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EVALUATION OF GEORGIA'S POTENTIAL FREE TRADE AGREEMENTS WITH THE USA, INDIA, AND SOUTH KOREA (USING COMPUTABLE GENERAL EQUILIBRIUM MODEL)

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EXECUTIVE SUMMARY

The policy brief presents a Computable General Equilibrium (CGE) model designed for Georgia by the ISET Policy Institute[1] to evaluate the impact of potential new Free Trade Agreements (FTAs) with the USA, India, and South Korea.

Along with assessing the impact of eliminating tariffs, the CGE model incorporates the deep integration elements, assumed to be part of the potential FTAs, observing additional effects of: i) reduction in time in trade (border compliance) costs; ii) reduction in non-tariff barriers on goods; iii) reduction in barriers on Foreign Direct Investments (FDI) and cross-border business services. The model evaluates the impact of potential FTAs on welfare gain, real GDP, trade flows in aggregate and by sector, changes in the output of Georgian sectors, factor earnings, and tax revenues.

The results indicate positive impacts on the Georgian economy. The estimated annual recurring gain is a 0.82 percent increase in Georgia's real household income, with the USA FTA being the most beneficial (accounting for 0.59 percent). The three FTAs jointly result in a 0.25 percent annual recurring gain in real GDP for Georgia. These positive gains are mainly attributed to the reduction of barriers hindering the cross-border provision of services, the reduction of non-tariff barriers on goods, and the easing of restrictions against FDIs in Georgia. There is no estimated change in the balance of trade.

The import duty revenues decrease by 15.8% as a result of three FTAs, with the FTA with the USA being particularly impactful.

Sector impacts suggest positive outcomes for most sectors' output, with petroleum processing, textile and clothing, and metal manufacturing expected to benefit the most. The hospitality sector may face a slight reduction in output due to an increase in wages and returns on capital more in profitable sectors inducing movement of the factors of production. Favorable outcomes are anticipated for most production factors.

The findings provide valuable insights for policymakers considering trade reforms, emphasizing the importance of deep preferential integration with the trading partners, as the decrease in non-tariff barriers for goods and the alleviation of barriers against FDI in Georgia are identified as major factors contributing significantly to the improvements in welfare gains. Along with these elements of deep integration, the reduction of barriers against cross-border services contributes to improvements in real GDP, whereas the elimination of tariffs exhibits minimal effects in both cases.

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[1] CGE model was developed by ISET Policy Institute under funding from Sweden / Sida in 2021-2023.

INTRODUCTION

Georgia is an open economy that has consistently followed a liberal trade policy. The country has entered into a Deep and Comprehensive Free Trade Area (DCFTA) agreement with the European Union (EU). Additionally, Georgia has established free trade agreements with Peoples Republic of China and Hong Kong, European Free Trade Association (EFTA), Commonwealth of Independent States (CIS) countries, and Turkey. Since January 2021, an agreement on strategic partnership and cooperation between Georgia, the United Kingdom, and Northern Ireland has been in force. The Agreement envisages a free trade regime between the parties. Furthermore, Georgia is the beneficiary of the Generalized System of Preferences (GSP) regime with the United States of America (USA), Japan, and Canada, which establishes lower tariffs on goods imported from Georgia. In addition, as a member of the World Trade Organization (WTO), Georgia's trade relations with the WTO member states (164 countries) are regulated based on the Most Favored Nations (MFN) principle.

The Georgian government has outlined several possible Free Trade Agreement (FTA) plans with the USA, South Korea, and India. The feasibility study of an FTA between Georgia and South Korea and the memorandum on the commencement of negotiations between the parties was completed in November 2022, while the talks were planned to be launched by the end of 2023[2]. FTA negotiations with India are at the planning stage. The government has completed a feasibility study and efforts are underway to initiate the negotiation process[3]. Finally, the United States is identified as a priority partner for Georgia and active consultations are ongoing regarding various trade-related topics, so far not at the highest level of government[4].

An important factor to consider, while Georgia aspires to become a member of the European Union, is that the EU has an "exclusive competence" to negotiate and conclude FTAs on behalf of its member states[5]. Consequently, upon successful accession to the EU, any existing free trade agreements of the new member states with countries where the EU lacks an FTA would be abolished. It is noteworthy that the European Union has successfully concluded FTAs with numerous countries globally, including South Korea, and is negotiating with many other countries, including India and the United States (US). The EU-India FTA negotiations started in June 2022. In case of the US, the EU obtained FTA negotiating directives in April 2019. The next steps are

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[2] https://www.economy.ge/?page=projects&s=36&lang=en

[3] https://agenda.ge/en/news/2019/97

[4] https://1tv.ge/news/saqartvelo-wlis-bolomde-koreastan-tavisufali-vachrobis-shetankhmebaze-molaparakebebis-dawyebas-gegmavs/

[5] https://eur-lex.europa.eu/summary/chapter/external_trade.html?root_default=SUM_1_CODED%3D07&locale=en

yet to be determined, though the council of the EU already approved mandates for an agreement on i) the elimination of tariffs for industrial goods and on ii) conformity assessment[6].

EU accession also entails the obligation for new member states to adhere to the trade agreements established by the EU. This implies that upon joining the EU, Georgia should mirror the elements of the EU's free trade agreements. In this context, it becomes imperative to have a model that allows assessment of the impact of potential new deep integration FTAs and enables the simulation of various free trade policy scenarios, adjusting the components of these agreements to align with EU trade policy. Looking ahead, in the near future, the CGE model will be instrumental in evaluating recent and anticipated enhancements in trade policies, accommodating regulatory changes necessary for Georgia's compliance with EU requirements upon obtaining candidate status. CGE models have been widely used in trade policy analysis and ex-ante economic assessments, in general. The model encompasses the entire economy by integrating various economic sectors, households, and government. Employing a system of equations, it captures the structure of the economy and interactions among different sectors, taking into account production, consumption, and trade flows. This tool allows for the calculation of wider economic impact, conducting analyses at both macro and sectoral levels. Accounting for the mobility of production factors, the model can provide further insights into how policies/ shocks influence labor earnings and returns on capital.

The CGE model developed for Georgia explores different policy scenarios to capture the deep integration elements of potential FTAs with the USA, India, and South Korea. Appendix 1 provides a detailed overview of the model and data used in the analysis. Overall, new FTAs will be beneficial for Georgia.

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[6] https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/negotiations-and-agreements_en

GEORGIA'S TRADE DYNAMICS AND FOREIGN DIRECT INVESTMENT TRENDS WITH THE USA, INDIA, AND SOUTH KOREA

Georgia's export of goods to the USA was at a relatively high level of 11% (of total exports) in 2010, with fluctuations observed in the following years (Chart 1). The lowest point is observed in 2020 at 2%. There is a slight recovery in 2021 and 2022, reaching 5% in both years. Georgia's exports to India and South Korea have generally been at a low level (under 1%) throughout the period, reaching 0.6% and 0.2% in 2022, respectively.

As for the import dynamics, Chart 1 shows stability in imports of goods from India and South Korea, albeit at a modest level of 1%, while imports from the USA have shown an increasing trend, peaking at 7% in 2019 and maintaining that level in 2022, following a slight dip in 2021.

Chart 1 presents the dynamics of Georgia's export and import of goods with India, South Korea, and the USA from 2010 to 2022.

Chart 1. The percentage share of the USA, India, and South Korea in Georgia's total exports and imports of goods, 2010-2022
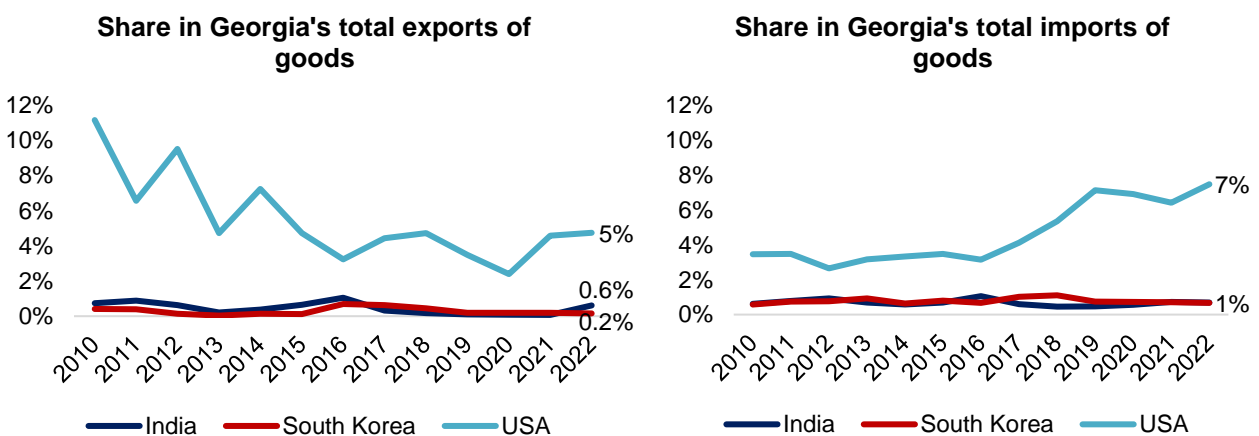
Source: Geostat

As for the trade in services, National Banks of Georgia's (NBG) statistics highlight a significant dependence on the tourism sector. According to the Balance of Payments (BoP) data, in 2022 and the preceding years, travel and transport services made up over 80% (GEL 4.7 bln) of Georgia's service exports, amounting to 62% and 21% of total services, respectively. Notably, these two sectors collectively constitute 76% of the country's total service imports, with transport taking the lead at 63%.

Since NBG BoP statistics do not provide a disaggregation of trade in services by countries, we conducted our own calculations to estimate the share of the USA, South Korea, and India in Georgia's total export and import of services. This process involved three main steps: i) Estimation of trade in services related to tourism activities; ii) Estimation of trade in transport services; and iii) Estimation of trade in other services. For tourism activities, the methodology involved utilizing Geostat's inbound tourism survey 2019 data, calculating average spending of foreign nationals across different spending categories. The methodology for calculating country composition in transport services involved utilizing NBG's balance of payment data and Geostat's inbound tourism survey for passenger transport, while for freight transport, data on the export, import, and transit of goods were collected, and proportional distributions were applied based on specific assumptions and data constraints.

