a keystone in the transition process should remain the export performance (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 (1986/2008) 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 (1986/2008). The results also came in line with Feddersen et al. 2017, where the authors found that a "shock to exports is associated with a capital improvement… and exports Granger-causes capital" (Fedderson et al. 2017). Similarly, the results of this study are consistent with Levine et al. (1992) that found a positive association between trade/exports and investments/capital.

The current study also landed support on the positive effects of the export market and product diversification on economic growth in the following order: Expanding the degree to which exports of an economy are concentrated on a few products, along with the diversification of the export product markets in a more heterogeneous manner have positive effects on the economy. Besides, diversifying exports portfolio should follow the patterns of tradable goods found in trading partners. Although the estimated results found that a diversified export product basket is an important source of high export performance, correspondingly economic growth, the export trading should be oriented more on manufactured goods rather than primary commodities. The reason is a high demand elasticity attached to manufactured exports and the capacity of manufactured exports to facilitate larger knowledge/technology diffusion than exports of commodities. These results are in line with Funke et al. (2003) that showed the importance of widening the export product portfolio in transition economies. Bebczuk et al. (2006), Santos et al. (2013), Hesse (2008), Herzer et al. (2006), Cuaresma et al. (2005), Wacziag (2000), and Dodaro (1991) also present similar results regarding the export market and product diversification, along with the importance of manufacturing exports over commodities. As noted by Santos et al. (2013), "diversification is the best strategy for developing countries".

4.2 Policy recommendations

Since the estimated models gave consistent results, several important recommendations can be drawn from them.

The transition process is not a new phenomenon for Georgia; accordingly, the first steps have already been made regarding the reconstruction of the economy towards the market principles and promotion of the outward growth model: Georgian government abolished a list of the institutions by this automatically reduced the number of corrupted officials and bureaucratic procedure. Georgia implemented several institutional/legislative changes, hence managed the further integration with the global market by removing the majority of trade barriers, high tariffs, insecure property rights, absence of credit accessibility, the inefficiency of business registry procedures including time, fees, and subordination. The success of Georgia was not left unnoticed and reflected in the international rankings. As for further steps, it is necessary to further adjust the composition of the export portfolio and diversify destination markets, which can significantly improve the overall export performance and raise the competitiveness in the global market.

The following are the recommendations proposed for Georgia that can lead to better economic performance:

- Continue fostering export expansion to benefit from effective spillover effects from trade. Georgia, as the least innovative country in a region/world, should chase technological progress by expanding its trade activities. As mentioned earlier, higher exports require adequate market expansion, which in turn attracts investments, raises awareness regarding foreign demand patterns, new management styles, product compositions, approbated technological advances that slowly diffuse in local production sectors, etc. All these are the irreplaceable components of successful productivity improvements.

- Further expansion of trade/exports to facilitate growth at an extensive margin. Increasing trade activities have been shown to generate higher capital accumulation for transition economies including Georgia. As the main determinant of output expansion, capital accumulation is the must duty for every economy. Georgia should direct export earnings to finance the imports of capital/intermediate goods which are direct contributors to capital accumulation.
- Expand the size of destination markets for exported products. The diversification of the export product portfolio should be accompanied by a proper market diversification strategy. Increasing the number of products alone does not generate adequate growth if there is a limited demand for these goods. In this context, product-market diversification expands the boundaries of the product demand and generates higher sales. Besides, it decreases the dependency on the specific market (e.g. dependency of Georgian exports on the Russian market constantly haloed with negative effects due to the turbulent political environment).
- Investments should be mostly directed to the manufacturing sectors. as it increases the productive capacity of an economy. Manufacturing exports are found to have higher profit margins and demand elasticity than other tradable goods, especially commodities. Unfortunately, this condition was not met previously, and the investments were mostly facilitated in non-producing sectors.

