

DOCTORAL (PhD) DISSERTATION

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KAPOSVAR

2020

SZENT ISTVAN UNIVERSITY - KAPAOSVAR CAMPUS

**THE DOCTORAL SCHOOL IN MANAGEMENT AND
ORGANIZATIONAL SCIENCES**

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**THE ROLE OF EXPORTS IN ECONOMIC GROWTH OF
GEORGIA**

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KAPOSVAR
2020

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1. INTRODUCTION

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 the gradual transition while others applied so-called shock therapy referring to the rapid change in national economic policy in terms of trade liberalization, mass privatization, loosening the price controls, and dropping government subsidies. In this regard, Georgia is one of those that chose the rapid ‘big bang’ reform style.

Georgia’s transition process 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 credo 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); it is a catalyst for income growth as a component of aggregate demand (Herzer, Lehmann & Siliverstovs 2006). Thus, export-led growth (ELG) theory was raised to prominence in transition economies.

Unfortunately, the performance of the Georgian exports during the transition process was not good enough in comparison to other transition economies, especially in Europe, but it did improve dramatically. Within the

last decade, Georgian exports more than doubled; the annual growth rate exhibits moderate fluctuation but is maintained at an average of +10.81%. As for the most tradable export products, it appears that Georgia reveals a comparative advantage in most of the major export products. The dynamics of these products during the last decade are hopeful due to the noticeable increase in the aggregate demand. However, Georgian exports are not so promising if we look at the composition of the imported goods by the EU area and the world. Except for the petroleum products, the structure of the top 10 imported goods in the world and EU area mostly consists of manufactured products produced in the highly industrialized sectors. In this regard, Georgia experiences a lack of technological modernization. Besides, the share of manufactures in the total export is high but mostly, it is driven by re-exports.

During the transition period, Georgia made a lot of effort to promote outward-oriented export-led 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 economic performance of Georgia.

The study assumes that Georgia has a better chance to stimulate technological progress 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. Besides, technological progress is not one-dimensional, and reaching success in few aspects will not add much to the overall economic performance. 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.

During the transition, an outward-oriented growth model can escalate economic growth if implemented properly. Trade policies like export-led growth (ELG) have a bigger space to facilitate technology transfers and knowledge spillovers which enhances overall productivity. Besides, increasing exports can stimulate an inflow of foreign investments, increase the demand for imported capital and intermediate goods, hence, capital accumulation. Following these steps, by slowly facilitating gains from ELG policy to the R&D and education, will trigger the country's overall potential to grow and create an adequate base to develop into a competitive, knowledge-based economy.

2. OBJECTIVES OF THE DISSERTATION

The objectives of the dissertation are reflected in the empirical assessment of the effects proceeded from exports on economic growth from the perspective of both extensive and intensive margins, where economic growth at extensive margins can be defined as the growth based on an increased quantity of labor, capital or land, while growth at intensive margins is all about the gains from improved overall factor productivity through the new technology, increased labor efficiency, or better capital utilization. Besides, the current study also attempts to shape the export strategy by identifying the determinants of export performance simultaneously complementing economic growth. Accordingly, the objectives of this dissertation are formulated in the following manner:

- 1st OBJECTIVE: Empirically 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.
- 2ND OBJECTIVE: Empirically examine the role of exports in economic growth at extensive margins – From this perspective, the study argues that fostering export expansion can stimulate capital accumulation through various channels including increasing demand for imported capital and intermediate goods.
- 3RD OBJECTIVE: Identifying 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.

To accomplish the above-listed objectives, first, I made a descriptive evaluation of the Georgian economy and unfolded some of the peculiarities

concerning export trading. Second, I reviewed the relative literature reflecting the nexus between export and economic growth. Next, I proposed a couple of hypotheses based on revised literature and the descriptive evaluation of the Georgian economy. Lastly, I tested the proposed research hypotheses by estimating three econometric models based on panel regression and causal analyses.

3. ECONOMIC PROFILE OF GEORGIA

3.1 Georgian economy in retrospect

After the dissolution of the Soviet Union, Georgia experienced severe economic problems. From 1990 till the beginning of the first phase (1994-1997) of the reforms under the aegis of the World Bank Group (WBG), the Georgian economy shrank significantly, inflation skyrocketed, export declined by roughly 60 %, and the capital formation became non-existent.

Fortunately, Georgia quickly engaged with WBG family organizations including International Bank for Reconstruction and Development (IBRD), International Development Association (IDA), and financed its transition process. As a result, Georgia embarked on a new set of reforms suggested by WBG. Initially, the loans were aimed to mitigate the existing macroeconomic disaster of the country, develop a solid institutional framework, strengthen the private sector, and improve the social environment¹.

Considering a couple of power shifts in Georgian politics, vague foreign affairs, war with Russia in 2008, and the financial crisis of 1998/2007-2008, the post-Soviet era can be divided into five phases:

- Early stages of transition (1994-1997)
- Mirage of stability (1998-2003)
- Rose revolution: Take off stage (2004-2007)
- External Madness: Russo-Georgian war, the financial crisis of 2007-2008 and ex-post reality (2008-2012)
- From radical pro-western to dubious foreign policy (2012-present)

¹ The World Bank in Georgia (1993-2007). IEG, The World Bank, Washington, D.C. 2009
<http://siteresources.worldbank.org/EXTCOUASSEVAL/Resources/GeorgiaCAE.pdf>

3.1.1 Early stages of transition (1994-1997)

After 1994, the mass deterioration of the country in every possible aspect finally came to end. The political environment somehow settled, hence, giving a chance to build the state from scratch.

From the beginning, Georgia's reform package was aimed at market liberalization and a private sector-driven economy. The results of the first efforts regarding the reforms in the transition process were satisfactory except for exports that declined by 2/3 over the period; apart from this, national aggregates were promising: GDP finally entered the growth stage, the share of capital in GDP escalated quickly, after the proper intervention of National Bank of Georgia (NBG) (including the introduction of the new currency in 1995 due to the low credibility of public imposed by hyperinflation) inflation was finally taken under control.²

3.1.2 Mirage of stability (1998-2003)

With the beginning of the 2nd phase, everything seemed to be stable; GDP was on an upward track, exports more than doubled during the period despite the Russian financial crisis; besides, unemployment finally stabilized and manufacturing/value-added production starts increasing gently.² elöb
Although the economic condition seemed to be stable, it was just an illusion of breakthrough from the endemic problems that proceeded from the Soviet era. As so, Georgia's post-Soviet true reality was an inefficient tax revenue system, inflation heading up, deeply rooted corruption eating every institution from the inside, staggering financial sector, low level of efficiency regarding public

² Detailed information regarding the macroeconomic indicators during this period can be found here:

<https://www.geostat.ge/en>

services, shortage of gas and electricity supply, number of immigrants reaching approximately quarter of the population by this held 3rd place among East European and FSU nations regarding the share of immigrants in the population (Mansoor et al. 2007; Labadze et al. 2013). In short, the economic development of the country was haloed by huge uncertainty. Hence, it led to political instability which ended with the Rose revolution in 2003.

3.1.3 Rose revolution: Take off stage (2004-2007)

From the very beginning, the new government embarked on an aggressive pro-western reform program. During 2004-2007, the economy started growing rapidly, in 2007 annual GDP growth was record-high 12.58%, tax revenues increased dramatically, the share of gross capital formation in GDP and total exports were on growth trend due to the achievements regarding trade liberalization and improved foreign investment climate.² Besides, according to the ease of doing business Georgia constantly ranked in the top 10 in the world.

There were several legislative changes aimed at encouraging domestic production, hence, stimulating the productivity of the private sector and gradual expansion of aggregate output. One of the first changes made by the new government was the inception of the new tax and custom code which was the first effective attempt to set the nation-wide financial discipline by reducing the share of shadow economics (EI-LAT 2012). Mass privatization with the slogan “sell everything but conscience” was another cornerstone of the government’s liberal policy. During this period, the government managed to sell over 1700 state-owned properties. Privatization, along with other strategic reforms including tax and custom code changes, created the most attractive investment climate in the world (Kbiltsetskhlashvili 2008; Akhmeteli 2008).

During this period, Georgia’s image raised significantly. It was often referred to as “from reformer to the performer”; in the World Bank accounts

Georgia is set as the exemplary model regarding successful economic transformation (WBG 2018). In short, the economy was growing, investment climate improved, exports got more competitive, corruption level decreased, the standard of living improved, public services became efficient, etc.; but still, there were some deep problems attached to the transition process that later led to the big political changes.

3.1.4 External Madness: Russo-Georgian war, the financial crisis of 2007-2008 and ex-post reality (2008-2012)

Although the financial crisis of 2007-2008 harmed the Georgian economy in many ways³, Georgia exhibited relatively low economic contraction in comparison to other countries in Eastern Europe and Central Asia (Babych et al. 2012). As for the severity of the Russo-Georgian war in 2008, it quickly reflected on most of the macroeconomic indicators, e.g., aggregate output suddenly dropped, the inflow of foreign investments decreased significantly, as well as the exports that were partially caused by economic sanctions imposed by Russia already from 2005 (Livny et al. 2007). Besides, unemployment reached the highest 18.3% and inflation was worsening.

Fortunately, after 2009 Georgian economy starts to recover thanks to financial support from all around the world including an economic support package from the USA worth 1 billion USD, 40 million USD humanitarian assistance by USAID, European Commission's generous 500 million Euros

³ Financial crisis of 2007-2008 had negatively affected on Georgian economy at least through the Greek crisis: Greece, as the largest remittance sender country for Georgia, imposed a considerable reduction in money transfer to Georgian economy which by itself is the only financial source for thousands of Georgian families. Besides the ability of the remittances to reduce the severity of poverty, it holds a great potential to stimulate economic growth. Furthermore, European Union represents the most important investor and trade partner for Georgia; as long as Greece is the part of the EU, and the Greek economic crisis itself is not a unique or exogenous phenomenon in space and time, it causes a serious threat in terms of Georgia-EU economic aggregates.

that were provided through a comprehensive assistance package⁴, Japan's 200 million USD for infrastructural recovery⁵, United Nations' (UN) 58.5 million USD offered as the post-war humanitarian aid, International Monetary Fund's (IMF) 750 million USD loan package along with the 200 million Euros through the loans from the European Investment Bank (EIB), etc... As a result, post-war foreign financial aid offered to Georgia totaled more than 4.55 billion USD (Nichol 2009).

Aftermath, the macroeconomic environment quickly entered the growth stage. Gross domestic product (GDP) returned to its previous level already in the middle of 2010; Similarly, capital formation slowly recovered but with a lesser share in GDP than before; Unemployment remained high but with a downward tendency.² As for investment climate, it slightly improved but the process was extremely laggard.

Although major macroeconomic indicators were brought on the right track, there was no sign of relative productivity improvements; the country was lagging in terms of technological progress. Hence, Georgia experienced economic growth but relatively less economic development. This can explain the insufficient competitiveness of most Georgian export products. Several studies confirmed that the cause of this mess was the mismanagement of FDI inflow, which was directed mostly in non-tradable sectors, especially in infrastructure and construction of residential properties (EI-LAT 2012).

Overall, the war of 2008 left severe scars, but the generous foreign financial aid helped to mitigate the severity of the problems.