Chart 2 presents the resulting breakdown of percentage shares of the USA, South Korea, and India in Georgia's exports and imports of tourism and transportation services. Due to data limitations, trade in other services not connected to transport and tourism activities were distributed across countries proportionally to trade in goods. Appendix 2 provides more details on methodology used to estimate Georgia's export and imports of services by countries.

As Chart 2 shows, among the three countries contributing modestly to Georgia's total trade of services, the United States notably stood out, representing 5.1% in transportation and storage services, 0.4% in accommodation and food services,[7] and 0.4% in arts, entertainment, and recreation services within Georgia's import portfolio. These figures for the export of services amount to 1.9%, 2.8%, and 1.3% in the respective service sectors.

India accounts for 0.8% of Georgia's imports of in transportation and storage services, and 0.6% in accommodation and food services, as well as in arts, entertainment, and recreation services. India's impact on Georgia's service exports was relatively high, with contributions of 0.8% in transportation and storage services, 1.4% in accommodation and food services, and 0.9% in arts, entertainment, and recreation services.

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[7] https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/negotiations-and-agreements_en

Chart 2. The percentage share of the USA, India, and South Korea in Georgia's total exports and imports of services, 2019

Share in Georgia's export of services

Share in Georgia's import of services

■ India ■ South Korea ■ United States
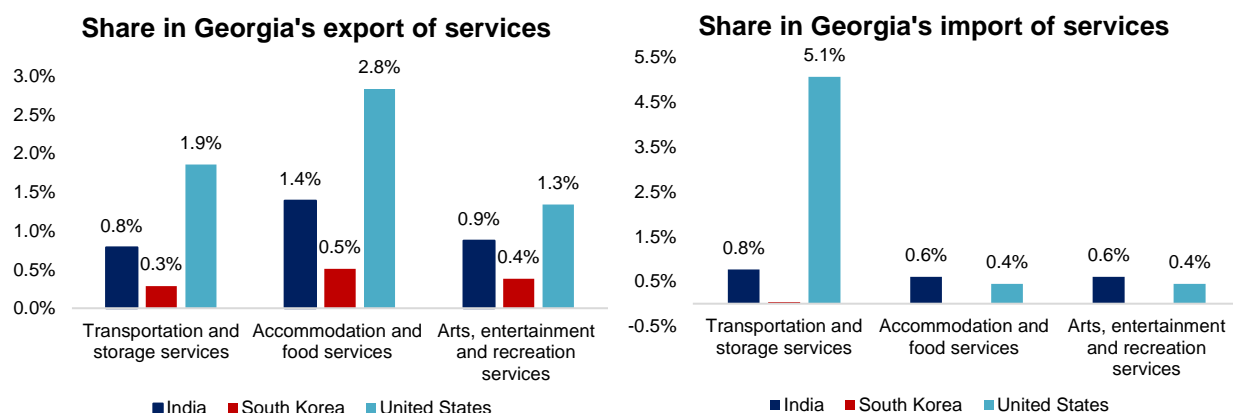
Source: Authors' calculations based on Geostat and NBG balance of payments data.

South Korea demonstrated a very small engagement for imports with 0.035% in transportation and storage services, 0.013% in accommodation and food services, and 0.013% in arts, entertainment, and recreation services. In the case of exports, South Korea contributed 0.3%, 0.5%, and 0.4% in respective sectors.

Regarding the contribution to foreign direct investment, the United States has consistently played a significant role in Georgia's FDI inflow over the years, experiencing a notable increase in 2020, where it amounted to 17% of the total FDI flows (Chart 3). Notably, according to the preliminary data from Geostat, the top investor country in the third quarter of 2023 was the United States with FDI flow of USD 51.8 mln. Examining total FDI flows from India and South Korea to Georgia, Geostat statistics reveal that they constitute only a minor share of the total FDI inflow. South Korea experienced a consistent decline, starting at 2.5% in 2017 and decreasing over subsequent years to reach 0.1% in 2022. For India, the shares are even smaller, declining from 0.7% in 2019 to 0.01% in 2022.

Chart 3. The percentage share of the USA, India, and South Korea in total FDI inflow to Georgia
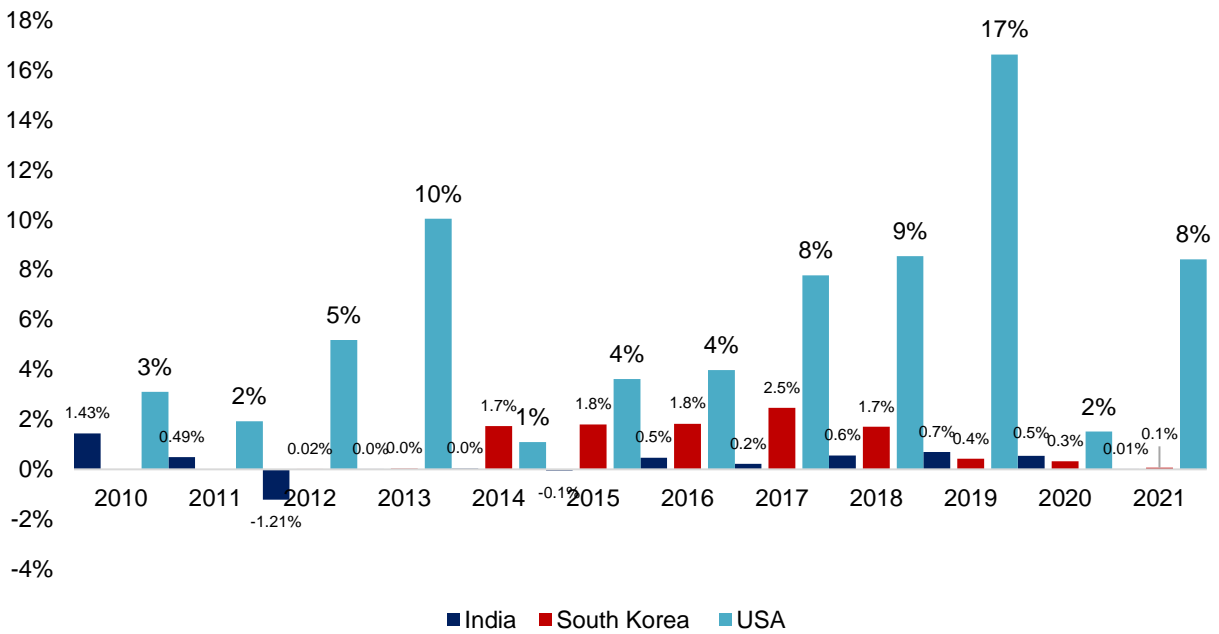
Source: Geostat

POLICY SCENARIOS

To capture the potentially deep integration elements of Georgia's FTAs, the model decomposes the potential reforms of the FTA into nine components. The nine components and the percent changes in the Ad Valorem Equivalents (AVEs)[8] of the barriers that we assume as part of the potential FTA are as follows:

   i.   20 percent reduction in AVEs of the time required for border compliance to import goods into Georgia from South Korea, India, and the USA.
   ii. 20 percent reduction in AVEs of the time required for border compliance to export goods from Georgia to South Korea, India, and the USA.
   iii. 20 percent reduction of Georgian AVEs of non-tariff barriers against imported goods from South Korea, India, and the USA.
   iv. 20 percent reduction of South Korean, Indian, and the USA's AVEs of its non-tariff barriers against Georgian goods.
   v.   full elimination of tariffs by Georgia on imports from South Korea, India, and the USA.
   vi. full elimination of tariffs by South Korea, India, and the USA on imports from Georgia.
   vii. 50 percent reduction of the AVEs of Georgian barriers on foreign direct investment in business services in Georgia.[9]
   viii. 50 percent reduction of the AVEs of Georgian barriers on cross-border provision of services by South Korean, Indian, and the USA providers of cross-border services.
   ix. 50 percent reduction of the AVEs of South Korean, Indian and the USA barriers on cross-border provision of services by Georgian providers of cross-border service.

In the baseline scenario, the model evaluates the impact of all nine components together. Nine additional scenarios are executed to assess the individual significance of the nine components of the baseline scenario.

Despite the diverse existing conditions and regulatory frameworks among the countries under consideration, our approach in defining policy scenarios is guided by the principle of ensuring consistency in the applied shocks across all countries. We were further guided by the rational used in a similar analysis conducted by Movchan et al. (2023). While our model allows simulation of a diverse range of trade liberalization scenarios with varying scales of shock, the reason behind opting for modest cuts (20 percent) in ad valorem equivalents of the time required for border compliance in trade is grounded in the fact that, for the USA, South Korea, and Georgia, border compliance costs are already comparatively lower. In the United States, the duration for border

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[8] Tariff equivalent expressed as a percentage.

[9] As there is no evidence of Georgian FDI in the business services markets of the USA, South Korea, and India, we do not analyze the effects of reductions by these countries on Georgian FDI in business services.

compliance is 2 hours, applicable to both exports and imports. In Georgia, the time to export required for border compliance is 6 hours, while the time to import is 13 hours for imports. In South Korea, the corresponding durations differ, with 13 hours for exports and 6 hours for imports. This is in contrast to India, as per the World Bank's 2020 Doing Business report, which indicates significantly higher requirements of 50 hours and 60 hours for border compliance for export and import, respectively. Despite these differences, as previously mentioned, for consistency in policy shock across all analyzed countries, we have considered a 20% reduction in AVEs of the time required for border compliance in trade with India as well.