5. NEW SCIENTIFIC RESULTS

Exploration of the relationship between export and economic growth is not new in economic literature and has gone a long way; the question was examined from every possible perspective, but still, there is some unanswered question remaining regarding specific countries, regions, etc. As far as we live in a fast-paced, constantly changing world, it is necessary to update conventional knowledge with new tools/methods, models, a new set of countries, or new data that will reflect the reality in the best possible way. Accordingly, the contribution of this research is as follows:

Firstly, this research enriches the scarce literature regarding the exports and economic growth of Georgia. Currently, few studies addressed the question. This research gives a comprehensive analysis regarding Georgian exports, and economic retrospect of the Georgian economy and their relationship assessed through the various econometric models.

Second, the empirical assessment of Georgia within the context of transition economy is rarely found in Georgian economic literature; especially along with remaining transition economies after massive transformation in 2004/2007[12]. Most of the literature regarding Georgia is country-specific and employs time-series data for empirical evaluation. Previous studies that addressed the question of growth models for transition economies had a wider sample but did not make coverage of differences between the countries that later became obvious. For instance, the massive transformation of several transition economies into developed economies filtered the sample of transition economies from fast-growing, more advanced economies; these countries needed less than half of the time required for current transition economies. After their transformation, a decade passed, and the remaining economies

[12] In 2004/2007 several transition economies successfully finished their transition process (e.g., Lithuania, Latvia, Estonia, Croatia, etc.)

barely moved forward. Analyzing Georgia within these transition economies reflects reality more precisely as they bear similar problems and perspectives. Contrary to the literature, this study focuses on both country-specific evaluation and within a context of transition economies by this giving a wide spectrum to answer my research questions.

Third, exploring the topic through the panel analysis contributes not just to the literature regarding the Georgian economy but also the literature concerning the transition economies. As mentioned above, not many assessed the topic of transition economies with the current sample which consists of a less diverse set of transition economies than the sample in earlier empirical studies. Hence, this research provides the most recent, comprehensive empirical analysis of the latest transition economies.

Fourth, besides the classical approach to quantify the effects of exports on economic growth, this research addresses the question from exports and capital accumulation perspective as well. Therefore, the results presented in this work explains the role of exports in the economic growth of Georgia from both extensive and intensive margins. In this regard, few scientific works assessed the direct relationship between the capital and exports in the Georgian economy.

6. LIST OF PUBLICATIONS

ON TOPIC PUBLICATIONS:

1. Belkania Davit (2020). **Economies in Transition: How Does Export Promotion Facilitate Growth at Intensive and Extensive Margins**. Regional and Business Studies, V. 12, No 1, 1-17. DOI: https://doi.org/10.33568/rbs.2456
2. Belkania Davit (2020). **Export trade Structure and Economic Performance in Transition Economies.** European Research Studies Journal, V. 23, No 1, 476-490. ISSN 1108-2976. DOI: 10.35808/ersj/1564. Direct link to the publication: https://www.ersj.eu/journal/1564
3. Belkania Davit (2019): **Dissecting Export Trade Patterns of Georgian Economy and the Growing Importance of the European Union Market.** European Journal of Interdisciplinary Studies, V. 5, No 1, 18-26, Apr. 2019. ISSN 2411-4138. DOI: http://dx.doi.org/10.26417/ejis-2019.v5i1-274.
4. Belkania Davit, Karimov Mehman (2018): **An Empirical Examination of the Export-Led Growth Theory Regarding Georgia, European Journal of Marketing and Economics**. European Journal of Marketing and Economics, V. 1, No 3, 88-96, Dec. 2018. ISSN 2601-8667. DOI: http://dx.doi.org/10.26417/ejme.v1i3.p88-96.
5. Belkania Davit (2018): **The European Union's Eastern expansion regarding Georgia.** Társadalomtudományi folyóirat A Virtuális Intézet Közép-Európa Kutatására Közleményei, V. 10, No 1, 43-50, 2018. ISSN 2676-8909.