⁴ Overview of EC Assistance to People Affected by Conflict In Georgia, EU, December 2010.

http://eeas.europa.eu/archives/delegations/georgia/documents/projects/overview_post_conflict_ec_assistance_dec2010_en.pdf

⁵ Annex to Country Assistance Policy for Georgia, Rolling Plan for Georgia, April 2017.

https://www.ge.emb-japan.go.jp/files/oda/rolling_plan_eng_2017.pdf

3.1.5 From radical pro-western to dubious foreign policy (2012-present)

From 2012, the newly elected Georgian government brought confusion when they opened the negotiation with Russia and at the same time promoting pro-western development steps. From the purely economic perspective, Georgia's performance from 2012 to now is as follows: After 2012 annual GDP growth rate fell. The share of capital and exports in GDP increased and have a growing tendency; National savings and foreign investments were constantly dropping; it was the result of the Russo-Georgian war, along with the ongoing financial crisis of 2007-2008. As for the inflow of foreign investments (FDI) experienced steady growth; Unemployment slowly decreases over the period but still, remains high. As for the bright side, unemployment in the urban area was downward sloping, and the self-employment rate starts decreasing.²

The progress of Georgian economic performance was reflected in the following international ratings:

- Ease of doing business (WBG): From 2012 till now, Georgia made gradual improvement including unpleasant sudden spikes, and ranked number 6th in the WBG's ranking regarding ease of doing business in 2019 with a score of 83.5.
- Economic freedom (Fraser Institute): According to Fraser Institute's Economic freedom ranking Georgia climbed from 13th place to 7 during 2012-2018.
- Corruption perception index (Transparency International): As reported by Transparency International, Georgia made significant progress regarding corruption, hence, jumping from 51st to 41st place among 180 countries.
- Index of economic freedom (Heritage Foundation): According to Heritage Foundation, Georgia falls in the category of "Mostly free" with a score of

75.9 in 2019, which is slightly lower than the scores of the last 2 years: 76.2 in 2018, 76 in 2017.

- Global competitiveness index (World Economic Forum): Georgia scored 60.9 and ranked number 66th in the global competitiveness index (2018), this improving the position by 11 places after 2012.

3.2 The reform package during the transition of the Georgian economy

No country can succeed during the transition period without a well-conceived development strategy including a feasible reform package. The reformation choice that countries make during the transition largely depends on the unique socio-political and economic characteristics attached to a nation. However, some common principles should be considered during the transition process, e.g., market liberalization, promotion of private sector-driven growth, mass privatization, encouragement of market competition and free up the entry barriers, motivation of firms to innovate, expand, and export, creation of liberal investment climate, etc. Accordingly, after the dissolution of the Soviet Union, Georgia embarked on the above-mentioned reforms and slowly start to integrate with the outside world. Following are the major state reforms implemented during that time:

- Deregulation: Following the Rose revolution, deregulation became one of the main concerns of the government (Papava 2009). Within a framework of deregulation, the Georgian government abolished a long list of the institutions that were considered inefficient and useless; among them are the ministries of transportation and highway construction, telecommunication, urbanization, and construction, as well as the expertise of food production and food quality departments/monitoring agencies, anti-monopoly department, etc.
- Market liberalization: In an attempt to market liberalization Georgia

implemented several institutional/legislative reforms and opened its borders to international markets by removing a list of trade barriers including high tariffs, insecure property rights, absence of credit accessibility, the inefficiency of business registry procedure including time, fees, and subordination; besides, Georgian government engaged in several trade agreements, accordingly, diversified its foreign market to enhance the economic resistance to external shocks.⁶ Among major trade agreements and regimes is the Generalized System of Preferences (GSP), Free Trade Regime with CIS countries, EU, as well as the Free Trade Agreement between Georgia and the European Free Trade Association (EFTA), etc.⁷

- Privatization: Besides a positive fiscal effect, privatization should oblige the owners to invest in the property, which is assumed to increase the overall productivity and stimulate the expansion of the industries. As so, privatization is perceived to favor the industrial sectors, promote the investment climate, create new jobs, and stimulate economic growth. Privatization in Georgia goes back to the early 90s, from the beginning of the transition process. Since then, over 17 thousand properties were sold to the private sector.⁸ The most rigorous stage of the Georgian privatization process was the government's initiation in 2003 to start a new wave of more aggressive privatization which did not indicate any restrictions; the government was selling everything. During 2003-2010 over 4000 state-owned properties were sold to the private sector, hence generating approximately 1.6 billion USD in profits.⁹ Unfortunately, most of the

⁶ Economic transformations in Georgia: From shock therapy to DCFTA.

https://www.nbg.gov.ge/uploads/journal/2015/2015_2/statia3.pdf

⁷ Foreign trade regimes and bilateral/multilateral agreements, Ministry of Economy.

<http://www.economy.ge/?page=ecopolitic&s=12&lang=en>

⁸ Detailed information regarding the privatization by economic sectors is provided by National Parliamentary Library of Georgia in the following link:

<http://www.nplg.gov.ge/gsd/cgi-bin/library.exe?e=d-01000-0>

⁹ EI-LAT 2012 The Economic Transformation of Georgia. 20 Years of Independence

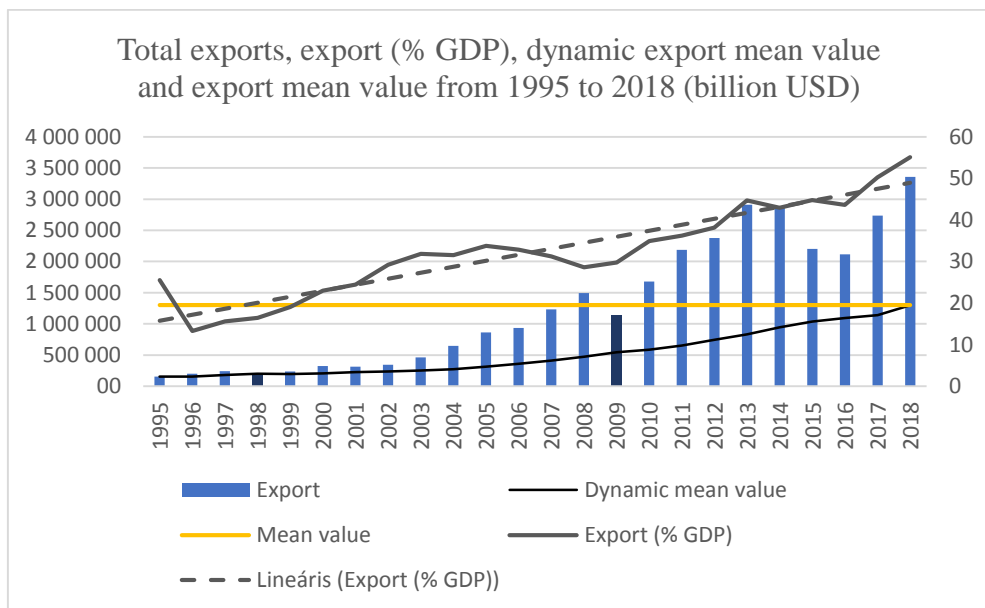
http://www.ei-lat.ge/images/stories/The_Economic_Transformation_o.pdf

privatized properties/businesses could not handle investment and operational obligations, thus, they were resold or simply stopped operating.

3.3 Georgian export performance (descriptive evaluation)

From a historical perspective, exports have always been an important source of growth for the Georgian economy. Starting from the post-Soviet era, Georgian export production experienced a steady increase with an average of 10.81% annual growth and share in GDP maintained at over 50% from 2017 (see Chart 1). The average total export for the period is 1.3 billion USD. Correspondingly, from 2010 Georgia exports over its mean value; in the case of dynamic assessment of export mean value, Georgia constantly exported over the average, except for 1998 due to the Russian financial crisis (see Chart 1).

Chart 1. Total exports of Georgia, export (% GDP), export mean value (dynamic), and export mean value in million USD (1995-2018)



Source: Author's calculations based on Geostat data

Although the total trade turnover of Georgia increased significantly, the trade balance was constantly negative throughout the transition period (1998-2018) (see Table 1).

Table 1. Trade balance, trade turnover, an average growth of exports and imports (1998-2018)

Period	Tr. Balance	Tr. Turnover	Exports	Imports
1998-2003	-514,97	5.81	0.55	8.28
2004-2007	-2.384,5	41.8	31.4	21.4
2008-2012	-4.454,5	12.5	5.84	9.88
2013-2018	-5.353,0	3.67	1.61	3.96

Source: Authors' calculations based on Geostat data

Considering only the last 15 years, leaving behind the rocky steps of the transition process, Georgian exports exhibit relatively better performance with roughly a 13% average growth rate.

3.3.1 Destination markets of Georgian exports

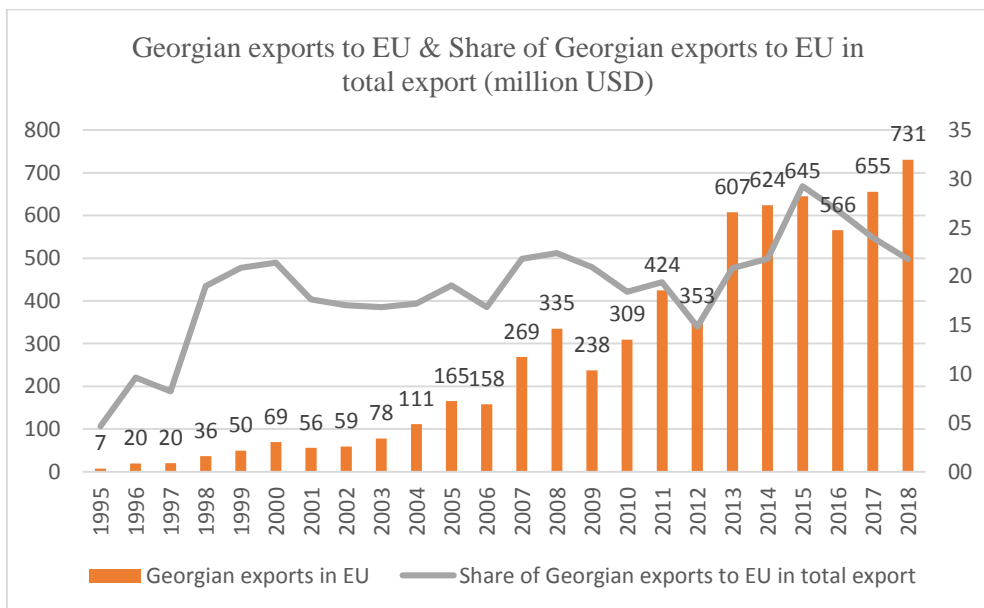
Openness to an international market and promoting export-oriented growth is quite handy when it comes to economic development. Promoting outward-oriented export-led growth can stimulate export-driven FDI inflow, economies of scale, technology transfers, and knowledge spillovers.

In this context, the openness of Georgia concerning the European integration process is not an exception. Besides, considering the Russia-Georgia relationship, which is haloed by uncertainty, Europe is the most important trade partner and does not have an alternative for Georgia in terms of the market diversification of this scale. Hence, there are two main reasons regarding the importance of the European market for Georgia:

- Integration with Europe is important for Georgia to avoid further external shocks proceeded from Russian embargos, sanctions, etc...
- EU market penetration is one of the main concerns of Georgia as it represents the second-largest export market for the country.

Currently, trade between the European Union and Georgia is promising. Partnership and Cooperation Agreement (PCA), Generalized Scheme of Preferences (GSP+), and Deep and Comprehensive Free Trade Area (DCFTA) prompted the significant increase in the value of Georgian exports to the EU area, which doubled from 335.15 to 655.12 million USD (see Chart 2).

Chart 2. Georgian exports to EU in million USD & Share of Georgian exports to EU in total export (1995-2018)



Source: Authors' calculations based on Geostat data

Although the EU-Georgia trade volume is relatively small, considering the market size of the EU, it has great potential for further trade expansion. E.g., according to the trade intensity indices presented in Table 2, the EU-Georgia bilateral trade relationship indicates a low-intensity pattern, suggesting that

further exploration of the market should be part of Georgia’s daily agenda to reap the maximum trade benefits from the European market.