The time for border compliance encompasses time for obtaining, preparing, and submitting documents during port or border handling, customs clearance, and inspection procedures. Importantly, a great portion of the time costs in trade arise from physical distance and infrastructure deficiencies. Acknowledging that trade policy interventions alone cannot address these deficiencies and considering that the chosen transport routes are already optimized, we segregate this component from the overall time in trade cost. Consequently, the shock is applied solely to the time required for border compliance. In future applications, it is possible to simulate the time saved in trade due to improvements in infrastructure. Our model allows the estimation of the impacts resulting from such investments.

As for tariff elimination, the mutual reduction of tariffs on goods is considered to be a fundamental element of preferential trade agreements. As such, we presume that potential FTAs considered would lead to the complete reciprocal elimination of tariffs.

Selecting a moderate 20 percent reduction in the ad valorem equivalent of non-tariff barriers is informed by the rationale that Georgia's legislation does not consider non-tariff measures, such as licenses, quotas, prohibitions, and similar limitations, unless deemed necessary for healthcare, security, or environmental protection. Notable regulatory measures applied by Georgia include permits for the import of goods subject to phytosanitary and veterinary control, electronic surveillance means, materials of limited circulation, nuclear and radioactive objects, arms and ammunition, dual-use items, medicines and pharmaceuticals subject to special control, non-iodized salt, and species listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).[10] Quotas are also imposed on imports of ozone-depleting substances.[11] The third Trade Policy Review of Georgia by the WTO Secretariat, released by the end of 2022, notes that Georgian legislation on technical barriers to trade aligns with international best practices and norms. The report highlights substantial efforts made to develop the technical regulation infrastructure and the national standardization system to the level of the EU acquis.

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[10] https://www.economy.ge/?page=ecopolitic&s=12&lang=en. See also the Law of Georgia on Licenses and Permits.

[11] Resolution No. 286 of 2023 of Georgian Government on Technical Regulation – Rules for Import, Export, Re-export, and Transit of Substances Contemplated under the Montreal Protocol on Substances that Deplete the Ozone Layer of 1987, its Annual Quotas, and Permit Form

Still, there might be room for improvement. For the purpose of our analysis, AVEs of non-tariff barriers on trade in goods are taken from Kee et al. (2009) which estimate the tariff equivalent of non-tariff barriers (NTB), capturing the trade policy distortions that each country imposes on its import bundle. For Georgia, the estimates for the aggregate sectors of agricultural and manufacturing are 15.3% and 8.6%, respectively.

In the scope of our analysis, we haven't examined the regulatory environments of India, South Korea, and the USA. In general, distinguishing between legitimate regulations to protect health, safety, and environment and those that are protective for market reasons proves to be a complex task (Movchan et al., 2023). Given these complexities and the desire for a consistent policy shock across all examined countries, we have considered a 20% reduction in non-tariff measures applied by the USA, India, and South Korea on imported goods from Georgia. For future applications of the CGE model, one can consider performing an additional analysis using updated estimates of ad valorem equivalents of non-tariff barriers for the relevant countries. This analysis should factor in any progress stemming from recent trade facilitation measures and enable the formulation of more realistic or desirable policy scenarios.

Our analysis also considers the potential impact of a substantial 50 percent reduction in the ad valorem equivalents of the barriers against both FDI and cross-border services, as in modern FTAs, a notable feature is the inclusion of commitments to service suppliers in partner countries.

IMPACT OF TRADE LIBERALIZATION BETWEEN GEORGIA AND THE USA, INDIA, AND SOUTH KOREA: AGGREGATE RESULTS

Welfare gains

As Figure 1 shows, simultaneous establishment of the deep integration free trade agreements with the USA, South Korea, and India will positively impact the Georgian economy, creating an annual recurring gain of 0.82 percent of the real household income. The welfare gains are presented as the change in real income of the representative Georgian household.[12] Among the three countries, the FTA with the USA promises to be most beneficial for Georgia reaching 0.59 percent of Georgia's real household income. This impact represents the collective effect arising from the nine components of the mentioned FTAs.

Figure 1. Welfare gains of the FTAs with South Korea, India, and the USA, percentage change in real household income
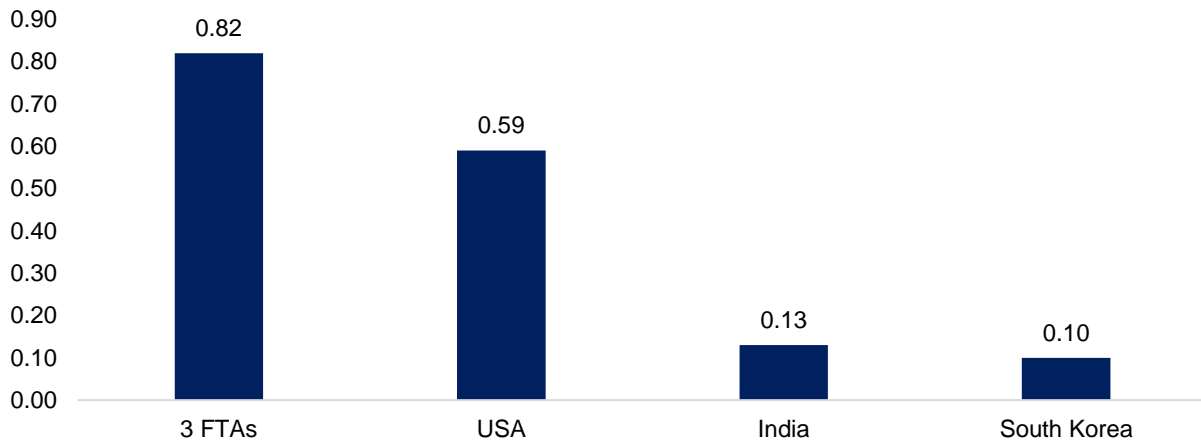
Source: Authors' calculations based on the CGE trade model for Georgia

The decomposition of impacts across nine components of the baseline scenario shows that the most significant welfare gains are generated by reducing the non-tariff barriers (NTBs) on services and goods (Figure 2). The results indicate that the benefits resulting from the reciprocal reduction of barriers on services between Georgia and the USA, South Korea, and India amount to 0.25 percent of real household income. Mutual reduction of NTBs on goods accounts for 0.18 percent of real household income for Georgia.

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[12] In our model, this is equivalent to Hicksian equivalent variation as a percent of consumption.

Figure 2. Welfare gains of the FTAs with South Korea, India, and the USA, percent change in real household income

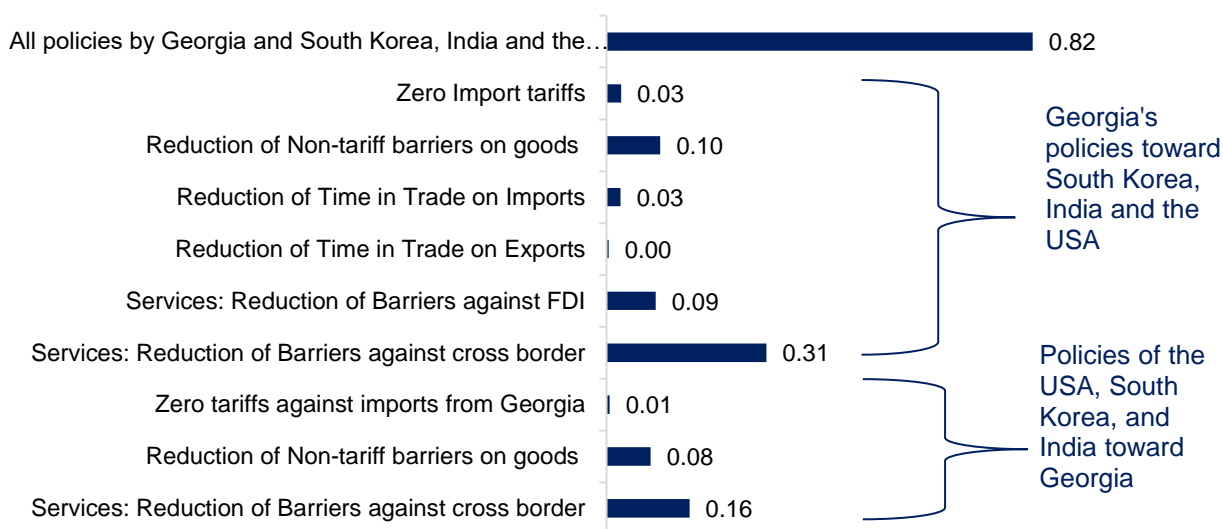*Source: Authors' calculations based on the CGE trade model for Georgia*

The other important factor of potential deep integration FTA as depicted in Figure 2 is the reduction of barriers against FDIs in Georgia, amounting to 0.09 percent of real household income. Our CGE model features business service sectors with FDIs.[13] Ad Valorem Equivalents of Barriers to FDI in services are estimated by Modebadze (2009) for Georgia based on a detailed questionnaire survey (and information taken from the literature) on existing regulatory barriers and discriminatory restrictions. The author calculates the tariff equivalent for both the non-discriminatory and discriminatory barriers to investments. The discriminatory barriers measure restrictions that apply to foreign firms only, while non-discriminatory barriers apply to all (domestic as well as foreign) firms. While our model features non-discriminatory barriers in several service sectors, the FDI liberalization policy scenario applies to discriminatory barriers that are present only in the insurance sector and are estimated at 21.9%. The identified regulatory barriers in this context include restrictions on joint venture arrangements. Additionally, the policy prohibits foreign insurance companies from offering any type of cross-border insurance services to residents in Georgia. (Modebadze, 2009). For the banking sector, the estimate is 0. Therefore, for the aggregate sector of financial and insurance activities used in our CGE model, we take the weighted average of these two values.[14] As of 2022, the financial and insurance activities attracted 26% of total FDI inflows in Georgia. We have estimated foreign ownership shares in

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[13] These service sectors are wholesale and retail trade; transportation and storage services; telecommunications; financial and insurance services; and legal and accounting services.

[14] Using estimates from Modebadze (2009), we consider AVEs of non-discriminatory barriers in the transport sector, financial and insurance activities, and telecommunications services.

these sectors by country. [15] Importantly, we were able to determine benchmark values disaggregated by sectors only for the USA, which exhibits high market shares, 18% and 11% in financial and insurance services, respectively, as of 2019. Based on available data, the outcomes related to reducing barriers against FDI should be attributed solely to the potential FTA with the United States.