Table 2. Export intensity index (EII) and import intensity index (III) of Georgia with EU (2008-2017)

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
EII of Geo/EU	0.48	0.45	0.43	0.47	0.39	0.54	0.55	0.73	0.64	0.58
III of Geo/EU	0.60	0.61	0.64	0.69	0.75	0.69	0.65	0.65	0.66	0.61

Source: Author’s calculations

Besides the EU, Georgia’s main export destinations are the Commonwealth of Independent States (CIS), Black Sea Economic Cooperation Organization (BSEC), Organization of Economic Cooperation and Development (OECD), and GUAM. Among these regions, BSEC and CIS always have the biggest share in Georgian exports due to geographical proximity, relatively similar consumer taste, and close historical ties, especially with Russia.

Table 3. The average share of export market regions in the total Georgian exports (1995-2018)

Period Average	EU	CIS	BSEC	OECD	GUAM
1995-2003	15.1	51.9	63.4	40.5	11.7
2004-2012	19.0	43.4	55.5	42.7	20.2
2013-2018	24.1	45.5	54.6	31.4	19.2

Source: Authors’ calculations based on geostat.ge data

Currently, the EU market strengthens its position as the stable destination for Georgian exports with a 24.1% share in total Georgian exports, while CIS is BSEC shares are getting less with the values of 45.5% and 54.6%.

3.3.2 Structure of Georgian export product portfolio

Top Georgian export products by HS 4 classification did not change much over the last decade. Traditionally, it includes wine, mineral waters, Ferro-alloys, etc. as presented below in Table 4.

Table 4. Value of the top Georgian export product groups (HS4) in million USD and their average growth rate (2009-2018)

Year	ID codes for the top 10 Georgian exports by HS 4									
	2603	8703	7202	2204	2402	3004	2208	2201	3102	7108
2009	61.9	78.5	130.1	32.0	0.0	24.2	54.0	24.7	60.2	116
2010	74.5	227	264.0	41.1	0.2	34.9	55.7	36.9	84.2	117
2011	85.1	450	253.6	54.1	0.0	42.2	67.9	47.6	144	109
2012	53.5	587	260.6	64.8	0.0	52.0	80.0	59.4	137	91.9
2013	161	703	230.7	128.3	0.1	52.1	99.8	106	130	73.3
2014	248	517	285.8	180.4	1.6	92.1	95.3	137	137	39.3
2015	270	179	194.8	95.8	7.2	141.5	64.9	82.2	109	62.1
2016	311	166	169.3	113.5	10.4	107.4	91.8	79.8	65.6	81.1
2017	422	234	306.4	171.4	42.3	140.6	126	95.8	76.4	70.8
2018	504	408	352.6	196.9	149.0	147.2	129	110	92.0	69.8
Av. Gr.	36.9	39.3	18.4	28.4	684.1	25.6	12.5	22.6	9.2	-1.5

Top Georgian export product groups by HS 4 classification and their ID codes: (2603)

Copper ores and concentrates, (8703) Motor cars and other motor vehicles used for transportation..., (7202) Ferro-alloys, (2204) Wine of fresh grapes ..., (2402) Cigars, cigarillos..., (3004) Medicaments ..., (2208) Undenatured ethyl alcohol of an alcoholic strength of < 80%; spirits, liqueurs, (2201) Waters, incl. natural or artificial mineral waters..., (3102) Mineral or chemical nitrogenous fertilizers ..., (7108) Gold, incl. gold plated with platinum...

Source: Authors' calculations based on International Trade Centre (ITG) data

In a nutshell, except for the 7108, the value of all the major export product groups experienced a dynamic increase from 2009 including copper ores ... (+36.9%), motor cars ... (+39.3%), Ferro-alloys (+18.4%), wine... (+28.4%), medicaments ... (+25.6%), etc. (see Table 4).

From the perspective of the comparative advantage, it appears that Georgian exports reveal a comparative advantage in most of the major export product groups including Wine (W.), Copper ores (C.O.), Motor cars (M.C.), Ferroalloys (F.A.) Beverages and spirits (B.S.) (see Table 5).

Table 5. RCA index of 9 Georgian export product groups (2008-2017)

Name	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
W.	13.1	13.6	13.2	13.6	15.1	23.9	34.2	22.4	26.3	31.1
C. O.	37.5	21.4	14.8	13.8	8.2	19.8	31.2	43.9	49.8	46.4
M.C.	1.9	2.0	3.7	5.8	7.0	6.7	4.8	2.0	1.8	2.0
F.A.	79.5	87.2	88.3	66.4	69.3	61.2	69.4	69.0	66.3	74.8
L.A.	1.0	21.2	15.9	17.0	20.3	17.8	14.0	14.3	16.9	12.8
P.P.	0.6	0.7	0.7	0.8	0.9	0.8	1.3	2.3	1.8	1.9
B.S.	16.2	16.9	15.7	15.2	16.8	20.4	25.9	18.7	21.1	23.3
V.P.M	3.0	0.9	0.8	0.4	1.4	0.7	0.8	1.6	1.6	0.2
E.F.N.	6.5	14.3	11.1	13.3	8.3	12.6	12.9	14.2	13.6	5.9

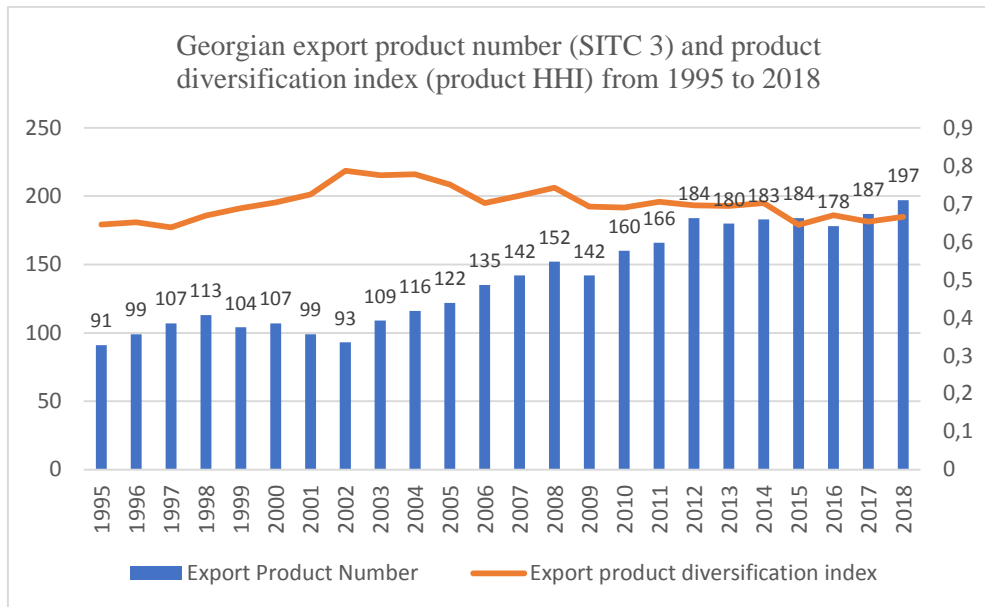
Export product names and their abbreviations: Live animals (L.A.), Pharmaceutical products (P.P.), Vegetable plaiting materials (V.P.M.), Edible fruit and nuts (E.F.N.) alongside top 5 Georgian export products, namely: Wine (W.), Copper ores (C.O.), Motor cars (M.C.), Ferro-alloys (F.A.) Beverages and spirits (B.S.).

Source: Author's calculations

Although all 9 export product groups presented in Table 5 revealed comparative advantage, they account for over 60% of total exports, meaning that the Georgian exports are highly concentrated on few products, which can

also be seen in the export diversification index presented in Chart 3.

Chart 3. Georgian export product number (SITC 3) and product diversification index (product HHI) (1995-2018)



Source: Authors' calculations based on unctadstat.unctad.org data

Usually, the export diversification index is an important measure for developing, transition economies, since most of them are highly dependent on the limited number of primary commodities, and in case of price instability of these commodities, they can be a subject of serious trade shocks.

3.3.3 Demand side of Georgian exports in the world and EU area

As mentioned earlier, the most tradable Georgian exports by HS 4 correspond to (2603) Copper ores and concentrates, (8703) Motor cars and other motor vehicles ..., (7202) Ferro-alloys, (2204) Wine of fresh grapes ..., (2402) Cigars, cigarillos and cigarettes of tobacco or tobacco substitutes, (3004) Medicaments ..., etc. The dynamics of these products during the last

decade are hopeful due to the noticeable increase in their aggregate demand in the world/EU area¹⁰ (see Table 6).

Table 6. Total value (billion USD) and the demand (dynamic growth rates for the product clusters) for the top 10 Georgian exports by HS 4 classification in the world (2009-2018).

Total value for the top 10 Georgian exports by HS 4 in the world (billion USD)										
Year	ID codes for the top 10 Georgian exports by HS 4									
	2603	8703	7202	2204	2402	3004	2208	2201	3102	7108
2009	30	444	19	27	22	305	21	3	17	82
2014	54	712	30	36	27	362	30	4	29	281
2018	65	784	33	38	29	379	34	4	23	311
Dynamic growth rates (%) for the top 10 Georgian exports by HS 4 in the world										
Year	ID codes for the top 10 Georgian exports by HS 4									
	2603	8703	7202	2204	2402	3004	2208	2201	3102	7108
2009-14	76	61	58	33	23	19	43	27	70	243
2014-18	21	10	13	6	6	5	13	10	-21	11
2009-18	112	77	78	41	30	24	61	40	35	280

Top Georgian export product clusters by HS 4 and their ID codes: (2603) Copper ores and concentrates, (8703) Motor cars and other motor vehicles..., (7202) Ferro-alloys, (2204) Wine of fresh grapes, fortified wines... (2402) Cigars, cigarillos... (3004) Medicaments..., (2208) Undenatured ethyl alcohol of an alcoholic strength of < 80%; spirits, liqueurs and other spirituous ..., (2201) Waters, natural or artificial mineral waters... (3102) Mineral or chemical nitrogenous fertilizers ... (7108) Gold, incl. gold plated with platinum...

Source: Authors' calculations based on International Trade Centre (ITG) data

¹⁰ For further information concerning the dynamics of the demand side of the Georgian exports seek for the following document: Belkania D. (2019): Dissecting Export Trade Patterns of Georgian Economy and the Growing Importance of the European Union Market, EJIS Jan-Apr 2019, V. 5, No. 1.

http://journals.euser.org/files/articles/ejis_v5_i1_19/Belkania.pdf

However, Georgian exports are not so promising if we look at the import product structure of the EU area and the world. Below, Table 7 shows the similarity between a set of top 10 imported product groups in the world/EU area and the top exported product groups by Georgia.

Table 7. The similarity between the top 10 world/EU imports and Georgian exports according to HS 4 classification

Top 10 World/EU imports and Georgian exports by HS 4 classification										
World	2709	8542	8703	2710	8517	9999	8708	8471	3004	2711
EU	8703	2709	2710	8708	9999	3004	8517	2711	8471	3002
Geo	2603	8703	7202	2204	2402	3004	2208	2201	3102	7108
Note: Green color indicates the similarity of product categories, meaning that the products are presented in all three top export/import structure (world, EU, or Georgia). Yellow color indicates different product categories that are just in one export/import structure (world, EU, or Georgia).										

Top 10 world/EU imports (HS4): (2709) Petroleum oils, crude... (8542) Electronic integrated circuits... (8703) Motor cars... (2710) Petroleum oils, oils from bituminous minerals... (8517) Telephone sets, incl. telephones for cellular networks... (9999) Commodities not elsewhere specified, (8708) Parts and accessories for tractors, motor vehicles... (8471) Automatic data-processing machines... (3004) Medicaments... (2711) Petroleum gas... (3002) Human/animal blood prepared for therapeutic or diagnostic uses.

Source: Authors' calculations based on International Trade Centre (ITG) data

According to Table 7, the structure of the top 10 imports in the world/EU area mostly consists of manufactured products produced in the highly industrialized sectors. Unfortunately, Georgia experiences a lack of technological modernization in this regard; The share of manufactures in the total export is high but mostly, it is driven by the re-exporting of used cars to Azerbaijan, Armenia, Kazakhstan, Russia, and Ukraine. Hence, the similarity between Georgian exports and the EU/world import structures holds only in terms of (8703) motor cars and (3004) medicaments (see Table 7).

3.4 Georgian export performance in the academic literature

Efforts of Georgia to successfully integrate into the global economy through the promotion of trade liberalization including legislative harmonization, transforming investment climate or market reforms were not as successful as similar European transition economies. But, if we consider the endemic geopolitical tension going around a region, along with the revolution and two wars in the past two decades that lead to 20% loss of Georgian territory and political instability, Georgia did and still doing well. Below are the studies found in academic literature reflecting the performance of Georgian exports during a transition period.

Athukorala et al. (2014) analyzed the lagging performance of Georgian exports in terms of merchandise exports, thus remarked some critical drawbacks attached to supply-side factors of export performance. As noted, Georgian exports have been recorded to grow faster after the Rose revolution rather than a post-independence period, but the factors shaping export performance such as an assortment of export production or market diversification did not experience noticeable improvements. The authors noted the importance of processed food as the growth engine for many economies that are non-existent in Georgian exports. Unfortunately, Georgian exports are still dominated by resource-based production and the rate of survival of Georgian exporters is pretty low. Hence, intensive market-oriented policy reforms could not harvest as well as expected before embarking on a transition to a market economy. The authors explained the reasons behind market-reform failure to generate a high level of export performance in terms of foreign investment mismanagement. It appeared that Georgia did not take care much about the direction of FDI inflow, as a result, the majority of investments were concentrated in non-tradable sectors, thus making the growth look shallow.

Martuscelli et al. (2015) examine the determinants of export survival regarding Georgian firms on a base of firm-level data from 2006 to 2012. According to the study, Georgian exporters grow faster than non-exporters regarding production scale, productivity, and employability. Furthermore, Georgian exports experience rapid growth from the beginning due to the volume trading of the same products to the same destinations, while product and product market diversification staid low levels, which in turn has negative effects. Besides, it appears that the export survival of the Georgian firms has been low at both the international and regional level, hence, reducing the potential of export growth. The survival rate of the firms in the first year is pretty low but increases dramatically in the further period. Most importantly, the results indicate that the survival of Georgian exports largely depends on the accessibility of export-related information, network effects, and productive efficiency rather than the scale of the production.

Gaganidze (2018) assessed the competitiveness of Georgia through various trade indices. Although Gaganidze (2018) did not use some rigorous statistical methods, even simple observation of trade trends through the close inspection of trade indices showed the importance of export product diversification. As noticed, Georgia did not indicate a high level of diversification in contrast to global trends, thus suggesting appropriate policy changes. Also, the author suggests the exploration of new markets or the revision of price strategies and tax rates for export products as a solution to poor export performance.

4. LITERATURE REVIEW

4th chapter takes a form of a deductive approach to reviewing the existing literature concerning the role of export in economic growth. The chapter reviews both theoretical and empirical literature. Following are the topics employed for revision:

- Economic growth
- Inward vs outward-oriented trade policies
- Nexus between international trade and economic growth
- Determinants of export performance in the context of economic growth
- Patterns of economic growth in transition economies

The first two sections correspond to the previous literature regarding the prominent growth theories and international trade policies, followed by the nexus between international trade and economic growth. Hence, the review of academic literature using the deductive approach narrows the topic of my interest to the point where the role of export-led growth policy in economic growth is unfolded.

The next section is devoted to the revision of the factors shaping the export performance. Lastly, I reviewed the growth empirics in transition economies and presented several empirical studies exposing the importance of export-led growth theory for transition economies.

4.1 Economic growth

Economic growth in its simplest form occurs whenever society takes available scarce resources and rearranges them in ways that create greater value¹¹. Among other benefits, economic growth is perceived to boost the

¹¹ Paul Romer on the economic growth extracted from the Concise Encyclopedia of

standard of living, reduce poverty (if income distribution is not a case), and improve social welfare; it seems to be the ubiquitous answer given to all the major macroeconomic problems (Daly 1999). Ben Shalom Bernanke once said that understanding the great depression is the holy grail of macroeconomics; But apparently, being a holy grail applies more to economic growth; once we make it sustainable, problems start to fade away. Economic growth allows us to implement various welfare programs, hence, mitigate the severity of the social, political, and economic problems caused by the dilemma between the scarcity of resources and the boundless demand of human nature. The severity of these problems varies across countries, through time, and development stages of the economy; the same applies to growth theories and models that constantly changes over time.

Following are some of the most prominent growth concepts, theories, and models in the economic literature that made a significant contribution to the development of modern economics: Mercantilist and physiocracy schools of economic thought as the first sparkle of growth theories, classical growth theory, Schumpeterian growth, Keynesian growth theory (Harrod-Domar model), neoclassical growth theory, and endogenous growth theory.

The conceptualization of economic growth or ways of creating/increasing national wealth can go back to the time when mercantilism and physiocracy schools of economic thought were born (Sharipov 2015). The idea of mercantilism lies in the accumulation of national wealth through international trade, export expansion, and protectionism. Mercantilists believed that if the exchange of goods (trade) will take place within a country, there will be just one winner and another one will lose, simultaneously the wealth of a nation will not increase. Therefore, they suggested that trade should take place

Economics, David R. Henderson, ed. Liberty Fund, 2007.
<https://ugs.utexas.edu/sites/default/files/documents/pdf/EconomicGrowth.pdf>

between the countries, where a country can increase its wealth by buying cheap and selling expensive.

Initially, there were two periods of mercantilism: Early and late mercantilism. Early mercantilists promoted the inflow of money/gold as the main source of the accumulated wealth and forbid its outflow. Simultaneously they put restrictions on imported goods. Late mercantilists realized that having money/gold on hold can cause trade inefficiency, Hence, they eased this restriction and prioritized a positive trade balance.

In the 18th century mercantilism slowly evanesced and a new movement of natural economists, physiocracy started to emerge. Among others, Francois Quesnay was the one who first opposed mercantilist ideas regarding the source of the wealth and claimed that the wealth of a nation was a 'net product' created solely in agriculture and the only source of it was assumed to be the dedication and energy of human capital put in agricultural production. Besides, physiocrats like Anne-Robert-Jacques Turgot and Vincent de Gournay believed in laissez-faire, individualism, free competition, and the trade barriers as a constraint for growth.

Unilateral evaluation of the economic growth factors by physiocracy led to the emergence of the classical theory represented by, among others, Adam Smith, Thomas Robert Malthus, David Ricardo, John Stuart Mill.

Adam Smith, a father of classical economics believed that the factors driving economic growth are embodied in a free market, trade, specialization, and labor productivity. Accordingly, his economic philosophy largely depends on the following: (1) "invisible hand" as he called the force that guides markets to self-regulation and natural equilibrium; (2) Competition that is driven by selfishness complements the economic prosperity of a nation by combining self-interests to those of society; (3) Increased labor productivity achieved through the specialization that is the main source of national wealth and improvement of living standards (Smith 1776).

Thomas Robert Malthus represents the most controversial and pessimistic classical economist of that time with his concept known as the “Malthusian trap”. He believed that population growth is the source of inequality that eventually will trigger wars, disasters, starvation, and many more due to the shortage of food supply. He assumed that the production of food will never be greater than the growth rate of the population. Hence, he found a solution in restricting human reproduction in terms of moral restraint, which considers the prohibition of marriage and giving birth of a child in case of absence of sufficient subsistence (Malthus 1798).

Another important figure in the development of the classical school is David Ricardo. He, like many others, challenged the conceptual idea of mercantilism concerning protectionism and accumulation of wealth/gold through international trade, where just one can be a winner. Ricardo argued that trade has a different purpose with countries engaging in the trade having bilateral benefits. The trick here is the comparative advantage derived from production factor endowments or technological advancements. He suggested that the production of tradable goods should be concentrated in sectors with comparative advantage (Ricardo 1817).

John Stuart Mill’s contribution is reflected in predicting the different scenarios for the theories of prominent classical economists like David Ricardo, Adam Smith, and Thomas Robert Malthus. According to Mill, population growth exceeding the subsistence level will lead to a reduction of wages, while if the growth rate of capital accumulation is higher than population growth then wages tend to increase; and lastly, if population and capital have the same rate of growth with the fixed technological progress then wages stay intact. Mill believed that the source of national wealth lies in the ability of technology, capital, and land to increase production at a higher rate than the population which will lead to economic prosperity.

In the context of economic growth theories, it is important to mention the ideas of Joseph Alois Schumpeter. Schumpeterian growth model considers innovation and entrepreneurship enforced by various policies as the main determinants of growth. Schumpeter strongly believed in the so-called gale of creative destruction which he defined as “the process of industrial mutation that continuously revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one” (Schumpeter 1942; Henton and Held 2013).

One of the biggest developments in economics is associated with John Maynard Keynes. Keynesian economics stresses the importance of creating aggregate demand through government policies corresponding to the stimulation of tax cuts and increased government spending to help the economy firm up from recession in the short run. Hence, Keynes proposed a critical appraisal of classical economic assumptions regarding a market to recover by itself. As so, contrary to classical economists, Keynesians supported government intervention in the markets, especially during recessions.

Keynesian theory was further expanded by other economists who managed to adjust the theory in the long run. The most important among those are Evsey Domar and Roy Harrod who developed the models commonly known as the Harrod-Domar model due to the similarity in results of separate models.

The Harrod-Domar model explains the rate of economic growth through the savings and the capital productivity (capital-output ratio), where the high saving rate is translated to high investment, and higher investment into higher capital and correspondingly economic growth. The model suggests three types of growth rates, namely warranted, actual, and natural growth rates. Warranted growth rate occurs when savings equal to the investment, or in other words full utilization of capital (Sharipov 2015). The actual growth rate can be interpreted as real GDP growth, and the natural growth rate (maximum growth) is that level when the economy needs to grow proportionally to the rate of

employment (Harrod 1939). Some of the shortcomings of the model are as follows: (1) in developing countries increased savings does not necessarily mean to be invested; (2) the model does not account for technological progress; (3) the model does not seem to be appropriate for poor countries as far as it suggests financing capital investment through external borrowing to trigger the growth. Hence, for poor countries using external finances (borrowing) can pose repayment problems.

Currently, economic growth models as we know them from the recent past varies from exogenous to endogenous ones.

The most widely used neoclassical exogenous growth model is the Solow-Swan model, the backbone of growth empirics in the mid-20th century. Originally the model was designed by Robert Solow and Trevor Swan in 1956. The model considers three factors shaping economic growth: labor, capital, and technological progress. It suggests that economic growth should be the result of technological progress as far as an increase in capital is assumed to have diminishing returns. This is how it works: Savings stimulates a desire to invest while increased investment generates higher capital accumulation; simultaneously, capital experiences depreciation, thus characterized by diminishing returns. As so, if we consider zero technological progress together with diminishing returns to both capital and labor then at some point, capital per labor equals output per labor which is called a steady-state.

Accordingly, the Solow-Swan model suggests that augmentation of economic output should be done through technological progress (Solow 1956). Technology is seen as a unique source of increasing labor productivity with boundless capacity. Simultaneously, theory considers enhancing savings to generate higher investment leading to greater capital accumulation; besides, population growth is acceptable only along with increased investment, the otherwise capital-worker ratio will decrease, causing output reduction.

Although neoclassical economists succeed in emphasizing the role of technology in economic growth, they did less in explaining the factors driving it, thus, attaching it to exogenous forces, hence, leaving no room for policymakers to affect the process of development.