Figure 2 further shows that the elimination of import duties will have a minor impact on welfare gains, contributing to a total of 0.04 percent of real household income in Georgia.

It is noteworthy that the welfare gains have somewhat different origins in different FTAs. In the case of the FTA with the USA, reducing barriers on cross-border imports of services and barriers against the FDIs results in the most significant gains, followed by the liberalization of the non-tariff obstacles on goods in Georgia and the USA (Figure 3).

Figure 3. Welfare gains of the FTAs with the USA, percent change in real household income
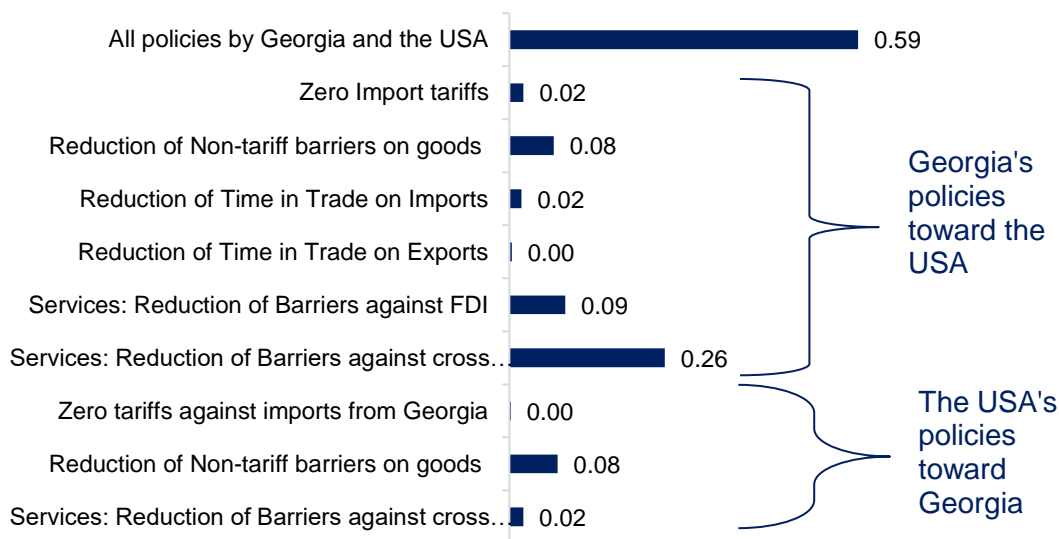
Source: Authors' calculations based on the CGE trade model for Georgia

For FTAs with India and South Korea, liberalizing non-tariff barriers on cross-border Georgian services is the key (Figure 4 and Figure 5, respectively). The scenario involving the reduction of

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[15] Due to the data limitations, the only service sectors for which we could disaggregate foreign ownership shares by countries are Telecommunications and Financial and Insurance Activities. To make our calculations feasible and identify the country of origin for FDI by sectors, we have focused on the top companies with high market shares. This included the 12 largest banks out of 15 registered commercial banks; 10 largest microfinance institutions (MFIs) out of 39 registered MFIs; and all 17 registered insurance companies). Our approach involves calculating the output value of these selected companies and examining their shareholder structure by country. We specifically analyze the citizenship of the ultimate owners of the company to determine the source of FDI in these sectors.

barriers to FDI of these countries does not yield any changes for Georgia due to the absence of benchmark FDI data disaggregated by sector, as explained previously. Therefore, FDI liberalization scenario is excluded from the respective charts.

Figure 4. Welfare gains of the FTAs with India, percent change in real household income
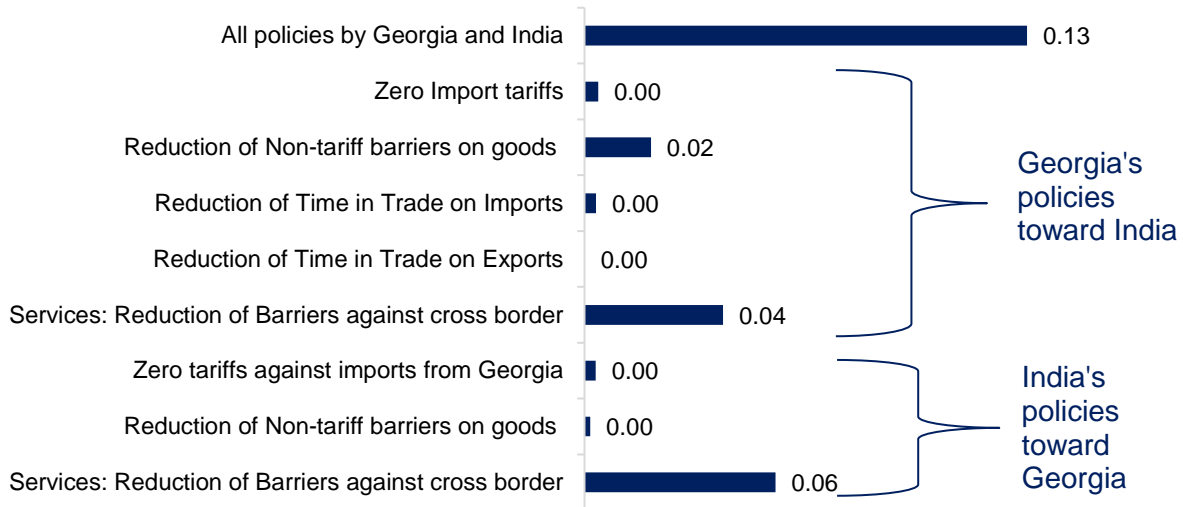
Source: Authors' calculations based on the CGE trade model for Georgia

Figure 5. Welfare gains of the FTAs with South Korea, percent change in real household income
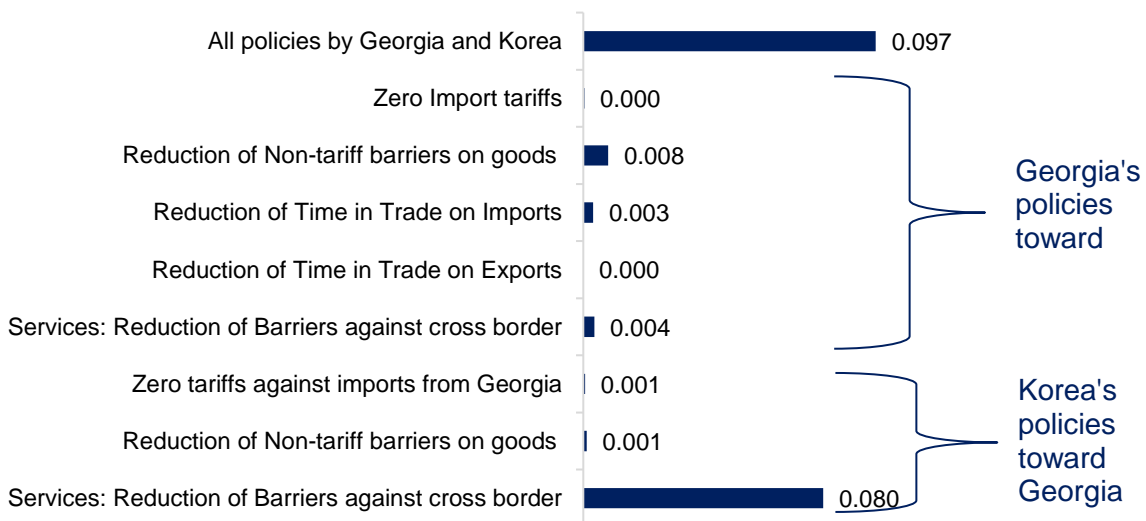
Source: Authors' calculations based on the CGE trade model for Georgia

Impact on real GDP and other macroeconomic variables

In terms of the impact on real Gross Domestic Product (GDP), the three FTAs jointly result in a 0.25% annual recurring gain in real GDP for Georgia (Figure 6), largely attributed to the FTA with the US as outlined in Table 1. Figure 6 demonstrates the relative significance of the reduction of barriers on cross-border import of services by Georgia in shaping the impact on real GDP.

Figure 6. Impact of the FTAs with the USA, South Korea, and India on Georgia's real GDP, percent change
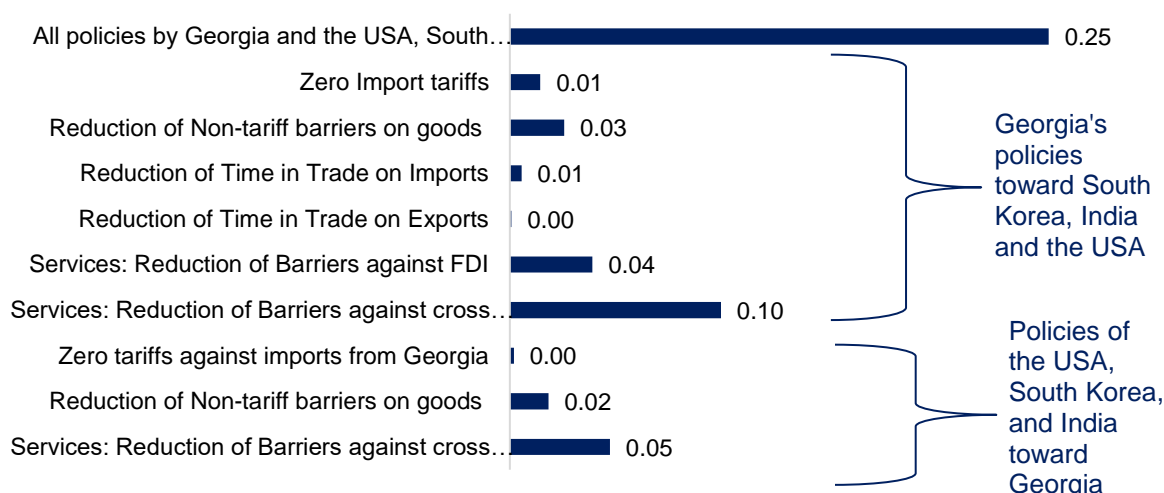
Source: Authors' calculations based on the CGE trade model for Georgia

Table 1 further presents the impact of three potential FTAs on different macroeconomic variables. The overall impact reflects a 0.53% increase in aggregate exports and a 0.34% rise in imports in Georgia, with a significant contribution from the FTA with the US. We maintain a constant balance of trade while enabling the real exchange rate to freely fluctuate.