Endogenous growth models emerged as the answers to the shortcomings attached to the technological progress in exogenous growth models. The theory proposed that technological progress is endogenous rather than exogenous (Romer 1990; Barro et al. 2004). Besides, it is characterized by increasing returns on a scale and depends on the desire of economic agents to participate in R&D activities (Bassanini et al. 2001). Hence, making it perfectly manageable through government institutions by creating incentives to save, innovate, be open to challenges, and above all else invest in the development of human capital (Bassanini et al. 2001).

Proponents of endogenous growth theorists like Paul Romer and Robert Lucas considered human capital as the main driver of technological progress due to the ability to learn new skills and boundless capacity to develop (Romer 1994; Eckwert et al. 2015).

4.2 International trade policies: Inward vs outward

As mentioned earlier, the usual benefits of trade are associated with increased capital accumulation, economies of scale, and accelerated technological modernization leading to overall GDP growth. The most widely used policies concerning international trade are import substitution industrialization (ISI) and export-led growth theory (ELG). ISI and ELG policies are completely different from each other in several ways including degrees of openness, tax and tariff system, exchange rate policies, etc. (Zemin 2010). The relative efficiency of either policy depends on various factors, thus, reviewing existing literature is extremely important to justify a country's

choice regarding their policy affiliations. Accordingly, the following sections (4.4.1 and 4.4.2) review both ISI and ELG theories and presents the important empirical and theoretical literature concerning the topic.

4.2.1 Import substitution industrialization

The essence of import substitution industrialization (ISI) is that countries with lagging industrialization should adopt protectionism (to some extent) to defend themselves from highly-industrialized exporters and concentrate more on domestic production by strengthening local industries and simultaneously imposing various restrictions on imported goods (Ray 1998). The restrictions mostly should be on consumer goods rather than capital and/or intermediate goods (Bruton 1998), as the latter one is the biggest source of capital accumulation, technology transfers, and knowledge spillovers.

The implementation of IS policy was supposed to loosen the dependence on advanced economies and among other benefits, it should create employment, reduce negative trade balance, and increase savings of foreign currency in the economy (Li 2017). ISI policy offered countries to promote learning by doing approach in local industries by considering their potential resource abundance, relative factor endowments (Shirazi et al. 2005; Todaro et al. 2003).

Unfortunately, ISI could not enhance economic growth as efficiently as the ELG policy did. Over time, several empirical studies emerged that doubted the validity of import substitution policy, e.g., Balassa (1986), who attempted to assess empirically the export and import-oriented growth strategies ended up supporting the export-oriented approach as far as it indicated better performance among the least developed countries; Krueger (1985) also confirmed the efficiency of open economies corresponding to market liberalization and increased trade activities (outward-oriented) over protectionism strategy (inward-oriented); according to the results, several

countries experienced rapid economic growth due to the reduced trade barriers and promotion of international trade. Furthermore, Romer et al. (1990) suggested that opening the economy to international trade generates higher growth rates through the exploitation of increasing returns to scale.

Eventually, import substitution policy slowly faded in the shadow of an outward-oriented policy due to the harsh criticism and lack of empirical support. Hence, adopting a mostly open market, export-led growth policy seems to become essential for high rates of economic growth.

4.2.2 Export-led growth theory

The ELG theory implies the acceleration of economic growth through market openness in exchange for market expansion. Hence, it emphasizes the importance of export expansion in economic growth. Adopting an export-led growth policy facilitates several fundamental benefits concerning technology and knowledge diffusion, undermining the problem of the limited domestic market, utilization of economies of scale, stimulating investments, hence capital accumulation, and improvement of factor productivity.

Over time, ELG theory gained increasing popularity and became the leading policy for market economies, advocated by the world bank and other international organizations.

Several studies were dedicated to the empirical assessment of the export-led growth theory and the results fairly support the promotion of export-driven growth. The methods used in these studies range from simple time-series and ordinary least squares (OLS) to Granger causality and panel data estimators.

Early works were carried out by Michaely (1977), Balassa (1978), Tyler (1981), Feder (1982), etc... Later papers focused more on the causal relationship between exports and economic growth. E.g., Jung et al. (1985), Darrat (1987), Dritsakis et al. (2006), Silaghi (2009), Sargsyan (2019), etc...

Michaely (1977) provides empirical evidence that the rapid expansion of export production can boost economic growth in developing countries.

Balassa (1978) investigated the relationship between export and economic growth for the countries with the already existing base level of industrial development and found that ELG theory performs better than import substitution policy. According to Balassa, ELG policy 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 and economic growth by employing a sample of 55 middle-income 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 (1982) analyzed the sources of growth next to capital accumulation and labor force in semi-industrialized countries from 1964 to 1973. According to the results, marginal factor productivities were found higher in export sectors rather than non-export sectors. Besides, it also showed that the resource allocation to export-intensive sectors triggers economic growth (Feder 1982).

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 only 4 countries show support for the policy.

There are a couple of studies that expended a methodological approach regarding export-led growth by incorporating analysis of a causal relationship, e.g., Darrat (1987), Dritsakis (2006), etc.

Darrat (1987) empirically assessed the effects of ELG policy on economic growth for a special case of “growth miracle”, or as often referred to as “Asian tigers” corresponding to Hong Kong, Taiwan, South Korea, and Singapore from 1955 to 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 including 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 causation between the exports and economic growth for the EU and USA, but no causal and cointegrating relationship was found for Japan.

Silaghi (2009) examined the ELG and GLE policies regarding 10 central and eastern European countries through the finite-order bivariate and trivariate VAR and ECM models. In the case of bivariate estimates, the causality from export to GDP was supported by 5 out of 10 countries, while the GLE policy received support from 7 out of 10 countries. As for trivariate estimation, support for ELG policy holds just for 2 countries and the GLE policy is valid only for 3 countries (Silaghi 2009).

Sargsyan (2019) is the latest work on my list regarding ELG literature. Sargsyan estimated the impact of FDI and export on GDP for the Commonwealth of Independent States (CIS) and Armenia during the period of 1998-2017 (quarterly data). The results of empirical estimation showed that the impact of exports in CIS countries decreased, while the impact of FDI increased significantly. On the other hand, Armenia experienced a dynamic increase regarding the impact of both FDI and export (Sargsyan 2019).

4.3 Nexus between international trade and economic growth

Conventionally, trade expansion is an important source of economic growth. On the one hand, international trade induces better allocation of resources, production efficiency, better welfare benefits, etc. (Ricardo 1817); trade represents an important source of technological progress and encourages firms to engage in more R&D activities. On the other hand, international trade expands the boundaries of the local market and triggers increased investment, along with a larger accumulation of physical capital (Smith 1776).

Accordingly, international trade appears to be the one that can bring together both growth at extensive and intensive margins, where growth at extensive margins is based on increased quantity of means of production, usually physical capital, labor, or land, while growth at intensive margins is associated with increased quality that can be achieved by improving labor and/or total factor productivity, employing new technology, innovation, optimizing the utilization of existing capital, etc.

The following sections review the literature concerning the possible channels through which trade induces economic growth.

4.3.1 International trade and growth at intensive margins

The ability of international trade to facilitate positive externalities like technology transfers and knowledge spillovers enhances the intensive economic growth as follows: Countries can compensate for the lack of capital and intermediate goods through imports, thus, manage to increase productivity via technology diffusion, leading to intensive growth. For instance, Belitz et al. (2013) investigated the contribution of imports in knowledge transfusion and its effects on capital productivity. According to the results, high-technology imports appeared to be significant contributors to total factor

productivity through spillover effects. A similar study was done by Madsen et al. (2008), who empirically analyzed the effects of technological transfers and knowledge spillovers gained from purchasing intermediate goods on a firm's stock prices. The results confirmed a positive association between the observed variables that came in line with the results of the previous empirical literature.

Another way to leverage intensive economic growth is export expansion. Although export and/or trade expansion imposes competitive pressure on local firms (Kotable 1990; Esteve-Perez et al. 2007), simultaneously it enlarges the market size, hence, enabling firms to expand their operations and generate higher demand for their export production; besides, imposed competitive pressure due to a trade expansion evokes the sense of survival and forces local firms to engage in more research and development (R&D) activities, which in turn leads to increased specialization and total factor productivity (Wagner 2007; Alcalá et al. 2002).

Furthermore, considering export as the main source of economic growth, promoting export-led growth (ELG) policy can enhance the inflow of foreign investments (FDI) through market openness. E.g., the ELG theory implies the acceleration of economic growth through 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 will 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.

Several empirical studies are suggesting that the importance of exports resides in the stimulation of technological progress through productivity gains. E.g., Girma et al. (2004) conducted empirical research on a large panel of manufacturing firms by using matching analysis and found that the exporting firms are more productive than non-exporters; Besides, it also showed that

exporting further increases firm productivity.

Delgado et al. (2002) analyzed both exporting and non-exporting firms regarding their differences in productivity. According to the results, exporting firms were found to have a higher level of productivity than non-exporters.

Dilling et al. (2015) empirically tested the role of exports in firm productivity and motivation of firms to engage in more research and development (R&D) activities. The results showed that exporting firms have significantly higher motivation to promote research and innovation activities to cope with high market competition.

Thangavelu et al. (2003) examined the role of exports in productivity growth regarding manufacturing industries in Singapore and found that export expansion significantly affects productivity growth. Besides, when selected manufacturing industries were divided into foreign investment-intensive and non-intensive subgroups, the authors found that foreign investment intensive industries were more responsive to export expansion than non-intensive ones.

4.3.2 International trade and growth at extensive margins

As mentioned earlier, international trade eases the problem of the limited domestic market, promotes specialization, brings productivity gains, and among others, it can also stimulate capital accumulation (Smith 1776).

In this context, it is also argued that export expansion stimulates the demand for the imported capital and intermediate goods, which in turn boosts capital accumulation, hence, economic growth at extensive margins.

Following are the studies reflecting the above-mentioned statement: Baldwin (1992) reflecting the dynamic effects of trade to induce capital formation; Falvey et al. (2004) explaining the contribution of exports to economic growth through capital accumulation; Grossman et al. (1991), Thirlwall (2000), and Belitz et al. (2013) providing empirical evidence

regarding the positive relationship between imports of capital and intermediate goods, factor productivity, and economic growth; Emery (1967) and Akpokodje (2000) suggesting the ability of exports to be the complementary source for financing imported capital and intermediate goods.

Other notable studies are Feddersen et al. (2017), Sun and Heshmati (2010), and Shen and Li (2003).

Feddersen et al. (2017) empirically tested the relationship between exports, capital accumulation, and economic growth, hence, concluding that shocks to exports cause higher capital accumulation and enhanced economic growth. Similarly, Levine and Renelt (1992) found a positive association between investment (capital), and international trade.

Sun and Heshmati (2010) explained the effects of international trade on economic growth through capital accumulation as follows: “international trade based on comparative advantage always enjoy the economies of scale through the expansion in production stimulated by the massive demand from the global market. This results in a decrease in production costs, a large amount of capital accumulation, and an increase in employment” (Sun and Heshmati 2010).

Similarly, Shen and Li (2003) found a positive relationship between exports and GDP per capita, where capital accumulation and institutional transactions were found to be the main channels through which international trade affects GDP per capita (Jiang 2014).

4.4 Determinants of export performance complementing economic growth.

From a historical perspective, gains from exports have always been asymmetric across countries; some gain all the conventional benefits, while others lag behind and even slow down the growth potential due to the misspecification of adopted export-oriented policies. Even similar countries

with similar trade regimes and policies can experience a significant difference regarding export performance. The factors affecting the export performance and correspondingly economic growth, inter alia, include the structure of the export portfolio and diversification and/or concentration of both export production and destination markets. Accordingly, what and how to export requires careful planning.

The following sections of this chapter are a comprehensive review of the literature concerning the determinants of export performance in the context of economic growth.