Table 1: Macroeconomic impact of FTAs with the USA, India, and South Korea (% change)

	Three countries	USA	India	South Korea
Aggregated impact (in real terms)				
Welfare	0.82	0.59	0.13	0.10
Real GDP	0.25	0.18	0.04	0.03
Total exports	0.53	0.39	0.08	0.06
Total imports	0.34	0.25	0.06	0.04
Real Exchange rate	-0.06	-0.02	-0.01	-0.03
Factor Income (in real terms)				
Return on capital	0.38	0.29	0.05	0.03
Wages of hired employees, skilled	-0.28	-0.20	-0.05	-0.03
Wages of hired employees, unskilled	0.18	0.11	0.04	0.03
Earnings of Self-employed, skilled	0.44	0.31	0.08	0.06

Earnings of Self-employed, unskilled	0.65	0.46	0.11	0.08
Factor Adjustments*				
Capital	0.20	0.15	0.03	0.03
Hired employees, skilled	0.29	0.20	0.05	0.04
Hired employees, unskilled	0.22	0.15	0.04	0.03
Self-employed, skilled	0.18	0.14	0.03	0.03
Self-employed, unskilled	0.10	0.08	0.02	0.01
Fiscal Impact				
Change in import duty revenues	-15.84	-12.96	-2.62	-0.27

Source: Authors' calculations based on the CGE trade model for Georgia
* Percentage of the production factors that must change sectors.

As demonstrated in Table 1, the returns on most production factors are positive in all three FTAs, except for the wages for hired skilled employees. Notably, the unskilled self-employed individuals are expected to gain the most. Concerning skilled labor income, the obtained results can be attributed to the fact that skilled labor is disproportionately employed in sectors that face decline. We observe skilled labor intensity in sectors experiencing relatively high reductions in output, such as Public administration and defense services; Scientific research and development services; Arts, entertainment and recreation services; Human health services; and Education services, with public administration leading at -1.53%. As in our model, we opt for not fixing the production of public administration, simulation results indicate the potential direction of the sector development, with negative values suggesting a lack of competitiveness of declining sectors.

Table 1 further presents insights into the impact on production factor adjustments, specifically the percentage of factors that are expected to change sectors. The results highlight that only a small percentage of all production factors are expected to undergo changes. Although we estimate about only one worker in 200 will change jobs and many of these workers will leave voluntarily for higher paying jobs, there are adjustment costs to consider). In addition, this impact is only observed in the medium or long term when there is a redistribution of factors of production and, consequently, there is a complete adjustment of the economy to shock. It is important to note that these results are contingent upon the assumption of full mobility for most production factors (excluding specific capital such as land and limited minerals) employed by the model. Additionally, the model assumes no changes in unemployment, therefore the available workforce continues to be fully utilized.

Table 1 further shows the fiscal impacts. The three FTAs will reduce the import duty revenues by 15.84%, with the FTA with the United States estimated to contribute to a 12.96% decrease.

Impact on trade flows

The FTAs will cause an increase in both exports and imports, but regional effects will be non-uniform. As Table 2 below shows, exports will increase for all destinations, signaling increased Georgian competitiveness, while in imports, we see signs of trade diversion.

Table 2: Trade impact (in real terms) of FTAs with the USA, India, and South Korea (% change)

	Three countries		USA		India		South Korea	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Total	**0.53**	**0.34**	**0.39**	**0.25**	**0.08**	**0.06**	**0.06**	**0.04**
Armenia	0.37	-1.28	0.29	-1.20	0.06	-0.14	0.02	0.05
Azerbaijan	0.57	-0.31	0.43	-0.32	0.10	-0.02	0.05	0.03
China	0.54	0.16	0.50	0.13	0.04	0.02	0.01	0.01
EU	0.42	-0.10	0.38	-0.12	0.04	-0.01	0.01	0.03
Other FTAs	0.39	-0.34	0.30	-0.33	0.06	-0.05	0.02	0.04
India	11.61	12.28	0.12	-0.25	11.43	12.69	-0.02	0.03
South Korea	1.39	2.31	0.00	0.14	-0.02	0.03	1.40	2.16
Russia	0.37	-0.03	0.31	-0.06	0.05	-0.01	0.01	0.04
Turkey	0.29	0.01	0.26	-0.01	0.03	0.00	0.00	0.02
USA	2.50	6.47	2.49	6.48	0.02	-0.01	-0.01	0.01
Rest of the world	0.13	-0.06	0.14	-0.08	0.01	0.01	-0.02	0.02

Source: Authors' calculations based on the CGE trade model for Georgia

Considering bilateral trade flows between Georgia and the USA, South Korea, and India, resulting from each individual FTA, we can pinpoint the origins of the gains by referring to Figures 7, 8, and 9 below.

The potential deep integration FTA between Georgia and the USA would result in a 2.49% increase in Georgia's total exports of goods and services to the United States, while imports is expected to rise by 6.48%. Reduction of NTBs on goods imported from Georgia and the USA's reduction of barriers on cross-border import of services are expected to increase the most the Georgia's exports to the partner country (Figure 7.1). Notably, Georgia already benefits from the Generalized System of Preferences regime with the United States, which establishes lower tariffs on 3,400 goods exported from Georgia. Consequently, the complete elimination of tariffs by the USA on goods imported from Georgia is expected to have a comparatively lower impact.

For import flows, the most significant components of FTA would be the reduction of barriers on cross border services by Georgia, as well as elimination of import duties and reducing non-tariff barriers on goods imported from the USA (Figure 7.2).

Figure 7.1. The impact of the Georgia-USA FTA on Georgia's total exports to the United States by policy scenario (% change)

- Zero Import tariffs by Georgia
- Reduction of Non-tariff barriers on goods by Georgia
- Reduction of Time in Trade on Imports
- Reduction of Time in Trade on Exports
- Services: Reduction of Barriers against FDI
- Reduction of Barriers against cross border services by Georgia
- Zero tariffs against imports from Georgia
- Reduction of Non-tariff barriers on goods imported from Georgia
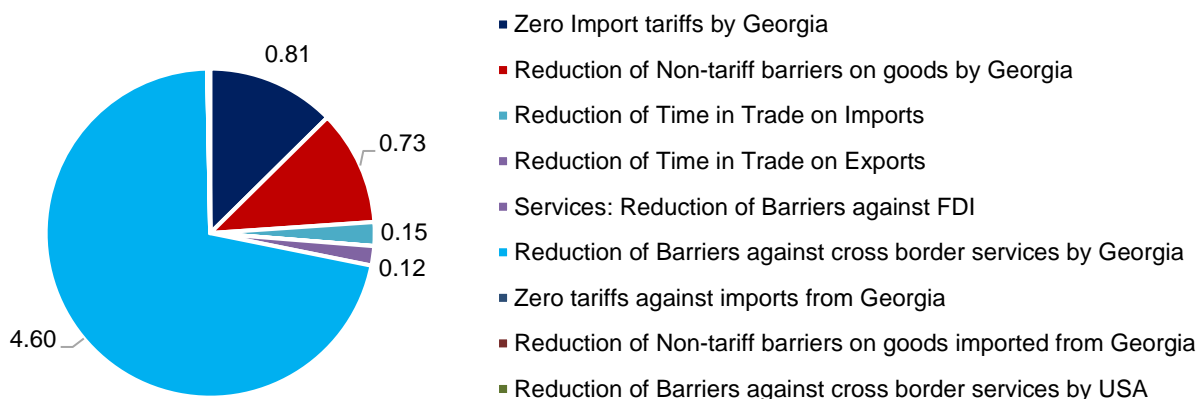- Reduction of Barriers against cross border services by USA
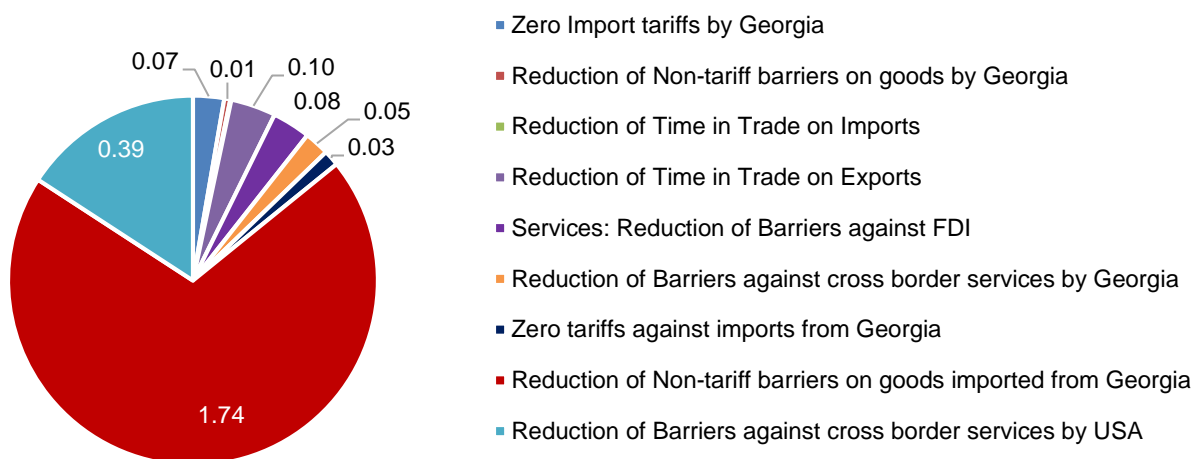
Source: Authors' calculations based on the CGE trade model for Georgia

Figure 7.2. The impact of the Georgia-USA FTA on Georgia's total imports from the United States by policy scenario (% change)

- Zero Import tariffs by Georgia
- Reduction of Non-tariff barriers on goods by Georgia
- Reduction of Time in Trade on Imports
- Reduction of Time in Trade on Exports
- Services: Reduction of Barriers against FDI
- Reduction of Barriers against cross border services by Georgia
- Zero tariffs against imports from Georgia
- Reduction of Non-tariff barriers on goods imported from Georgia
- Reduction of Barriers against cross border services by USA

Source: Authors' calculations based on the CGE trade model for Georgia

As a result of Georgia's deep integration FTA with India, exports are expected to grow by 11.43%, while imports would rise by 12.69%.