4.4.1 Export structure and economic growth

Usually, export performance depends on a variety of factors and the structure of the export product portfolio is one of them (Santos et al., 2013, Hausmann et al., 2007). Although having a diversified export product portfolio is found to be an important source of high export performance, hence, economic growth (Funke et al., 2003), the dominance of manufactured goods, especially high-tech manufactures in the export portfolio can push economic growth even further (Cuaresma et al., 2005).

Usually, manufactured exports are perceived to facilitate larger diffusion of technology and knowledge spillovers 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).

However, there are a couple of studies showing that the growth effects of both manufactures and primary commodities can vary across countries due to asymmetric levels of economic development; e.g. Fosu (1996) and Xu (2000) suggest that least developed and developing economies can generate a higher growth effect when they export primary goods.

In fact, proper management of the commodity market can enhance manufacturing sectors, widen the sources of production inputs, and stimulate imports of capital and intermediate goods that are the cardinal source of capital accumulation (McKinnon, 1964; Xu, 2000).

Other notable studies concerning export composition are Greenaway (1999) and Cuaresma et al. (2005).

Greenaway (1999) examined the link between exports and economic growth in a panel of 69 developing countries. The results of the study show a positive relationship between total exports and economic growth. As for disaggregated exports, only fuels, metals, and textiles were found significant, while machinery, food, and other primary commodities were insignificant.

Cuaresma et al. (2005) assessed the role of export composition in economic growth through a random-effects model for 45 developing and industrialized countries throughout 1981-1997. The study found that selected developing economies benefit from trade openness through better resource allocation driven by competitive pressure attached to international trade. Although the results favored the promotion of high-tech exports, the authors see the remaining export sectors as an important source of finances for restructuring the exports towards technology-intensive production.

4.4.2 Export product/market concentration and economic growth

Among others, export performance largely depends on the product and market diversification or concentration strategy, but the decision regarding which of these strategies works better is not an easy task. On the one hand, the concentration of export production can promote specialization (Santos et al. 2013; Bebczuk et al. 2006; Dornbusch et al. 1977). On the other hand, diversification can secure steady long-term export earnings (Santos et al. 2013,

Bebczuk et al. 2006). Besides, diversification strategy has more space to accommodate spillover effects to non-export industries (Hesse 2008).

Usually, diversification of export product portfolio is associated with increasing the variety and share of technology-intensive manufactured goods in total exports. Hence, among other benefits, it can enhance the performance of other industries that lag in performance (Herzer et al. 2006).

Although vast literature is in favor of diversification strategy, one should bear in mind the level of economic development of a trading partner (e.g. least developed, developing, or developed) and the demand for exported products in destination markets (Alexander et al. 2007; Santos et al. 2013; Hesse 2008).

Santos et al. (2013) provide a comprehensive answer regarding export performance and economic growth than most of the previous empirical literature. The authors assessed the role of export-led growth theory in the European Union (EU) from 1995 to 2010. Paper employs a fixed-effects model for empirical estimation. Export is presented in a disaggregated form corresponding to the following broad categories: Food and agricultural exports, Fuel, ores and metals, Manufactures exports, and High technology exports. Among other variables, the model includes several trade partners, Partner's growth, product market concentration, and product diversification indices. The results of the study show that developed countries like the EU 28 should export more manufactures, especially high technology products. Besides, export diversification along with enlargement of the export product portfolio is found to enhance economic growth. Lastly, economic growth is highly affected by the composition of export destination markets. Hence, the results suggest that exports should be directed to developed trade partners rather than distant, less developed countries.

Other notable studies regarding export product and market diversification correspond to Parteka et al. (2012), Gozgor et al. (2016), Can et al. (2017)

Campi et al. (2017), Tekle (2017), Rosal (2018), Grangnon (2019), Mania et al. (2019), Lee et al. (2019), Grangnon (2019), etc.

Parteka et al. (2012) focus on the growth effects of disaggregated imports and exports on economic growth in 163 countries from 1988 to 2010. According to the results, both import and export diversification was found to exhibit growth-enhancing character. Besides, the study shows that the specialization/concentration is getting less as income per capita rises.

Gozgor et al. (2016) use three measures of export diversification to assess the effects on economic growth in 158 countries presented as subgroups according to the income level by using GMM estimations. The results suggest that the positive effects from export diversification are exhibited in low, middle, and upper-middle-income subgroups, but found a negative relationship in high-income non-OECD and OECD member states.

Can et al. (2017) examine the relationship between export diversification and export quality. The study found that the export quality is sensitive to the higher variations in export values of both existing and new product lines, mostly in high-income countries. As for low-income countries, export quality increases regarding higher variations of export values of existing products.

Campi et al. (2017) examined the peculiarities of Chinese exports in the post-WTO-accession period (2000-2006) and found that both export product and market diversification are positively associated with the growth of trade.

Tekle (2017) assessed the effects of export product and market concentration on aggregate trade for Sub Saharan African countries. Similar to Campi et al. (2017), the results showed the necessity for the improvement of product/market diversification in terms of processing commodity goods (raw materials) to embark on relatively high trade/export performance.

Rosal (2018) provides further evidence regarding the effects of export diversification/concentration policy to achieve better export performance on the example of Spain and its trade partners during 1999-2011. Contrary to the

vast literature, the study found a strong positive relationship between export concentration and overall export performance. These results are partially consistent with Gozgor et al. (2016), where high-income OECD and non-OECD member states exhibited better performance by fostering higher specialization (less diversification) in export production.

Grangnon (2019) empirically investigated the relationship between export diversification, trade liberalization, and inclusive economic growth for the panel of 109 developing countries from 1995 to 2015. According to the results, a high degree of trade liberalization should be accompanied by the expansion of the export portfolio to enhance inclusive economic growth.

Mania et al. (2019) examine the relationship between export product diversification and sustainable economic growth in Latin America, Sub-Saharan Africa, and developing Asia during 1995-2015. The effects of diversification were found asymmetric across the selected regions, where results for developing Asia favored higher product concentration regarding more sophisticated exports, while Sub-Saharan Africa did not indicate noticeable changes in productive structures when diversifying an export portfolio, and Latin America exhibited high dependency on imported manufactured products when enhancing structural changes accompanied by a higher degree of export concentration.

Lee et al. (2019) examined the role of export diversification in easing the negative effects imposed by the external crisis on export performance in Korea. The results found that export market diversification should be preferred over export product diversification to mitigate the severity of external trade shocks/financial crisis. As for export volume expansion, it was suggested that the higher the degree of export market/product diversification, the better the performance and aggregate volume of exports.

4.5 Patterns of economic growth in transition economies

The transition process implies moving from a centrally planned economy to a market economy. The path through which transition was going to happen derived from two viewpoints: One claimed a 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 foreign trade and successful export performance to foster smooth transition (MacBean 2000; Kokko 2002; Malovic et al. 2017).

Although cessation of central planning brought severe losses concerning logistics of international trade and accumulated capital, labor force deterioration, fall in domestic demand, etc., after embarking on a transition to a market economy, the situation has improved. Transition economies experienced positive changes regarding export trading, which in turn reflected on the overall economic growth.

Promotion of export-driven growth, trade openness, market liberalization, and other relative conceptions was highly supported by international organizations like World Bank and International Monetary Fund, because “developing countries needed financial assistance after the 1970s oil shocks, and the IMF and World Bank made access to assistance conditional on governments embracing the openness agenda” (Palley 2011).

Theoretically, the export can resolve the problem of a small domestic market which does not allow to maintain adequate demand growth (Taban et al. 2008). In other words, export markets are boundless and cannot impose any restriction on demand growth (Agosin 1999); it is a catalyst for income growth as a component of aggregate demand (Herzer et al. 2006).

Decades passed and export-led growth (ELG) policy is still perceived as the most prominent trade policy in transition economies. Performance of ELG policy in transition economies is well recorded in the following studies:

Kaminski et al. (1996) evaluated the export performance in transition countries, hence, concluded that prioritizing trade liberalization by removing major trade barriers 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 et al. (2003) 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 the success of export-oriented growth. Accordingly, the results showed that “productivity gains from the 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 & Ruhwedel 2003).

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 for 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.

4.5.1 Importance of institutional stability in the transition process

Institutional quality is substantially studied in sociological literature concerning social transformation, but in economics, it is relatively new (Bartlett et al. 2013). In economics usual determinants of economic growth are capital, labor, and technological progress. Although almost all the growth models/policies are built on these determinants, the role of institutional quality is not less important; “healthy” institutions appear to be a backbone of a country that ensures successful implementation of any growth-oriented policies (Bartlett et al. 2013; Rodrik 2007; Hausmann et al. 2004). Let us remember the North (1994), where institutions are described as a mixture of formal and informal rules and their enforcement characteristics. Correspondingly, informal rules, which are hardly changing aspects, incorporate the belief structure of the society which is transformed into societal and economic structures through institutions (North 1994).

The importance of institutional quality in the assessment of economic growth has grown substantially over the last couple of decades, especially for transition economies (Elster et al. 1998; Bartlett et al. 2013).

In previous sections, we have already mentioned that fostering market liberalization principles is one of the main parts in the context of transition economies. When implemented properly, market liberalization can be a source of new market access, enlarged trade partners, improved spillover effects, and boost foreign investments which should be directed in sectors with high production efficiency to further increase economic growth (Bernatonyte et al. 2009). While adhering to market liberalization guidelines, transition economies should consider several important aspects to succeed. E.g., market-oriented reforms, trade policy affiliation, securing property rights, easing doing business, creating favorable investment climate, switching preference in

tradable goods from commodity to technology-intensive manufactures, enforcing technological progress by supporting local industries to engage in more R&D activities to handle the competitive pressure imposed by globalization, etc. In general, forces affecting growth should slowly reside in knowledge gains reflected through technological progress and R&D activities. As so, institutions should be designed in a way that can facilitate all the above-mentioned developments through various economic policies (Hall et al. 1999). In this regard, “healthy” politics and efficient governmental institutions play a huge role in transition economies. Unfortunately, most of the transition economies suffer from endemic political instability, thus, making the transition process even harder.

5. METHODOLOGY

5.1 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.

Accordingly, chapter 5 is organized as follows: It starts with the research questions and hypotheses including theoretical background, followed by the description of the econometric models and the applied research methods, along with the description of the employed data.

5.2 Research questions and hypotheses

Based on the revised literature and the insights made regarding the Georgian economy, the current study answers three research questions (RQs) by testing three hypotheses (Hs), hence, fulfilling the research objectives described in chapter 2. Following are the research questions and hypotheses to be tested:

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

H1: *Fostering export expansion complements economic growth through productivity gains.*

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, Alcalá 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 increases 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).

5.3 Econometric models

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

In this context, to investigate the role of exports in economic growth at intensive margins I tested the first hypothesis (*H1: Fostering export expansion complements economic growth through productivity gains.*) 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:

$$\ln GDP_{it} = \beta_0 + \beta_1 \ln GFCF_{it} + \beta_2 \ln LF_{it} + \beta_3 \ln INF_{it} + \beta_4 \ln EX_{it} + \beta_5 \ln GEI_{it} + u_{it} \quad (2)$$

where $\ln GDP$ is the dependent variable, $\ln GFCF$, $\ln LF$, $\ln INF$, $\ln EX$, $\ln GEI$ are independent variables, u_{it} is the error term, β_0 is the constant, $\beta_1, \beta_2 \dots \beta_5$ 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 $\ln INF$.

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?*

5.3.2 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:

$$\begin{aligned} \ln GFCF_{it} = & \beta_0 + \beta_1 \ln GS_{it} + \beta_2 \ln FDI_{it} + \beta_3 \ln CAPS_{it} + \beta_4 \ln EX_{it} + \beta_5 \ln IMCI_{it} + \\ & + \beta_6 \ln INF_{it} + u_{it} \end{aligned} \quad (4)$$

where $\ln GFCF$ is the dependent variable, $\ln GS$, $\ln FDI$, $\ln CAPS$, $\ln EX$, $\ln IMCI$, $\ln INF$ are independent variables, u_{it} is the error term, β_0 is the constant, $\beta_1, \beta_2 \dots \beta_5$ 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 $\ln INF$.

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?*

5.3.3 Determinants of export performance complementing economic growth.

Regarding the relationship between economic growth (GDP) and the export determinants in terms of product and market diversification, along with

manufactured exports, I tested the third hypothesis (**H3**: *Fostering manufactured exports, along with export market and product diversification increases economic growth.*) by estimating the following model:

First, I disaggregated the total exports on the right side of the equation (2) and presented it in terms of manufactured (MEX) and commodity exports (CEX). Besides, I added two additional export-related variables like an export product (PCON) and market concentration (MCON) indices. Hence, economic growth (GDP) is presented as the function of the following variables:

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

and the model to be estimated is written as:

$$\ln GDP_{it} = \beta_0 + \beta_1 \ln GFCF_{it} + \beta_2 \ln LF_{it} + \beta_3 \ln INF_{it} + \beta_4 \ln GEI_{it} + \beta_5 \ln MEX_{it} + \beta_6 \ln CEX_{it} + \beta_7 \ln PCON_{it} + \beta_8 \ln MCON_{it} + u_{it} \quad (6)$$

where $\ln GDP$ is the dependent variable, $\ln GFCF$, $\ln LF$, $\ln INF$, $\ln GEI$, $\ln MEX$, $\ln CEX$, $\ln PCON$, $\ln MCON$ are independent variables, u_{it} is the error term, β_0 is the constant, $\beta_1, \beta_2, \dots, \beta_8$ 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 $\ln INF$, $\ln PCON$, and $\ln MCON$.

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?

5.4 Research methods

The following is the procedure and the methods used for 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).¹²

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. 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).

¹² 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

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.

Pesaran (2007) CIPS loosens the assumption of cross-sectional independence in balanced panels and estimates a cross-sectional augmented Im, Pesaran, and Shin (IPS) test for a unit root in heterogeneous panels developed by Pesaran (2007). The null hypothesis of the test states the non-stationarity of the panels. The Pesaran (2007) CIPS test was implemented in the Stata software by using the “xtcips” command¹³.

The Breitung (2000) is the 2nd generation unit root test that transforms the data before estimating the regressions so that the standard t statistics can be used. This test allows for cross-sectional dependence within panels. The null hypothesis states the presence of unit root in all series against alternative hypothesis $\rho < 1$ (stationarity of the series). The test is based on the Breitung (2000) and Breitung and Das (2005) papers. The test was implemented in the Stata software by using the command “xtunitroot breitung”¹⁴.

Pesaran CADF is based on the mean of individual DF/ADF t-statistics of each cross-section within a panel. The null hypothesis states the non-stationarity of all series. Like Breitung and Pesaran CIPS, PESCADF is the second-generation unit root test that can deal with cross-sectional dependence through augmenting the DF/ADF regressions by the CADF statistics corresponding to the cross-section averages of lagged levels and first differences of the individual series. The test was implemented in the Stata

¹³ 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>

¹⁴ Technical details of the Breitung (2000) test in the Stata software can be found here: <https://www.stata.com/manuals13/xtunitroot.pdf>

software by using the command “pescadf”¹⁵, which is based on the Pesaran (2003) as described in Lewandowski (2006).

Im, Pesaran, and Shin (IPS) is the 1st generation unit root test with a null hypothesis of “all panels have unit root”, panels are non-stationery. The IPS test does not require the panel dataset to be balanced. For cross-sectional dependence, the IPS test allows demeaning of the variables, which mitigates the problem of cross-sectional dependence (Levin et al. 2002). The test was implemented in the Stata software by using the command “xtunitroot ips”.¹⁶

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 software¹⁷.

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

¹⁵ 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>.

¹⁶ 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).

¹⁷ 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.

endogeneity assumptions, besides, by specifying the robust long-run covariance it allows for heterogeneity of error variance.¹⁸

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”.¹⁹

5.5 Data

5.5.1 Scope of the 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, 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

¹⁸ 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.

¹⁹ 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.

(WB) 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.²⁰ 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 unavailability is caused by the separation of these states in 2006. Hence, data is only partially available.

²⁰ 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. Source: https://www.un.org/development/desa/dpad/document_gem/global-economic-monitoring-unit/world-economic-situation-and-prospects-wesp-report/

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, 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.

5.5.2 Descriptive statistics

Descriptive statistics of the employed variables are presented separately for each econometric model presented earlier in this chapter:

- **The role of exports in economic growth at intensive margins:** The variables employed for empirical analysis are a Gross domestic product (GDP), gross fixed capital formation (GFCF), the labor force (LF), inflation rate (INF), government effectiveness (GEI), and total exports (EX).²¹ Descriptive statistics are presented below:

Table 9a. Descriptive statistics.

Variables	Obs.	Mean	Std. Dev.	Skewness	Kurtosis
GDP	242	1.34E+11	3.27E+11	3.024409	10.77
GFCF	242	2.73E+10	6.78E+10	3.29	12.81
LF	242	11.13221	20.79229	2.494	7.765
GEI	242	-0.431341	0.370937	0.587	3.214
EX	242	4.36E+10	9.08E+10	2.917	10.701
INF	242	13.24272	26.15507	7.99	84.2

Source: Author's calculations

²¹ Description of the variables are presented in Annex 1.

- **The role of exports in economic growth at extensive margins:** The variables employed for empirical analysis are Gross fixed capital formation (GFCF), inflation (INF), gross savings (GS), imported capital and intermediate goods (IMCI), credit availability to the private sector (CAPS), foreign direct investments (FDI), and total exports (EX).²² Descriptive statistics are presented below:

Table 9b. Descriptive statistics.

Variables	Obs.	Mean	Std. Dev.	Skewness	Kurtosis
GFCF	242	2.73E+10	6.78E+10	3.29	12.81
EX	242	43577.59	90827.33	2.917	10.701
GS	242	21.23929	9.068875	.0127	3.647
IMCI	233	1513.254	4613.47	2.819	9.053
CAPS	238	25.47237	16.24992	0.538	2.466
FDI	242	4954.487	11678.15	4.232	23.573
INF	242	13.24272	26.15507	7.99	84.2

Source: Author's calculations

- **Determinants of export performance complementing economic growth:** The variables employed for empirical analysis are Gross domestic product (GDP), gross fixed capital formation (GFCF), labor force (LF), inflation rate (INF), government effectiveness (GEI), exports of manufactured goods (MEX), exports of primary commodities (CEX), export product concentration (PCON), and export market concentration (MCON).²³ Descriptive statistics are presented below:

²² Description of the variables are presented in Annex 1.

²³ Description of the variables are presented in Annex 1.

Table 9c. Descriptive statistics.

Variables	Obs.	Mean	Std. Dev.	Skewness	Kurtosis
GDP	242	172585.4	461572.5	4.000	22.311
GFCF	242	36005.52	93334.02	3.756	18.539
LF	242	11.13221	20.79229	2.494	7.765
GEI	242	-0.431341	0.370937	0.587	3.214
MEX	242	16052.72	52576.26	8.660	95.120
CEX	242	32607.06	81928.12	3.361	14.199
PCON	242	0.3013287	0.1835826	1.608	4.941
MCON	237	0.1461412	0.109049	1.608	5.438
INF	242	95.25983	64.45983	3.026	16.431

Source: Author's calculations

According to the descriptive statistics presented in Table 9a, 9b, and 9c, all the variables are balanced panels with a total of 242 observations except for export market concentration (MCON) with 5 missing values, imported capital and intermediate goods (IMCI), and credit availability to the private sector (CAPS) with 9 and 4 missing values, respectively (see Table 9b and 9c).

Besides, it appeared that mostly all the variables are highly skewed with a large dispersion of the observations. After checking the box plots of each variable, the presence of outliers was confirmed in most of them (see Annex 1). The high variability of the observations in the panel datasets is not a surprise, as the employed sample represents the transition economies that are usually characterized by turbulent economic and political development processes that usually, affect all the macroeconomic indicators.

In the further steps of the empirical analysis, I applied log transformation on all the variables, which usually makes the data less skewed.

6. EMPIRICAL RESULTS

6.1 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 10).

Table 10. 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 11a and 11b 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 stationary 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 stationary at 1st differences (see Table 11a and 11b).

Table 11a. Pesaran CADF and Breitung 2nd generation unit root tests

Variables	Pesaran CADF (p-values)			Breitung (p-values)		
	Levels		1 st differences	Levels		1 st 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 11b. Pesaran CIPS 2nd generation unit root test

Variables	Test statistics		
	Levels		1 st 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 I rejected the null hypothesis of no cointegration (see Table 12).

Table 12. 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 13).

Table 13. 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 ₀ = 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 14).

Table 14. 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 13).

6.2 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 15).

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 stationary at 1st differences (see Table 16).

Table 15. 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 16. Pesaran CADF and IPS 2nd and 1st generation unit root tests

Variables	Pesaran CADF (p-values)			IPS (p-values)		
	Levels		1 st differences	Levels		1 st 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 17).

Table 17. 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 18 and 19.

Table 18. 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

R² = 0.96

Normality of residuals (H₀ = Normally distributed), p-value=0.78

Pesaran CD test for residuals (H₀ = Cross-sectional independence), p-value=0.71

Source: Author's calculations

Table 19. 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 18). As for causality, it appears that exports Granger cause both capital accumulation (GFCF) and imports of capital and intermediate goods (IMCI) (see Table 19), by this showing the importance of export expansion to stimulate growth at extensive margins.

6.3 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 20).

Table 20. 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 21a and 21b.

Table 21a. Pesaran CADF and Breitung 2nd generation unit root tests

Variables	Pesaran CADF (p-values)			Breitung (p-values)		
	Levels		1 st differences	Levels		1 st 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 the Pesaran CADF and Breitung (2000) second-generation unit root tests is the non-stationarity of the panels.

lag length is 2 according to the average lag length for each cross-section unit in the panels suggested by the Akaike information criterion (AIC).

Source: Author's calculations

Table 21b. Pesaran CIPS 2nd generation unit root test

Variables	Test statistics		
	Levels		1 st 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	-2.961***	-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 stationary at 1st differences as I failed to reject the null hypothesis of non-stationarity in most of the tests (see Table 21a and 21b).

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 22).

Table 22. 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 Tables 23 and 24). The causality test was applied to 1st differences of the variables as it requires stationarity.

Table 23. 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 ₀ = Cross-sectional independence), p-value=0.65		
Source: Author's calculations		

Table 24. 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 23). 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 24).

6.4 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 chapter 3 I presented a descriptive evaluation of the Georgian economy, which I will synthesis with the above-mentioned empirical results in this section.

The progress of Georgia described in chapter 3 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 BSEC²⁴ 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

²⁴ CIS - Commonwealth of Independent States. BSEC - Black Sea Economic Cooperation Organization

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, 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.²⁵ 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.

²⁵ 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 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 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”.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 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” (Feddersen 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), Wacziarg (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”.

7.2 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 within the market liberalization framework, 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.
- Adjust the composition of the export product portfolio. Currently, the Georgian export portfolio significantly diverges from the import structure of its partners. This can be achieved by fostering export activities of local firms through the creation of various trade incentives.
- 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., a 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.

8. NEW SCIENTIFIC RESULTS AND RESEARCH LIMITATIONS

8.1 The novelty of the research

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 2004/2007²⁶. 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

²⁶ In 2004/2007 several transition economies successfully finished their transition process (e.g., Lithuania, Latvia, Estonia, Croatia, etc.)

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 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.

8.2 Limitations of the research

This research used a shortlist of aggregate, macroeconomic variables to answer the research questions. From the theoretical perspective, there are way more variables as alternatives or simply complementary to the ones employed

in this study. Unfortunately, there is limited data for the selected countries which in turn can explain the scarcity of the literature for the same set of countries. Mostly, datasets suffer from missing values (reaching as high as 50% of the dataset). Accordingly, few transition economies could not be included in the study (e.g., Serbia, Bosnia and Herzegovina, Kosovo, Montenegro, Tajikistan, Turkmenistan).