The most substantial increase in Georgia's trade flows to India is primarily attributed to the reduction of barriers for cross-border services (Figure 8.1 and Figure 8.2). Benchmark data indicates that Georgia's exports to India are currently limited. One of the most noticeable shares of India is in transport services (Chart 2), a sector which is highly protected in India. Tariff equivalent of Georgian barriers on cross border provision of transport services is also estimated

to be substantial (Jafari and Tarr, 2015).[16] Consequently, when examining the sectoral breakdown of this impact, it becomes evident that the most substantial influence is stemming from Georgia's increased exports and imports in transport services. In goods sectors, the impact is stemming from the export of products of agriculture, forestry, and fishing.[17]

Figure 8.1. The impact of the Georgia-India FTA on Georgia's total exports to India by policy scenario (% change)
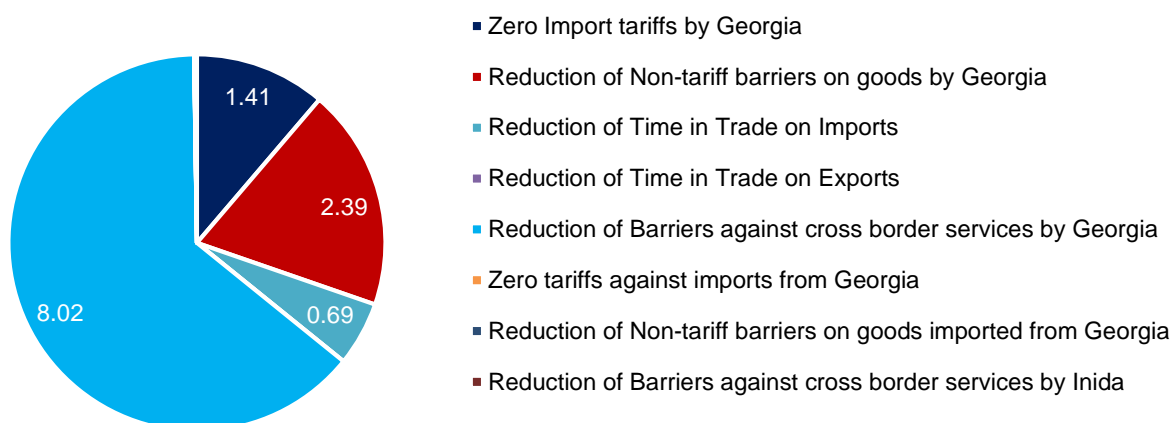

Source: Authors' calculations based on the CGE trade model for Georgia

Regarding imports, along with reduction of Georgian barriers on cross-border provision of services, other critical components of the FTA include the elimination of tariffs by Georgia and the reduction of non-tariff barriers on goods imported from India (Figure 8,2). Analyzing the sectoral distribution of imports reveals that in the services sectors, the observed effects primarily stem from increased transport services, along with contributions from legal and accounting services. In the goods sectors, due to the aforementioned liberal policies of Georgia toward India, anticipated effects are notably observed in the mining and quarrying sector, imports of products related to agriculture, forestry, and fishery, as well as in imports of rubber and plastics products and other non-metallic mineral products.

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[16] Tariff equivalent of Indian barriers for cross-border provision of transport services is estimated to be 79%. The same estimate for Georgia is 39%, considering all means of transport (air, rail, road, and maritime).

[17] NACE divisions of 01-03. These sectors are: Crop and animal production, hunting and related service activities; Forestry and logging; and Fishing and aquaculture.

Figure 8.2. The impact of the Georgia-India FTA on Georgia's total imports from India by policy scenario (% change)

- ▪ Zero Import tariffs by Georgia
- ▪ Reduction of Non-tariff barriers on goods by Georgia
- ▪ Reduction of Time in Trade on Imports
- ▪ Reduction of Time in Trade on Exports
- ▪ Reduction of Barriers against cross border services by Georgia
- ▪ Zero tariffs against imports from Georgia
- ▪ Reduction of Non-tariff barriers on goods imported from Georgia
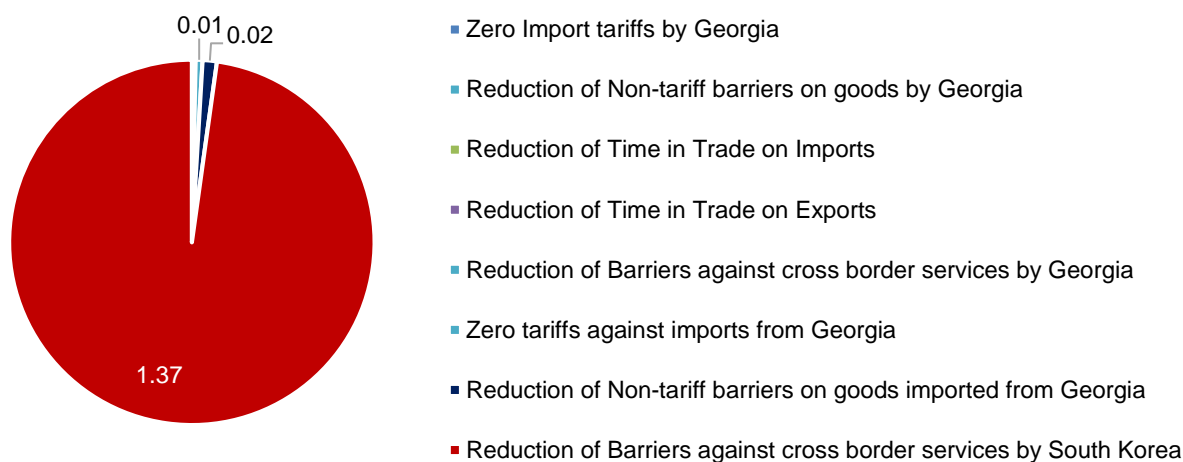- ▪ Reduction of Barriers against cross border services by Inida

Source: Authors' calculations based on the CGE trade model for Georgia

Figures 9.1 and 9.2 depict the distribution of the impact of the Georgia-South Korea FTA on Georgia's total exports and imports to South Korea across various components of the potential agreement. The anticipated outcome of the FTA is a 1.40% increase in Georgia's total exports to South Korea, coupled with an expected rise of 2.16% in imports from this country.

In the context of export flows, the primary source of impact is the reduction of barriers for cross-border services by South Korea, as illustrated in Figure 9.1. Notably, the major influence is attributed to transport services and legal and accounting services. The latter sector is highly protected in South Korea, evidenced by a substantial ad valorem equivalent of barriers on cross-border provision amounting to 49% (Jafari and Tarr, 2015). The level of protection of transport services in South Korea is comparatively lower at 9%.[18]

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[18] As of 2019, the share of South Korea in Georgia's total exports of transport services and legal and accounting services is estimated at 0.3% and 0.1%, respectively. Because of data limitations, the country distribution of legal and accounting services export is proportionally aligned with the country distribution of the export of goods.

Figure 9.1. The impact of the Georgia-South Korea FTA on Georgia's total exports to South Korea by policy scenario (% change)

Legend:
- Zero Import tariffs by Georgia
- Reduction of Non-tariff barriers on goods by Georgia
- Reduction of Time in Trade on Imports
- Reduction of Time in Trade on Exports
- Reduction of Barriers against cross border services by Georgia
- Zero tariffs against imports from Georgia
- Reduction of Non-tariff barriers on goods imported from Georgia
- Reduction of Barriers against cross border services by South Korea

Values: 0.01, 0.02, 1.37

Source: Authors' calculations based on the CGE trade model for Georgia

Concerning imports, the impact on Georgia's imports from South Korea is shaped by the reduction of Georgian non-tariff barriers on goods imported from South Korea, coupled with the reduction of barriers against cross-border provision of services and improvements in time in trade (Figure 9.2). Within the goods sectors, impacts are mainly observed in the import of products of agriculture, forestry, and fishing. Meanwhile, in the service sectors, the effects are primarily generated from the increased imports of transport, as well as legal and accounting services.

Figure 9.2. The impact of the Georgia-South Korea FTA on Georgia's total imports from South Korea by policy scenario (% change)

Legend:
- Zero Import tariffs by Georgia
- Reduction of Non-tariff barriers on goods by Georgia
- Reduction of Time in Trade on Imports
- Reduction of Time in Trade on Exports
- Reduction of Barriers against cross border services by Georgia
- Zero tariffs against imports from Georgia
- Reduction of Non-tariff barriers on goods imported from Georgia
- Reduction of Barriers against cross border services by South Korea

Values: 0.02, 0.11, 0.61, 0.91, 0.48

Source: Authors' calculations based on the CGE trade model for Georgia

Sectoral impacts

Most sectors of the Georgian economy are estimated to benefit from the conclusion of the three FTAs (Table 3). Petroleum processing is expected to gain the most. Other manufacturing sectors with high positive gains are textile and clothing, metal manufacturing, chemical industry. The agriculture and food sector will also gain, with the food featuring higher output growth. At the same time, the hospitality sector might face a slight reduction in output due to the reallocation of some factors of production (labor and capital) into now relatively more competitive goods-producing sectors.

Notably, positive and negative signs indicate potential direction of the impact that model generates. If a sector shows a reduction, particularly without a direct shock on it, this shows that the sector is less competitive and releases resources. The actual flexibility and mobility of production factors in reality raise questions. For individuals to reallocate between sectors, at least it is necessary to train them even in the case of proper price/wage stimuli. Therefore, active labor policies will be needed to facilitate and sustain these predicted changes or to mitigate associated shocks. Furthermore, sector competitiveness can be enhanced through the adoption of technologies and the utilization of previously untapped resources that the model does not take into account (keeping in mind that the model assumes no change in unemployment. A given labor force remains available and utilized). Therefore, these results serve as a valuable starting point for discussion, guiding attention to areas that warrant policy consideration, rather than focusing solely on interpreting the magnitude of the impact.

Table 3. Changes in output by sector, % (scenario of three FTAs)

Coke and refined petroleum products	1.08	Administrative and support services	0.33
Social work services	0.79	Machinery and equipment n.e.c.	0.29
Textiles, wearing apparel and leather products	0.71	Computer, electronic and optical products	0.28
Wholesale and retail trade services	0.70	Electricity, gas, steam and air conditioning	0.27
Services of households as employers	0.66	Products of agriculture, forestry and fishing	0.23
Basic metals and fabricated metal products	0.61	Water supply and sewerage	0.20
Publishing, audiovisual and broadcasting services	0.58	Advertising and market research services;	0.15
Chemicals and chemical products	0.58	Financial and insurance services	0.14
Other services	0.56	Constructions and construction work	0.10
Food products, beverages and tobacco products	0.51	Transport equipment	0.08
Rubber and plastics products	0.46	Computer programming, consultancy and related services	0.04

Electrical equipment	0.44	Furniture; other manufactured goods; repair and installation services of machinery and equipment	0.03
Mining and quarrying	0.44	Accommodation and food services	-0.14
Wood and paper products, and printing services	0.43	Education services	-0.24
Legal and accounting services;	0.43	Human health services	-0.52
Telecommunications services	0.43	Arts, entertainment and recreation services	-0.57
Real estate services	0.38	Scientific research and development services	-1.13
Basic pharmaceutical products and preparations	0.35	Public administration and defence services	-1.53
Transportation and storage services	0.33		

Source: Authors' calculations based on the CGE trade model for Georgia

Exports will increase for most sectors, with service sectors leading in the growth rates. Out of the industrial sectors, the most substantial increase is for metal manufacturing, and textile and clothing (Table 4).

Table 4. Changes in exports by sector, % (scenario of three FTAs)

Legal and accounting services	3.4	Basic pharmaceutical products and preparations	0.3
Financial and insurance services	1.7	Electrical equipment	0.3
Transportation and storage services	1.6	Transport equipment	0.3
Basic metals and fabricated metal products	1.0	Electricity, gas, steam and air conditioning	0.3
Wholesale and retail trade services	0.8	Administrative and support services	0.3
Textiles, wearing apparel and leather products	0.7	Machinery and equipment n.e.c.	0.3
Food products, beverages and tobacco	0.7	Water supply and sewerage	0.2
Mining and quarrying	0.7	Constructions and construction work	0.0
Chemicals and chemical products	0.6	Computer programming, consultancy and related services	0.0
Publishing, audiovisual and broadcasting services	0.5	Furniture; other manufactured goods; repair and installation services of machinery and equipment	0.0
Coke and refined petroleum products	0.5	Accommodation and food services	-0.2
Other services	0.5	Education services	-0.3
Telecommunications services	0.5	Human health services	-0.6
Rubber and plastics products	0.5	Arts, entertainment and recreation services	-0.6

Wood and paper products, and printing services	0.4	Scientific research and development services	-1.2
Computer, electronic and optical products	0.4	Public administration and defence services	-1.6
Products of agriculture, forestry and fishing	0.4		

Source: Authors' calculations based on the CGE trade model for Georgia

As Table 5 shows, the highest growth in imports is in wholesale and retail trade, textile and clothing, and food industry.

Table 5. Changes in imports by sector, % (scenario of three FTAs)

Wholesale and retail trade services	0.77	Basic pharmaceutical products and preparations	0.31
Textiles, wearing apparel and leather products	0.71	Electrical equipment	0.31
Food products, beverages and tobacco products	0.68	Rubber and plastics products	0.29
Other services	0.67	Transportation and storage services	0.26
Telecommunications services	0.57	Water supply and sewerage	0.22
Products of agriculture, forestry and fishing	0.57	Machinery and equipment n.e.c.	0.21
Chemicals and chemical products	0.57	Computer programming, consultancy and related services	0.07
Publishing, audiovisual and broadcasting services	0.48	Advertising and market research services	0.05
Financial and insurance services	0.46	Accommodation and food services	0.03
Coke and refined petroleum products	0.46	Constructions and construction works	0.03
Mining and quarrying	0.45	Transport equipment	-0.01
Legal and accounting services	0.44	Furniture; other manufactured goods; repair and installation services of machinery and equipment	-0.09
Wood and paper products, and printing services	0.42	Education services	-0.29
Basic metals and fabricated metal products	0.42	Arts, entertainment and recreation services	-0.47
Computer, electronic and optical products	0.41	Human health services	-0.55
Electricity, gas, steam and air conditioning	0.37	Scientific research and development services	-1.03
Administrative and support services	0.34	Public administration and defence services	-1.52

Source: Authors' calculations based on the CGE trade model for Georgia

CONCLUSIONS AND RECOMMENDATIONS

ISET Policy Institute has developed CGE trade model, which enables us to analyze potential benefit of various trade agreements and support policy-makers in making important policy decisions. The current model developed for Georgia explores different policy scenarios to capture the deep integration elements of potential FTAs with the USA, India, and South Korea. Overall, new FTAs will be beneficial for Georgia. Annual gains include a 0.82 percent rise in real household income, with the USA FTA taking the lead, contributing significantly at 0.59 percent. Additionally, the expected impact of FTAs with South Korea and India individually amounts to approximately 0.1 percent of Georgia's real household income each. The three FTAs jointly result in a 0.25 percent annual recurring gain in real GDP for Georgia, here again the USA leading with 0.18 percent. We estimate that about one worker out of every 300-400 employed individuals will change jobs. However, there are adjustment costs, suggesting the necessity of considering retraining programs for the newly available jobs.

The insights from the CGE model serve as a guide for policymakers in navigating trade reforms and negotiating potential FTAs with countries of interest. Based on obtained results, promoting deep preferential integration with trading partners is recommended, especially by addressing non-tariff barriers for goods, easing restrictions on FDI and reducing barriers against cross-border services. These elements of deep integration are identified as critical factors that significantly enhance consumers' welfare gains and real GDP. Importantly, along with trade in goods, most of Georgia's existing FTAs contain provisions on trade in services, technical barriers to trade, sanitary and phytosanitary measures, public procurement, competition, investments, and other trade-related issues. In its third Trade Policy Review of Georgia released in 2022, WTO secretariat acknowledged Georgia's liberal and simple tariff system and its efforts to enhance trade facilitation through modernized customs procedures. However, the report underscores the necessity for additional reforms to address inadequate legal protection for foreign investment and identifies areas for improvement, including the level of competition and foreign participation in government procurement. These insights further highlight the need for reform of foreign investment legislation in Georgia.

Notably, Georgia's journey towards the EU accession and plans for new FTAs presents opportunities for strategic alignment with the union, benefiting the economy and contributing to positive trade dynamics. Importantly, all three countries considered in this analysis either have an FTA with the EU (as in the case of South Korea) or are in the process of negotiations (USA and India). In this collaborative journey, these nations should be harmonizing their regulations and standards with the European Union, along with Georgia. The introduction of the Authorized Economic Operator (AEO) programme in Georgia, coupled with other trade-related reforms in alignment with the Association Agreement with the EU, opens promising opportunities for trade

facilitation with the countries of interest. These initiatives also facilitate negotiations surrounding FTAs by demonstrating a commitment to regulatory alignment and fostering a conducive environment for international trade.

Exploring non-tariff barriers more deeply to reflect recent and upcoming improvements in trade policies and the regulatory environment is crucial, especially in the context of changes that Georgia need to implement upon being granted the candidate status with the EU to start negotiations and eventually facilitate accession in the future. Currently, model estimates rely on existing studies in the literature, that in their scope are separate projects requiring extensive analysis to get ad valorem estimates of the barriers on goods and services. Apart from this, a natural extension of the model could involve updating the datasets with the most recent available figures.

Furthermore, CGE model available at ISET Policy Institute holds great potential for other applications. The primary advantage of this model is its adaptability, as the model can be modified to simulate a broad spectrum of trade liberalization scenarios. In addition, Georgia's various trading partners/group of countries,[19] along with the USA, South Korea, and India, are separated from the rest of the world and modeled as an external region. This design allows incorporation of potential changes in trade relations with these countries into the model. With a relatively greater effort, the model establishes a framework for evaluating the impact of Georgia's other potential free trade agreements with different countries under consideration. The successful implementation of this task necessitates comprehensive data collection for each respective country of interest.

While our CGE model already features certain business services with foreign direct investments, future model enhancements could consider expanding service sectors and including the good sectors with FDI, as well as simulating a reduction in non-discriminatory barriers to investments. This expansion would necessitate extensive analysis of existing regulatory barriers and restrictions to investments affecting local and foreign firms in different sectors. Additionally, future applications could incorporate the effects of infrastructure and policy developments aimed at optimizing time in trade costs beyond its border compliance component. Finally, the model can be extended to capture the impacts of non-trade related developments in external economic relations, such as recent migration flows in Georgia.

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[19] 1) Armenia; 2) Azerbaijan; 3) China plus Hong Kong; 4) European Union (EU), European Free Trade Association (EFTA), and Great Britain; 5) Other FTA countries: Uzbekistan, Turkmenistan, Kazakhstan, Moldova, and Ukraine; 6) Russia; and 7) Turkey.

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APPENDIX 1. OVERVIEW OF THE MODEL AND DATA

The CGE model developed for Georgia by the ISET Policy Institute[20] is a small open economy model that focuses on trade and FDI flows. It closely resembles the CGE model previously constructed for Ukraine (Movchan et al., 2023). The economic structure is represented through 38 sectors based on Geostat's Supply and Use Tables. Each sector's production involves intermediate inputs of goods and services, along with primary factors such as capital and labor, latter distinguished by skill levels (skilled and unskilled) and employment types (hired and self-employed). Notably, agriculture and mining sectors include specific capital to reflect the importance of land or limited minerals in their production. Aggregate output can be exported to several different regions or sold on domestic markets. Output sold domestically together with imports from all trade partners, form the total aggregate of goods and services available for domestic consumption.

Production side

To reflect the technical characteristics of Georgia's economy, production is divided into perfectly and imperfectly competitive sectors. Each sector of the Georgian economy belongs to one of these distinct categories:

- Perfectly competitive goods and services sectors where production takes place under constant returns to scale for both domestic output and imports; imports are differentiated by country of origin.
- Imperfectly competitive goods sectors where firms interact under monopolistic competition and production takes place under increasing returns to scale; Imported goods are produced abroad with increasing returns to scale and interact with Georgian firms under monopolistic competition.

Business service sectors with foreign direct investment (FDI). Georgian firms operate under the monopolistic competition market structure and production takes place under increasing returns to scale. Foreign firms may invest and produce their services in Georgia (FDI). These FDI based firms produce in Georgia under increasing returns to scale and interact with Georgian firms and each other under monopolistic competition.

The perfectly competitive goods and services sectors are produced under constant return to scale. In equilibrium, there are zero profits for Georgian firms in each sector, so price equals average costs. Given constant returns to scale, prices are also equal to marginal costs.

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[20] The CGE model has been constructed under assistance from Sweden / Sida in 2021-2023.

For the imperfectly competitive goods and services sectors, the model applies Chamberlinian large group monopolistic competition within a Dixit-Stiglitz framework, resulting in constant mark-ups over marginal costs.

Firms set prices such that their marginal costs equal marginal revenues, and free entry implies zero profits. Individual firms regard themselves as too small to influence the composite price in their group. Moreover, the composition of fixed and marginal costs is identical for all firms producing goods or services under increasing returns to scale, leading to constant output per firm for all firm types.[21] As the number of firms in a sector increases, the more available varieties mean that output can be more efficiently put to use in the economy. This implies that the effective cost function for users of these goods and services declines in the number of total firms in the industry.

Based on Tarr et al. (2022), the model includes the extension of the standard Krugman, allowing all monopolistically competitive firms that sell in Georgia to face an additional fixed cost of selling in the country. In equilibrium, the import price must cover fixed and marginal costs. Therefore, unlike in the standard Krugman formulation, the trade cost changes affect the number of varieties available in the home market.

The model allows two types of business service provision by foreigners – through a cross-border trade and a domestic presence, i.e. FDI. As in the case of imperfectly competitive goods sectors, each firm produces differentiated products. In other words, multinational service firms make a Georgian region-specific variety in Georgia, distinguished from Georgian domestic varieties and the varieties of other multinational services firms. All firms (foreign and domestic) incur a fixed cost of operating in Georgia than cross-border services.

Foreign providers of services operating in Georgia through the domestic presence use both Georgian inputs and also import some technology or management expertise and intermediates of the parent firm. Thus, the cost functions for the FDI firms and Georgian firms differ to reflect this link of the FDI firms to their parents.

Consumption side

On the consumption side, the model distinguishes between final household consumption, intermediate consumption, investments, and government consumption. The model features one representative household. Among other incomes, households get all the economy's rent generated by tax wedges.

In perfectly competitive sectors, consumers treat imported and domestically produced goods as imperfect substitutes (Armington's assumption), while producers regard sales on domestic markets or exports as imperfect alternatives (the CET assumption). In imperfectly competitive

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[21] For proof, see Balistreri and Tarr (2022).

sectors, consumers treat the products of different firms as differentiated (firm-level product differentiation).

Trading partners

Exports and imports are disaggregated into eleven external trading partners: 1) Armenia; 2) Azerbaijan; 3) China plus Hong Kong; 4) European Union (EU), European Free Trade Association (EFTA), and Great Britain; 5) India; 6) Other FTA countries;[22] 7) Russia; 8) South Korea; 9) Turkey; 10) United States of America (USA); and 11) Rest of the world.

Taxes

The model differentiates between Personal Income Tax (PIT), Corporate Income Tax (CIT), Value Added Tax (VAT) on domestically produced goods and imports, excises and import duties. All import taxes are commodity- and region-specific and apply to all imports.

Trade barriers

The model distinguishes four types of trade barriers:

- Import duties.
- Non-tariff barriers on trade in goods.
- Time in trade costs, split into costs of border compliance costs and costs of transportation.
- Barriers to trade in services.

The model relies predominantly on data reported by Geostat. The unique dataset was constructed to reflect the trade in services by countries and sectors[23] for cross-border trade and the presence of foreign residents in the domestic market of services. Most of the datasets cover the year 2018, while some estimates are derived for 2019.

For import tariffs data, we are using ad valorem equivalents (AVEs) applied by Georgia and by partners at HS-6-digit level products. Non-tariff barriers on trade in goods are taken from Kee et al. (2009). Jafari and Tarr (2015) paper on barriers in services has been utilized to obtain estimates for partner countries. AVEs of barriers to FDI in Georgia are sourced from Modebadze (2009). For time in trade costs calculations, we multiply the AVE of the per day time in trade cost with the total time to export or import.[24] In the liberalisation scenarios, the shock is applied to border compliance costs. Time needed for boarder compliance in trade is extracted from the World Bank's Doing Business report.

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[22] Uzbekistan, Turkmenistan, Kazakhstan, Moldova, and Ukraine.

[23] Tourism, transportation, and other services.

[24] Following Olekseyuk (2020), the estimates of AVEs of per day time in trade costs from Minor (2013) aggregated to the sectors and regions of the model are used.

Assumptions

Before discussing the results, a few important caveats need to be made:

- Time horizon: the model allows us to assess the impact in the medium or long term when there is a reallocation of factors of production and, consequently, there is a complete adjustment of the economy to shock. The model assumes the mobility of most factors of production, except for specific capital (land and limited minerals).
- Use of factors of production: the model assumes full use of available factors of production (There is no change in unemployment. A given labor force is available, which continues to be fully utilized).
- Trajectory: the results do not indicate the trajectory of the economy's adaptation to the new state of equilibrium.
- Separation of shock: the results show the economic consequences of the pre-determined shock. They do not consider any other economic changes that may occur in the country simultaneously.

APPENDIX 2. DISTRIBUTION OF TRADE IN SERVICES BY COUNTRIES

This appendix describes methodological steps taken to estimate how services are distributed across countries.

The process involved three main steps:

1. Estimation of trade in services related to tourism activities;
2. Estimation of trade in transport services;
3. Estimation of trade in other services.

Initially, using Geostat's inbound tourism survey data from 2019,[25] we estimated the average spending of foreign nationals visiting Georgia by countries and spending categories. These spending categories encompassed Accommodation, Leisure, Recreation and Cultural Activities, Shopping, Local Transport, Durable Goods, Jewelry, Food and Beverages, and other. By multiplying these estimates by the number of international visitors, we determined the total spending of international visitors in Georgia, categorized by regions and spending types. Subsequently, we incorporated the calculated shares of total spending by countries and spending categories into the respective NACE classification sectors utilized in our model. Specifically, we applied the spending on accommodation and food and beverages across countries for the export of the Accommodation and Food Services sector. The spending on leisure, recreation, and cultural activities was attributed to the export of the Arts, Entertainment, and Recreation Services sector. The same approach was employed to estimate the imports for the Accommodation and Food Services sector and Arts, Entertainment, and Recreation Services. The only distinction lies in our assumption, prompted by data limitations, that the spending of Georgian residents abroad, broken down by the visited country, is proportionate to the distribution of the number of visits abroad. This implies that Georgian citizens who travel abroad spend, on average, the same amount of money in all destinations.

Regarding transportation and storage services, we utilized NBG's balance of payment data, which is disaggregated by the means of transport and categorized into passenger and freight transport. Simultaneously, we incorporated Geostat's inbound tourism survey data from 2019 to estimate the distribution of international visitors based on their country of origin and the means of transport they used to travel to Georgia (Sea, Air, Rail, and Road). This resulting distribution was then applied to allocate the export of passenger transport services. For imports, we employed the same methodology with a singular exception. Due to data limitations, we made the assumption that

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[25] When we commenced the development of the CGE model, the most recent available statistics for this analysis were from the year 2019.

when Georgian visitors travel abroad to a specific destination, they utilize means of transport in the same proportion as inbound visitors arriving in Georgia from that particular destination.

To estimate trade in freight transport services, we employed a multi-step process. Initially, we collected data on the export, import, and transit of goods categorized by country and the means of transport used (road and railway), measured in tons. Our approach included specific assumptions: For road and rail transport services, we assumed that the distribution of export of road transport services (freight) by country equaled the distribution of goods in transit through Georgia by road transport, based on the origin country of the goods. Similarly, the distribution of import of road transport services (freight) by region was assumed to align with the distribution of exported goods from Georgia by road transport, considering the origin country of the goods. This same methodology was applied to trade in rail transport services (freight).

Due to data limitations, we proportionally distributed trade in postal services based on trade in road transport services (freight). Given data constraints, we allocated 90% of the export of pipeline services to Azerbaijan and 10% to Russia. Since Georgia does not import pipeline services, we left the distribution by countries empty. The export of sea transport services (freight) was distributed across countries proportionally to the shares of the countries in the export of rail transport services (freight). The same proportional distribution approach was used for the import of sea transport services (freight). Due to data limitations, the export of air transport services (freight) was distributed across regions proportionally to the shares of the regions in the export of rail plus road transport services (freight). This same method was applied for the import of air transport services (freight).

Due to data limitations, trade in other services not connected to transport and tourism activities were distributed across countries proportionally to trade in goods.

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