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ANNEX 1.

1. Description of the employed variables.

Following are the list of variables employed for empirical analysis: Gross domestic product (GDP), gross fixed capital formation (GFCF), labor force (LF), Inflation rate (INF), government effectiveness (GEI), total exports (EX), exports of manufactured goods (MEX), exports of primary commodities (CEX), export product concentration (PCON), export market concentration (MCON), gross savings (GS), imports of capital and intermediate goods (IMCI), credit availability to the private sector (CAPS), foreign direct investments (FDI), and total factor productivity (TFP). A detailed description of the variables²⁷ is presented below:

GDP - Gross domestic product is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. GDP is inflation-adjusted. (Source: WB)

GFCF - Gross fixed capital formation includes land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchase; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. GFCF is inflation-adjusted (Source: WB).

LF - Labor force comprises people ages 15 and older who supply labor for the production of goods and services during a specified period. It includes people who are currently employed and people who are unemployed but seeking work as well as job-seekers. LF is measured as the total number of labor force described above (Source: WB).

²⁷ Note: Description of all the variables was taken from the sources presented in parenthesis at the end of each definition in the text.

Inflation - Consumer price index reflects changes in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. CPI is the price with the base year of 2010 (Source: UNCTAD).

The GDP deflator measures price changes for gross domestic product. It is usually calculated as the ratio of current to constant price GDP (Source: WB).

GEI - Government effectiveness index captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. From the beginning, the index was recorded every two years till 2001, hence, data for 1997/99/2001 are linearly interpolated. (Source: WDI).

EX - Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. EX is inflation-adjusted (Source: UNCTAD).

MEX - Manufactured exports comprise all the exported goods included in SITC 5 to 8 excluding 667 and 68. MEX is inflation-adjusted (Source: UNCTAD).

CEX - Commodity exports comprise all the exported goods included in SITC 0, 1, 2, 3, 4, 68. CEX is inflation-adjusted (Source: UNCTAD).

PCON - The product concentration index shows to which degree exports of individual economies are concentrated on a few products rather than being distributed more homogeneously among several products. Concentration index or Product HHI is a measure of the degree of product concentration. The normalized HHI is used to obtain values between 0 and 1 (Source: WITS).

MCON Market concentration index shows whether a product market is concentrated in a few economies or more homogeneously distributed among several economies. MCON HH index is a measure of the trade value dispersion

across an exporter's partners. A country with exports that is concentrated in a few markets will have an index value close to 1. (Source: WITS).

GS - Gross savings are calculated as gross national income less total consumption, plus net transfers as the share of gross domestic product. GS is measured as a share in GDP (WB).

IMCI - Intermediate goods are semi-finished products used as inputs in the production process. Capital goods are physical assets that are used for producing goods and services. IMCI is the sum of imported capital and intermediate goods as the share of total imports. IMCI is inflation-adjusted (Source: WITS).

CAPS - Domestic credit to the private sector by banks refers to financial resources provided to the private sector by other depository corporations, such as through loans, purchases of nonequity securities, trade credits, and other accounts receivable, that establish a claim for repayment. It is measured as a percentage of GDP (Source: WDI).

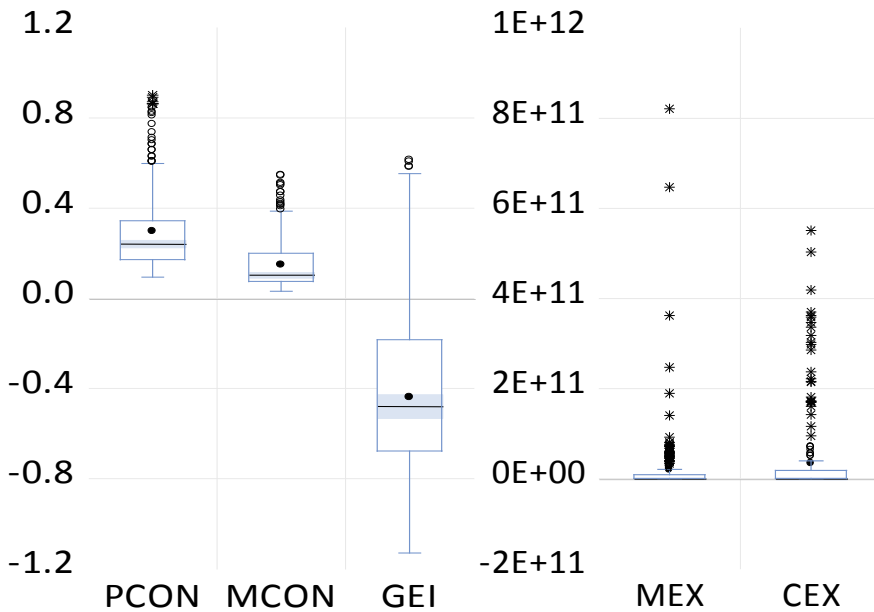
FDI - Foreign direct investment refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital. FDI is inflation-adjusted (Source: WB).

TFP - Total factor productivity is measured as the ratio of aggregate output to aggregate input (Source: CB).

2. Box plots of the employed variables:

Figure 2.1 Government effectiveness (GEI), manufactured exports (MEX), primary commodity exports (CEX), export product (PCON), and market (MCON) concentrations.

Before log transformation:



After log transformation:

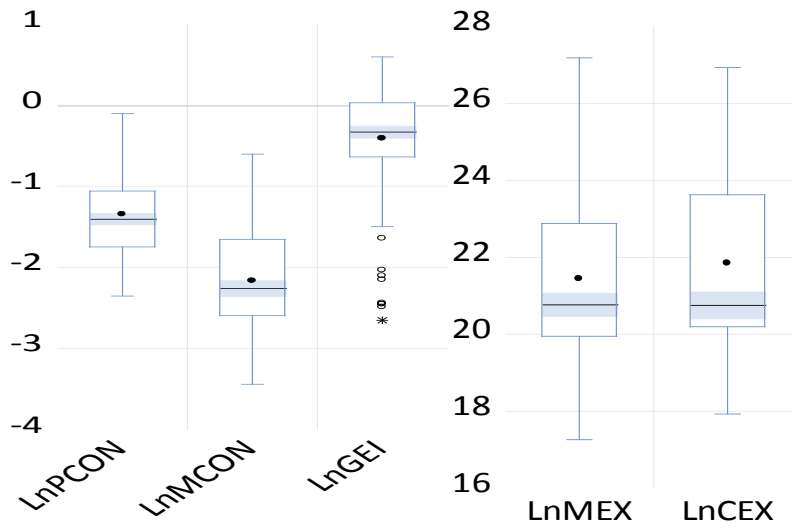
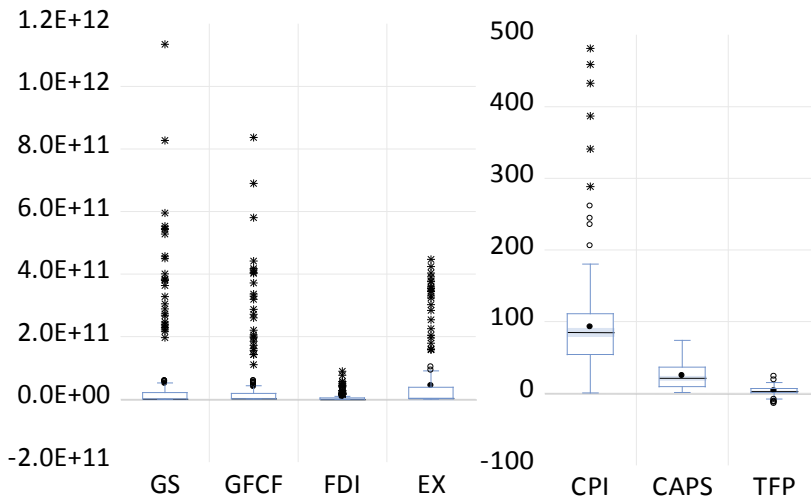


Figure 2.2 Gross savings (GS), gross fixed capital formation (GFCF), foreign investments (FDI), exports (EX), inflation rate (INF), credit availability to private sectors (CAPS), total factor productivity (TFP).

Before log transformation:



After log transformation:

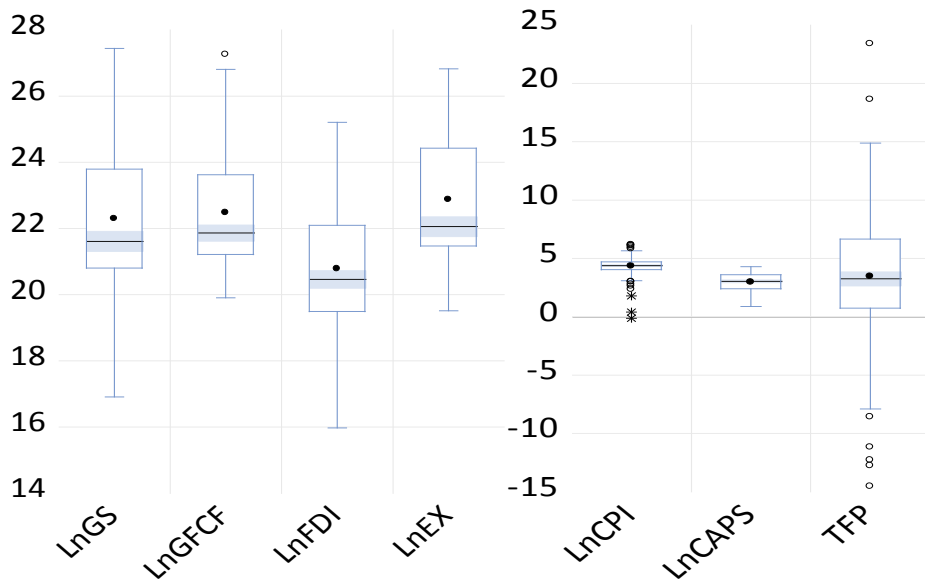
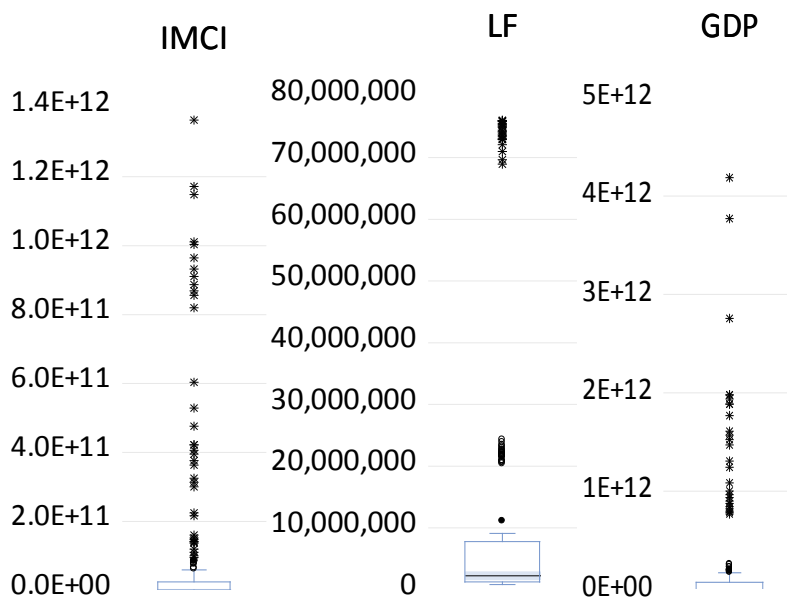


Figure 2.3 Imported capital and intermediate goods (IMCI), the labor force (LF), and gross domestic product (GDP).

Before log transformation:



After log transformation:

