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# GEORGIA

## SELECTED ISSUES

June 2018

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# GEORGIA

## SELECTED ISSUES

June 14, 2018

Approved By
**Middle East and Central Asia Department**

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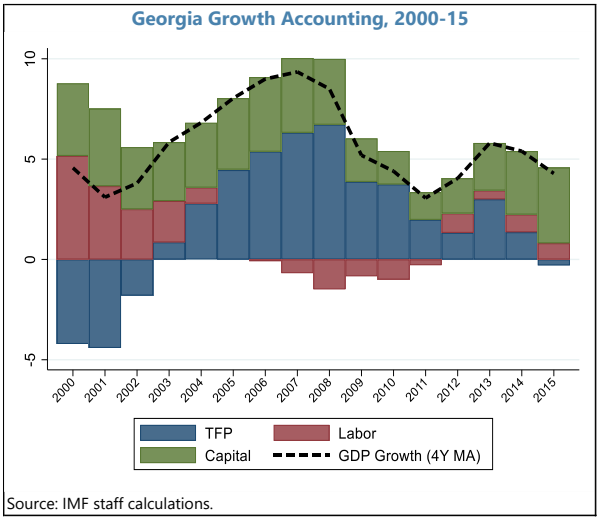
## CONTENTS

# ASSESSING MACROECONOMIC AND STRUCTURAL REFORMS IN GEORGIA

*This paper quantifies the economic effects of the government's reform agenda. Specifically, the reform package includes a fiscal policy within a declining deficit path which intends to incentivize private investment, a scaling up of public investment, improvement in government's efficiency, and an education reform. Based on modeling analysis, the implementation of this package will provide significant benefits to the economy is beneficial for the economy. Over the long run, real GDP is estimated to be about 5 percent higher than in the baseline and—in the path towards the new equilibrium—annual growth about 0.7 percentage points higher over the medium term. The education reform has sizeable effects, but they only come into effect in the long run.*

## A. Background

**1. Georgia's growth has slowed down, mostly as a result of lower productivity growth.** Average productivity growth—measured with total factor productivity (TFP)—decreased from around 5 percent in 2004-08 to 1.5 percent in 2011-15. The years of high TFP growth were accompanied by marked improvements in the business and regulatory environments as well as robust growth in trading partners. Georgia climbed the rankings of the Doing Business Indicators[1] reducing the distance to the frontier to about 20 percent in 2017. At the same time, Georgia was aided by growth in trading partners, which supported the country's net exports. However, as the gains from the first wave of structural reforms declined and the external environment deteriorated after the 2008 global financial crisis, productivity growth in Georgia slowed down.



Source: IMF staff calculations.

**2. However, Georgia has potential for higher growth.** There is an opportunity to increase productivity, given that (1) the production and export base can be broadened; (2) unemployment is high and employment is concentrated in low-productivity sectors; and (3) the business environment can be further improved. Additionally, the quality and stock of human capital can be further improved, and physical capital can be increased to fully exploit the country's comparative advantage as a platform for markets and as a tourist destination in the region.

**3. As a small open economy, Georgia needs to fully reap the benefits of tighter global integration and competitiveness**. Improving key infrastructure is crucial to leveraging Georgia's

[1] The Doing Business Indicators are a set of indices which describe private sector's perception of the business environment. They are survey-based and they are published by the World Bank.

strategic position as a logistic hub for the region. Enhancing the business environment will help attract private capital and will strengthen the role of the private sector in generating sustainable and inclusive growth. Finally, bolstering the quality of human capital will support the diversification of production and exports toward more complex and higher value-added goods.[2]

**4. Improving education and skill matching is key to increasing growth potential.** According to the Global Competitiveness Report, an "inadequately educated workforce" is generally ranked as among the most problematic issues for businesses. In Georgia, the quality of education must be improved, especially in rural areas where educational outcomes are particularly bad, which contributes to high unemployment. Enrolment in universities is about 50 percent of Georgian students, lower than 60 percent in Central and Eastern Europe and 70 percent in Western Europe—and vocational training is not popular. As a result, there is considerable skill mismatch in the labor market, and businesses lament the lack of technical specialists in various fields, from agriculture to engineering.

**5. Addressing all these challenges requires a comprehensive reform package**. Since the 2016 Parliamentary elections, the governing coalition has united around a robust reform agenda—the so-called 4-Point Plan. This is composed of (1) an improvement in tax administration and the tax system to enhance the role of private sector activity; (2) an increase in infrastructure investments to leverage Georgia's strategic position; (3) improvement in government efficiency to enhance the business environment; and (4) education reform that addresses the skill mismatches in the labor market.

**6. The government has made clear its plans and has already taken some actions toward the implementation of its reform agenda.** To improve government efficiency and the business environment, the government plans to (1) set up a Business House to provide a one-stop shop for public services to enterprises; (2) introduce International Financial Reporting Standards for corporations; and (3) reform insolvency law. To increase the stock of human capital, the government has embarked on a path to implement comprehensive education reform that includes curriculum standards, the introduction of a new framework for teachers, vocational training, and adult learning. However, more must be done in terms of upgrading the quality of early childhood education, improving learning outcomes, enhancing vocational training, and strengthening education in science and technology.[3] Finally, to improve the stock of physical capital, the government aims at scaling-up infrastructure spending to transform Georgia into a transport and logistics hub connecting Europe and Asia.

## B. Modeling the Policy Package

**7. The effects of the reform package are analyzed using the IMF's Global Integrated Monetary and Fiscal (GIMF) model, calibrated to key stylized facts of the Georgian economy.**[4] The parameters governing the steady-state properties of the model were calibrated to match basic stylized

[2] See the accompanying SIP "Georgia's Path to Economic Diversification"

[3] See the accompanying SIP "Georgia's Labor Market and Education System"

[4] See Box 1 for further details about the GIMF model.

facts for the Georgian economy (that is, structure of GDP, labor and capital share of income, structure of government expenditure and revenues, etc.). The components of GDP were calibrated to match the April 2018 World Economic Outlook, and the trade structure was calibrated to match Georgia's trade with its main partners. As for the fiscal policy block, debt to GDP was anchored at 45 percent in the long run, and the long-run output elasticity of public investment was calibrated to 0.25 (as in Bom and Lighthart 2013).[5] The inflation target is calibrated to 3 percent—as per the "Main Directions of Monetary Policy" published by the National Bank of Georgia. The parameters governing the dynamics of the model (that is, the degree of price and wage rigidities, investment adjustment costs, and others) were calibrated following the standard calibration for emerging market economies (EMEs). Such parameters do not affect the long-run outcomes of the model. We assume that structural reforms affect economy-wide productivity, and we borrow from a large body of literature on macro-structural linkages to calibrate their quantitative effect.

**8. The policy package is as follows:**

- **Fiscal package**: Since 2017, the government has embarked on a strategy of scaling up public infrastructure investment while compressing current spending. Also, to increase incentives for private investments, the government has reformed the corporate income tax and introduced a distributed-dividend taxation, effective January 2017. This taxation system, introduced in Estonia in 2000, abolishes taxation of retained earnings and maintains a corporate income tax based solely on distributed profits. Although it generates revenue losses in the short run, this taxation scheme is thought to incentivize private investments in the medium run through retained and reinvested earnings. To compensate (at least partially) for the revenue shortfall, the government increased fuel and tobacco excises in January 2017. The yields from this fiscal policy package are evaluated with respect to a baseline scenario that does not include any measure (Table 1 below).[6]

  The fiscal impulse—in deviation from the baseline—takes the following form:

  - Capital spending increases progressively by a maximum of 2.3 percentage points of GDP and then progressively declines. We assume that capital investments in steady state will stabilize at around 5.3 percent of GDP, which is about 0.4 percent of GDP higher than under the baseline.
  - Current spending contracts by about 2.5 percent of GDP and this compression is assumed to be permanent. These cuts in current spending come mostly from reduction of the wage bill, cuts in administrative expenditures, and efficiency gains in health expenditure.
  - The distributed dividend taxation translates into a permanent loss of revenue of around 1 percentage point of GDP, while excise increases boost revenues by around half a percentage point of GDP.

[5] Bom and Lighthart (2013) find that the output elasticity to public capital is between 0.08 in the short-run and 0.25 in the long run. This means that if the stock of public capital is, say, 50 percent of GDP—the returns to public investments range between 15% and 25%.

[6] We construct the baseline scenario by updating our 2016 fiscal projections—which did not contemplate any fiscal measure—with our latest assumptions on GDP growth and the lari/dollar exchange rate. This way, both our baseline and our latest fiscal projections are based on the same macroeconomic assumptions so that their difference yields an estimate of the fiscal measures

**Table 1. Georgia: Calibration of the Fiscal Package**

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Steady State |
|---|---|---|---|---|---|---|---|---|
| **BASELINE SCENARIO (From 2016 Art IV)** | | | | | | | | |
| Capital Spending | 5.4 | 5.7 | 5.5 | 5.4 | 5.4 | 5.4 | 5.4 | |
| Current Spending | 22.9 | 22.4 | 22.1 | 22.1 | 22.0 | 22.0 | 22.0 | |
| CIT Revenue Corporates | 2.8 | 2.8 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 | |
| Excises Revenue | 3.1 | 3.0 | 2.9 | 3.0 | 3.0 | 3.0 | 3.0 | |
| **FISCAL PACKAGE (Recent Framework)** | | | | | | | | |
| Capital Spending | 6.1 | 6.8 | 7.0 | 7.7 | 7.9 | 7.7 | 7.6 | |
| Current Spending | 22.9 | 21.8 | 21.2 | 20.4 | 19.4 | 19.4 | 19.4 | |
| CIT Revenue Corporates | 2.0 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | |
| Excises Revenue | 3.8 | 3.5 | 3.5 | 3.5 | 3.4 | 3.4 | 3.3 | |
| **DIFFERENCE** | | | | | | | | |
| Capital Spending | 0.6 | 1.1 | 1.5 | 2.3 | 2.5 | 2.3 | 2.2 | 0.3 |
| Current Spending | 0.1 | -0.6 | -0.9 | -1.6 | -2.6 | -2.6 | -2.6 | -2.5 |
| CIT Revenue Corporates | -0.8 | -0.9 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 |
| Excises Revenue | 0.7 | 0.5 | 0.6 | 0.5 | 0.5 | 0.4 | 0.4 | 0.5 |

Source: IMF staff calculations.

- **Improvement in government efficiency:** These reforms should help mobilize domestic and foreign investment. Modeling structural reforms requires assumptions on how much these will help improve government efficiency and the business environment, and then how much these would yield in terms of higher productivity. Georgia fares relatively well on both governance and business environment indicators. On average, its distance to the frontier is about 10 to 20 percent (Figure 2). Yet, we assume that the government's reforms will cut half the distance to the frontier over the course of five to 10 years. This implies an 8-percent improvement in the governance indicator. We assume that such increase translates into a gradual increase in TFP of 1 percent over a 10-year period.[7]

- **Education reform:** The education reform will increase government spending in the short term, with long-term benefits in terms of human capital and TFP growth. We assume that spending for education as a percentage of GDP would converge to ½ of the average level of OECD countries (about 12 percent of GDP). This would require a permanent increase in spending of about 2.5 percent of GDP. Government spending will gradually increase starting in 2019, and will be partially compensated by higher consumption taxes. We assume that the government will cover 50 percent of the increase in spending by higher taxes on consumption. We expect the remaining 50 percent to initially be covered by higher borrowing, and then by progressively lowering capital spending to its steady state level.

  We estimate that the education reform could increase TFP growth by about 0.5 percentage point over the medium run. To assess the impact of the education reform on productivity, we inspect the relationship between TFP and quality of education. Following Islam et al. (2014), we run a cross-section regression for average TFP growth.[8] Both the stock of human capital—as

[7] Consistent with empirical findings (Bourles et al (2010) and Barnes (2014). By looking at a panel of OECD countries, Bourles et al (2010) and Barnes (2014) found that a 10-percent improvement in regulatory environment increases TFP by 1.3- 1.7 percent.

[8] Data are from 2000 to 2016. TFP is taken from the Penn World Tables; Investments to GDP ratio and CPI inflation are taken from the World Economic Outlook Database; Years of schooling come from the UNDP's Human Development Index database; PISA scores for math and sciences are taken from the OECD database.

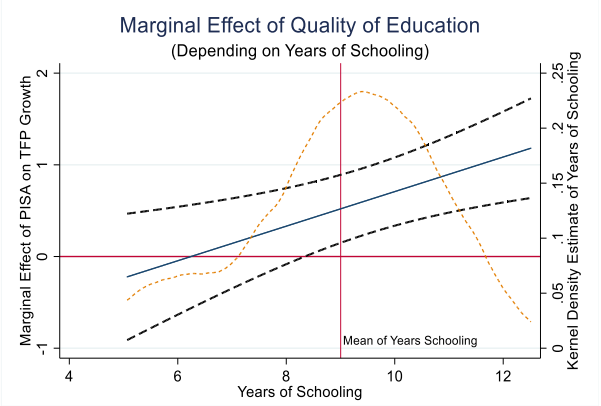
measured by years of schooling—and the quality of human capital—as measured by the score in the PISA test for math and sciences—are found to affect productivity growth. The PISA score is transformed into an index which takes value 1 for highest score in the sample and value 0 for the lowest one. Our preferred specification (column 4 of the table below) is the one where we allow for a non-linear effect between the stock and the quality of human capital (as in Islam et al. 2014). Given Georgia's relative high marks in years of schooling (around 12), the returns from improving the quality of education are expected to be the largest. The marginal effect improving the quality of education for given years of schooling (Figure 1 below) shows that with 12 years of schooling, improving the quality of education from the lowest to the highest score translates into about 1.5 percentage points higher productivity growth.[9] We assume that Georgia will be able to close half the gap to the frontier in terms of quality of education in the medium run. This would improve the quality of education in Georgia up to the average for OECD countries. In terms of its quantitative effects, our estimates suggest that this would translate into a gain in productivity growth of about ½ of a percentage point. Given that in Georgia average years of schooling is around 12, the effects of the reform will gradually increase in the medium to long run.

**Table 2. Georgia: Long-Run Effects of Education Reform**

| VARIABLES | (1) TFP Growth | (2) TFP Growth | (3) TFP Growth | (4) TFP Growth |
|---|---|---|---|---|
| Investment to GDP | 0.014** | 0.019* | 0.019* | 0.013 |
| | [0.007] | [0.010] | [0.010] | [0.010] |
| CPI Inflation | -0.001* | -0.000 | -0.000 | -0.000 |
| | [0.000] | [0.001] | [0.001] | [0.001] |
| TFP - Distance to the Frontier | 0.060*** | 0.054*** | 0.054*** | 0.053*** |
| | [0.003] | [0.004] | [0.004] | [0.003] |
| Years of Schooling | 0.034*** | | 0.065** | -0.066 |
| | [0.012] | | [0.027] | [0.051] |
| Pisa Index | | 0.799*** | 0.381 | -1.177 |
| | | [0.191] | [0.241] | [0.781] |
| (Pisa Index)*(Years of Schooling) | | | | 0.189** |
| | | | | [0.079] |
| Observations | 110 | 60 | 60 | 60 |
| R-squared | 0.852 | 0.853 | 0.862 | 0.909 |

Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

**Figure 1. Georgia: Marginal Effects of Education Reform**




Source: IMF staff calculations.

## C. Results

### Fiscal Policy Package

**9. The government's fiscal package has positive effects on GDP and growth (Figure 3)**. The scaling up in productive public investments and public capital stock allows for higher productivity in private firms. Moreover, by replacing taxes on capital with taxes on consumption, the government moves to a less distortionary way of financing its spending. As a result, real GDP increases by 3 percent in the new steady state. In converging to the new steady state, GDP growth increases by about 0.4 percentage point in the medium term. In the long run, the growth of the economy remains driven by productivity and population growth.

[9] These results are consistent with what is found in the literature (see Islam et al. 2014 and OECD 2010).

**10. The lower tax burden on firms generates higher private investment.**[10] Private investment increase steadily both in levels and as a share of GDP, and in the new steady state investment share to output ends up being about 1 percentage point of GDP higher than in the baseline. The dynamics are further helped, at least temporarily, by a moderate decrease in the cost of borrowed funds. With increased profitability, the external finance premium temporarily decreases (financial accelerator).[11]

**11. Private consumption reacts more gradually to the fiscal package, but increases in the new steady state.** Higher labor productivity and lower tax distortions increase output and demand for labor, pushing up real wages and supporting higher consumption. The initial response of consumption is, however, muted because of higher consumption taxes. Also, consumption is compressed by the need to increase savings to finance higher private investment. As a result, consumption initially declines as a share of GDP, then it progressively increases by about 1.5 percent above baseline in the new steady state.

**12. Because higher consumption taxes do not fully cover higher government spending and the revenue losses from lower capital taxes, public debt initially goes up.** The public debt-to-GDP ratio increases by about 3 percentage points with respect to the baseline, and then progressively declines back to 45 percent of GDP in the new steady state—it is assumed that the government does not want to increase its debt-to-GDP ratio. As government investment progressively declines to a level only slightly higher than in the baseline and current spending remains contained, the fiscal balance deteriorates only mildly in the medium run. Moreover, higher consumption taxes—together with a higher tax base—support the fiscal adjustment.

**13. The increase in real wages puts upward pressure on prices of domestically produced goods, and the central bank moderately increases the policy rate.** The increase in the interest rate is consistent with the initial appreciation of the lari. The appreciation of the lari, as well as the import component of demand (also from higher government and private investment), temporarily deteriorates the current account—which worsens by a maximum of 1.5 percent of GDP. However, as higher productivity allows for lower prices, the real effective exchange rate depreciates, and the current account returns to its baseline level.

### Improving Government Efficiency

**14. The improvement in government efficiency increases GDP permanently and growth temporarily.** Because of the reforms, TFP increases progressively by 1 percent, translating into higher GDP in the new steady state, and temporarily higher growth on the path to the new equilibrium (Figure 4). The increase in productivity increases the marginal product of the factors of production, so that demand for capital and labor increases. This translates into higher real wages and rental rate on capital.

**15. Investment responds faster than consumption to the gradual increase in productivity.** The increase in productivity makes investing more profitable, which also incentivizes consumers to increase savings on impact, despite the increase in real wages. As such, investment to GDP increases, while the consumption-to-GDP ratio remains in line with the baseline and increases only in the long run.

[10] This is to be interpreted as an "upper bound." Chances are that the reaction of private investments will be sluggish—especially in a context like Georgia where corporates might already be over-leveraged.

[11] In reality, as the experience of Estonia shows (see Masso et al. 2011), firms are likely to move to lower their leverage with a higher portion of investment financed using retained earnings.

**16. The current account worsens temporarily because of higher domestic demand.** Higher investment and consumption result in a larger current account deficit. With the prospects of higher productivity in the future, the current account response is not a sign of disequilibrium but an expected and desirable outcome (Obstfeld and Rogoff 1994). However, in the medium run, the depreciation of the exchange rate corrects the current account imbalance. In the new steady state, the current account reverts to a small surplus.

### Fiscal Package and Education Reform

**17. When the fiscal package is modified to accommodate higher education spending and higher taxes, the effects on GDP are still positive, but private consumption contracts by up to 1 percent of GDP (Figure 5).** The fiscal stimulus coming from higher government spending on education increases aggregate demand and output. Overall GDP in the new steady state is about 1 percent higher than with the simple fiscal package analyzed above. This happens despite the higher taxes on consumption. Consumption, in fact, remains at the baseline level. As a share of GDP, it declines throughout the transition to the new steady state. Because the government finances some of the higher spending through borrowing, public debt is about 2 percent of GDP higher than with the simple fiscal package, peaking at around 50 percent, before declining to its steady state level of 45 percent. Higher demand translates partly into higher imports, thus deteriorating the current account balance.

**18. The education reform has positive long-run effects on the economy, and these are likely to be sizeable.** However, because it bears effects only in the long run through the build-up of human capital, and because such effects are inherently uncertain, the quantitative analysis of the education *reform is outside the scope of the DSGE* model used for the study. For this purpose, a regression analysis is used instead and is a more appropriate tool to assess the effects of the education reform in the long run. The regression output presented earlier suggests that an education reform that improves the quality of education to the average level of OECD countries improves the growth rate of TFP by half a percentage point. In terms of steady state levels of output, this improvement can be quite sizeable. To gauge the level effect, we perform the following thought experiment: We assume that—given the elevated average years of schooling in Georgia—the effect on productivity start to materialize after 12 years. The growth rate of TFP then increases progressively by half a percentage point above the baseline (the full effect of the reform) and then progressively declines as Georgia closes the gap with the countries at the productivity frontier. Overall, this translates into a level of output between 5 and 10 percent higher than under the baseline.[12]

### Adding Reforms to Improve Government's Efficiency

**19. The fiscal reforms—including education spending—and the improvement in government efficiency have relatively large effects (Figure 6).** When all of the reforms are included in the model at the same time, real GDP increases in the long run by about 5 percent compared to the baseline, and growth temporarily increases by about 0.7 percentage point in converging to the new steady state. Again, because of the increase in taxes needed to partially cover the education spending, the gains in

[12] We found similar results when we performed a panel regression on the *level of total factor productivity* rather than on the growth rate.

private consumption mostly accrue in the long run. On the other hand, higher productivity induces more investment and increased real wages. On top of that—as we saw earlier—the productivity gains from the implementation of the education reform could boost output further in the long run between 5 and 10 percent.

**20. Overall, the effects of the government's reform package are positive, but they are no magic bullet.** The effects on GDP and growth—to be interpreted as an upper bound of the reform package—are non-negligible. The DSGE model and the econometric model employed also suggest that the reform package, with higher public capital and higher productivity in the economy, will be able to effectively catalyze private sector activity, in that private investment will become the main engine for long-term growth. However, the results do rely on crucial assumptions: that all public spending will be employed productively and that fiscal sustainability will be preserved.

### Box 1. The IMF's Global Integrated Monetary and Fiscal (GIMF) Model

**We use the GIMF model to quantify the impacts of fiscal and structural reforms.** GIMF is a multi-country structural dynamic general equilibrium model. The model used in this paper features Georgia, the euro area, emerging Asia, the United States, and the rest of the world. (See Kumhof and others (2010) and Anderson and others (2013) for more detailed documentation and key properties of the model).

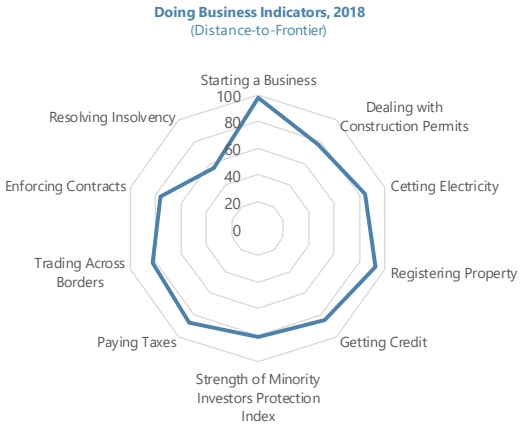
**GIMF links the behavior of households, firms, and the government within and among countries.** The model has a consistent system of national accounting and stock-flow budget constraints for all sectors. The model belongs to the exogenous-growth type of models; that is, the long-term growth of output is exogenous. Hence, all fiscal or structural measures may change only the structure of the economy, possibly increasing permanently the level of real output per capita; never long-term growth.

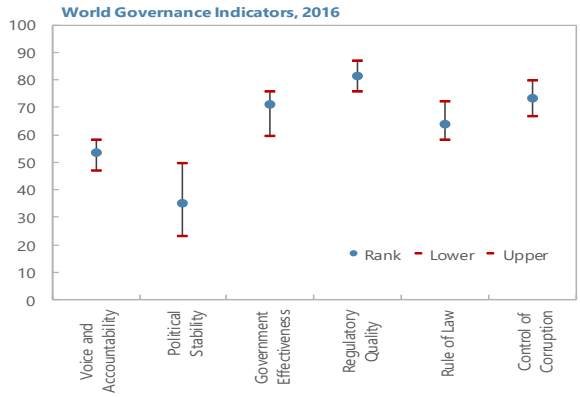
**There are two types of households in the model that differ in their behavior.** The optimizing overlapping-generations (OLG) households have access to financial markets and can borrow and save out of their labor and financial income to smooth consumption over their effective planning horizon. They have finite lives, following the Blanchard-Weil-Yaari framework (Blanchard, 1985). On the other hand, the liquidity-constrained (LIQ) households do not have access to financial products and consume their after-tax labor income fully every period. The presence of OLG and LIQ households breaks Ricardian equivalence, which is important for realistic results of fiscal policy in the short and long run. Households gain utility from consumption and disutility from labor effort, they consume traded and non-traded services and goods, receive labor income, transfers from the government, dividends from corporations, and pay taxes—income, consumption, and lump-sum taxes.

**Firms** produce tradable and non-tradable goods and services. Firms hire labor, capital, and purchase imported intermediate goods to produce both final and intermediate goods.

The **government** purchases final goods for consumption and productive public investments, and levies taxes and on consumption, labor income, capital and lump-sum taxes. It also provides transfers to households. The government follows a fiscal rule that stabilizes the debt-to-GDP ratio at a chosen level and uses a mix of instruments to achieve it. The government's commitment to sustainable public finance is credible for firms and households, who hold the stock of government bonds. The monetary policy regime operates under and inflation-forecast-targeting framework and the **central bank** follows a standard Taylor-type rule, with the monetary policy rate as instrument.

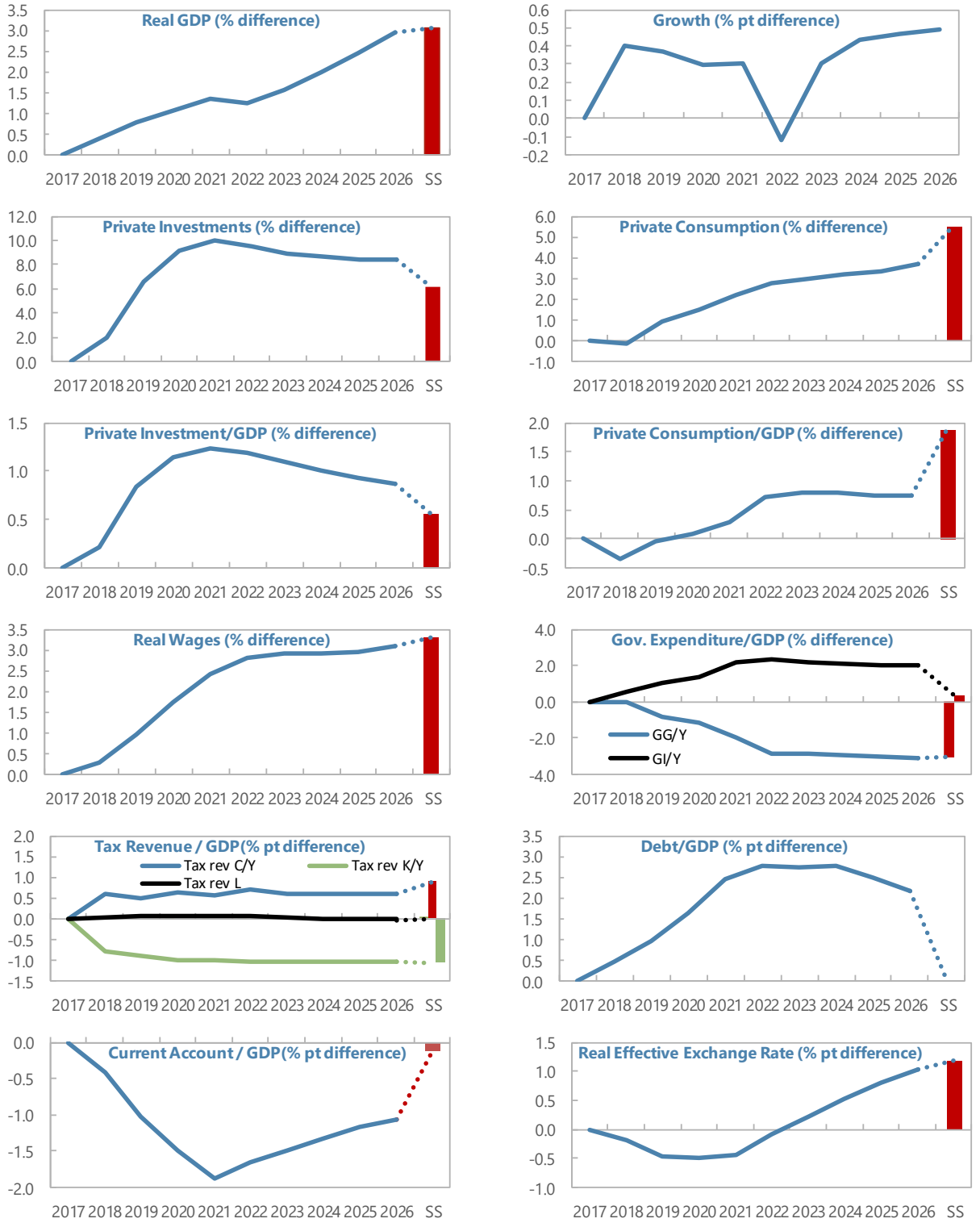
## Figure 2. Georgia: Governance Indicators



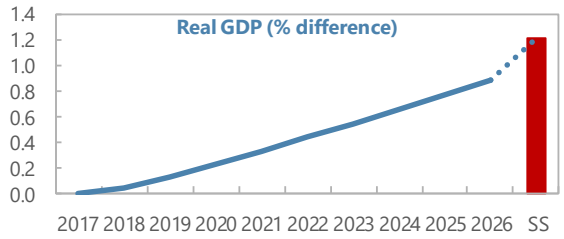

Source: World Bank *Doing Business 2018,* and *World Governance Indicators 2016.*

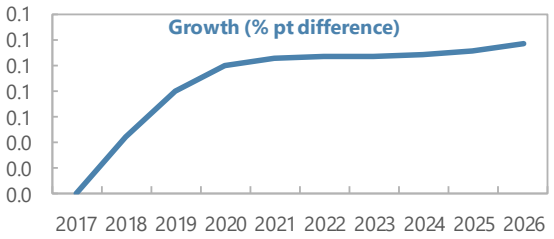
## Figure 3. Georgia: Effects of the Fiscal Reform

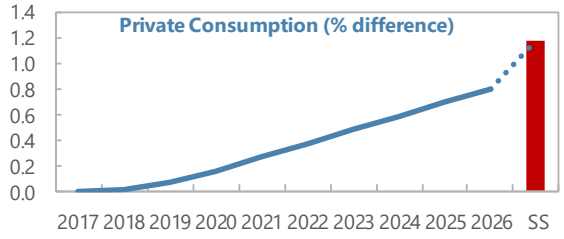


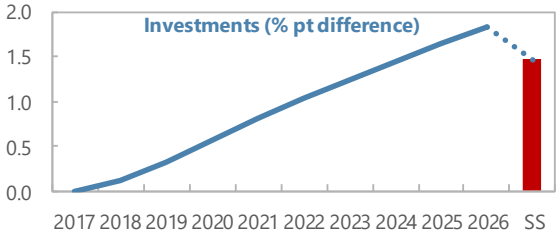

Source: GIMF simulations.

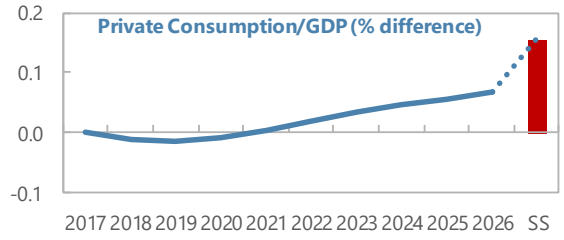
## Figure 4. Georgia: Effects of the Increase in Government Efficiency

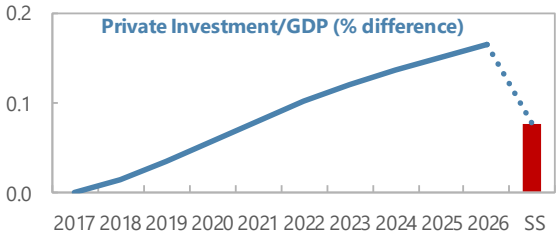


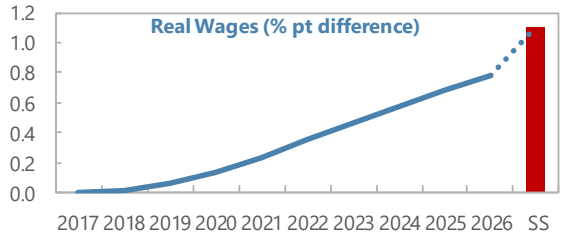



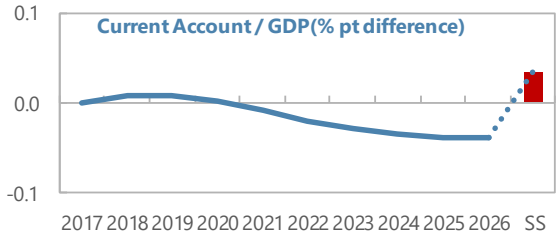



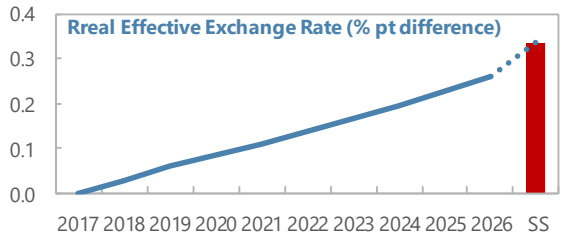



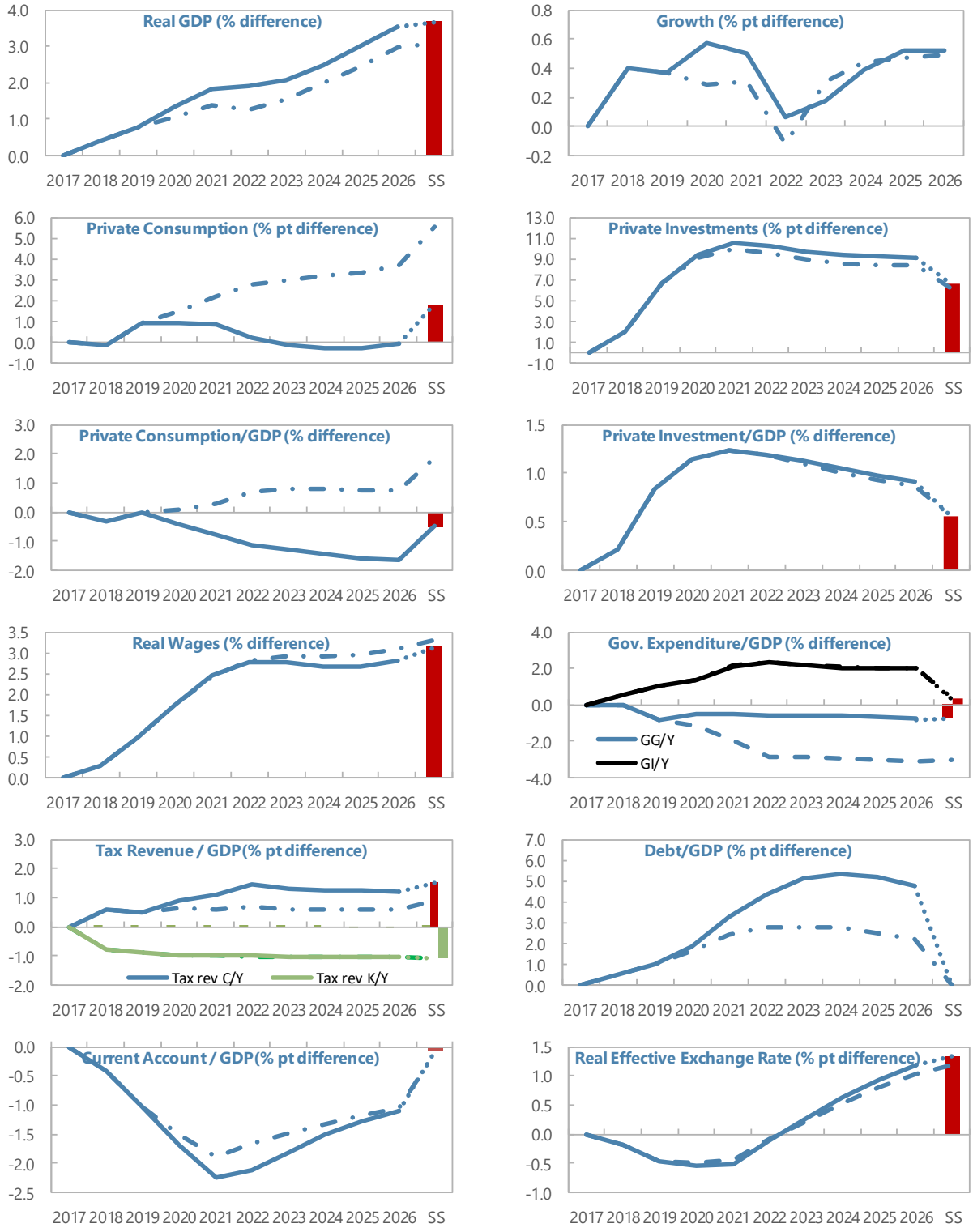



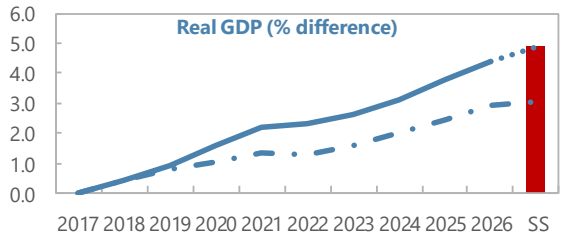

Source: GIMF simulations.

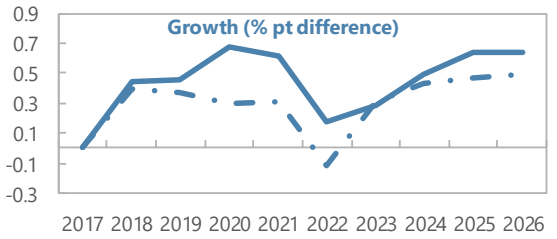
## Figure 5. Georgia: Effects of the Fiscal Reform—Including Spending on Education

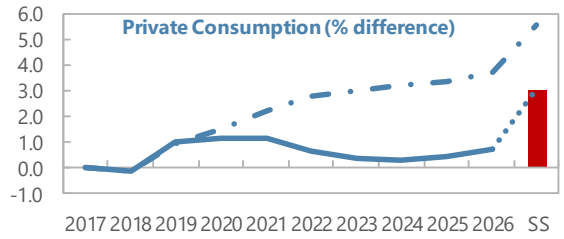


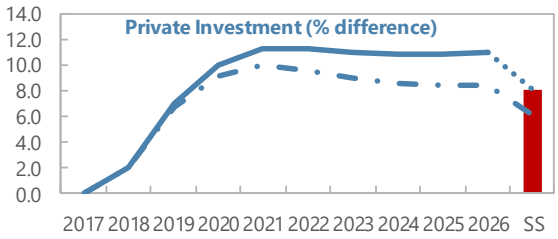

Source: GIMF simulations.

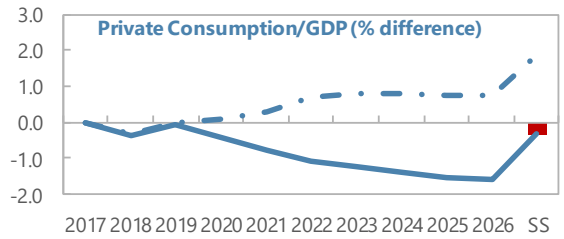
## Figure 6. Georgia: Putting Pieces Together

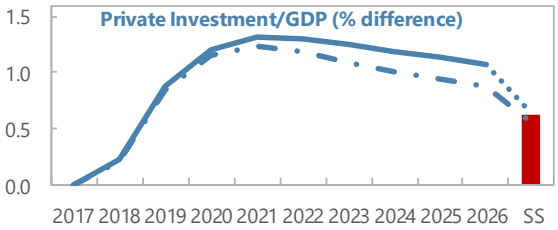


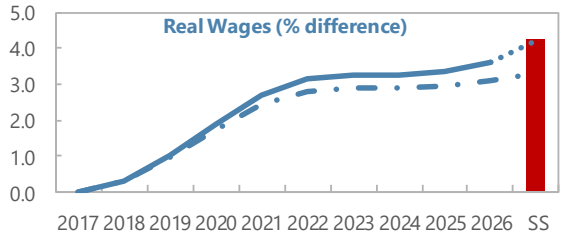



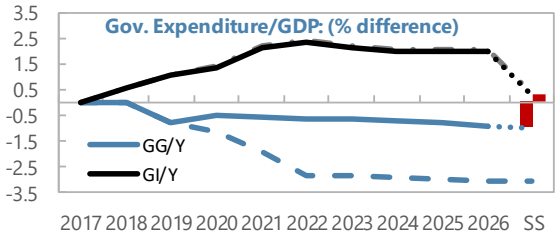



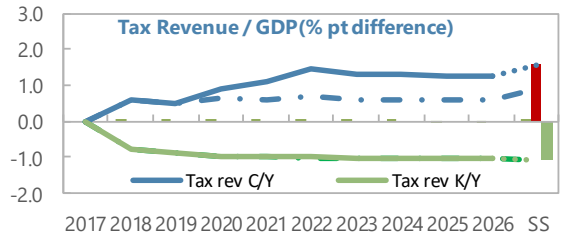



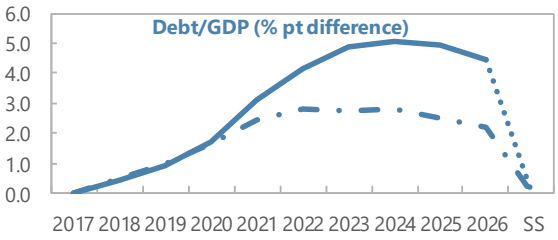



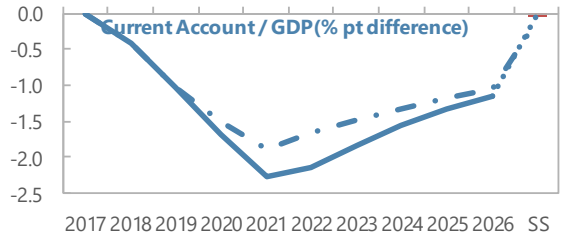



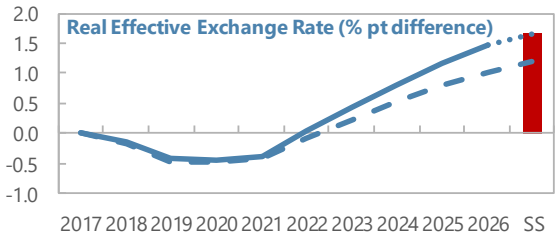




Source: GIMF simulations.

# References

Derek Anderson, Benjamin Hunt, Mika Kortelainen, Michael Kumhof, Douglas Laxton, Dirk V. Muir, and Susanna Mursula, and Stephen Snudden (2013), "Getting to Know GIMF: The Simulation Properties of the Global Integrated Monetary and Fiscal Model", IMF WP/13/55.

Barnes, S., (2014), "Reforms and Growth: A Quantification Exercise," OECD, Nero Meeting.

Blanchard, O.J. (1985), "Debt, Deficits, and Finite Horizons", Journal of Political Economy, Vol. 93, pp. 223-247.

Pedro R.D. Bom and Jenny E. Lighthart (2013), "What Have We Learnt from Three Decades of Research on the Productivity of Public Capital?", Journal of Economic Surveys, Vol. 28, N.5, pp. 889-916.

Bourlès, R., G. Cette, J. Lopez, J. Mairesse and G. Nicoletti (2010), "Do Product Market Regulations in Upstream Sectors Curb Productivity Growth? Panel Data Evidence for OECD Countries", Banque de France, Working Paper, no. 283.

Jaan Masso, Jaanika Meriküll, Priit Vahter, (2011), "Gross Profit Taxation Versus Distributed Profit Taxation and Firm Performance: Effects of Estonia's Corporate Tax Reform", Bank of Estonia Working Paper Series, 2/2011.

Obstfeld Mauri and Kenneth Rogoff, 1994. "The Intertemporal Approach to the Current Account," NBER Working Papers 4893, National Bureau of Economic Research, Inc.

OECD (2010), "The High Cost of Low Educational Performance. The Long-Run Economic Impact of Improving PISA Outcomes", https://www.oecd.org/pisa/44417824.pdf

Michael Kumhof, Douglas Laxton, Dirk V. Muir, and Susanna Mursula (2010), "The Global Integrated Monetary and Fiscal Model (GIMF)—Theoretical Structure", IMF WP/10/34.

Rabiul Islam, James Ang and Jakob M. Madsen (2014), "Quality-Adjusted Human Capital and Productivity Growth", Economic Inquiry, Vol. 52, N. 2, p. 757-777.

# GEORGIA'S LABOR MARKET AND EDUCATION SYSTEM[1]

*Georgia's economic reforms have led to robust growth, but the benefits have not been broadly shared. Georgia's growth has resulted in meager employment gains, and unemployment, underemployment, poverty, and income inequalities remain high. Poverty incidence and inequality, which are mostly concentrated in rural areas, also remain relatively high compared to regional comparators. Most of Georgia's labor resources are locked in low productivity jobs, while a large share of youth with higher education is unemployed. Business surveys indicate that labor skills have increasingly become an obstacle to growth. Comprehensive education reform—including improvements to early childhood, general, and higher education; enhanced vocational training; and upgrades to sector management—that is well integrated into the government's reform agenda would help produce a better-skilled workforce and support more robust and inclusive growth. More supportive labor market policies, including improved labor matching services and more flexible employment opportunities, would enhance job creation.*

## A. Context

**1. Despite robust economic growth over 2006–16, job creation has been lackluster, and unemployment and underemployment remain high.** As noted in IMF 2013, while growth is a prerequisite for job creation and social cohesion, it is not sufficient. Typically, there is a positive relationship between growth and job creation and between the quantity and quality of skills and employment/productivity (see WB 2015). However, GDP growth averaged 4.4 percent over 2006–16 in Georgia, while employment barely increased.[2, 3] Moreover, unemployment remains high (14 percent), especially among the youth (33.2 percent).

**2. Structural bottlenecks, including skills mismatches, are hindering job creation.** The share of employment in sectors with higher productivity and wages (for example, industry and services) has increased in the last decade, but more than 40 percent of the jobs remain in agriculture, a low-productivity sector.[4] This suggests that the Georgian economy is not creating enough jobs in high-productivity sectors to absorb the unemployed, forcing people to remain in low-productivity jobs.[5] Additionally, this could indicate that there are structural problems in Georgia's labor market, such as skills mismatches.

[1] Prepared by Francois Painchaud (IMF), Lire Ersado (World Bank), and Jouko Sarvi (Asian Development Bank).

[2] Between 2006-16, around 99,000 net jobs have been created. Employment declined in 2007, before rebounding thereafter, though those gains were temporarily interrupted in 2010 by the impact of the global financial crisis.

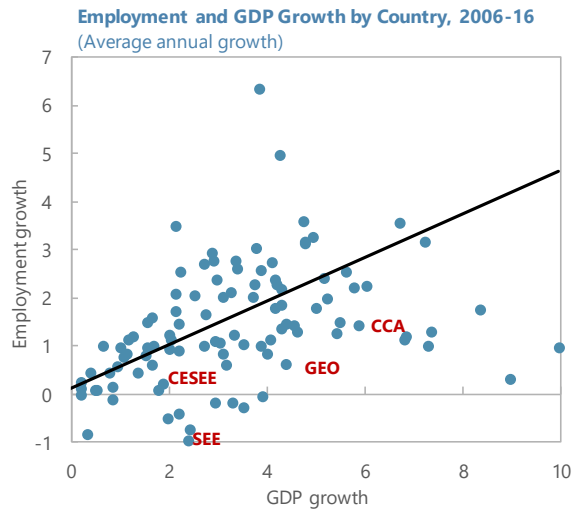
[3] Southeastern Europe (SEE) includes Albania, Bulgaria, Macedonia, Romania and Serbia. Central, Eastern and Southeastern Europe (CESEE) includes SEE and Bosnia and Herzegovina, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Montenegro, Poland, Slovenia and Slovakia. Caucasus and Central Asia (CCA) includes Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.

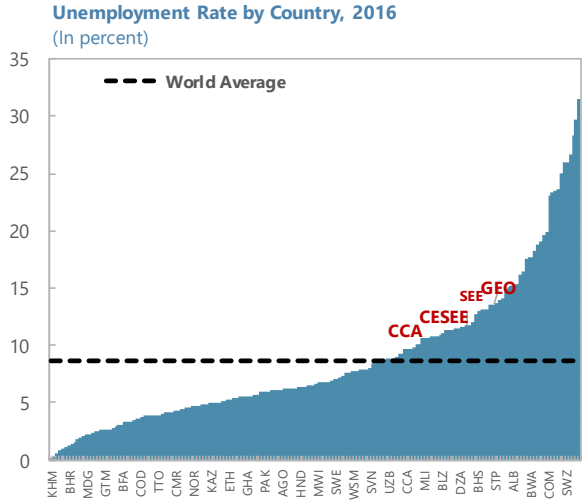
[4] As noted in McMillan et al (2010), employment moving from low-productivity/low-wage sectors (such as agriculture) toward higher-productivity/higher wage sectors (for example, industry and services) can be a key driver of labor productivity growth and economic development.

[5] This could reflect insufficient diversification of exports and production in Georgia, a lack of dynamism and transformation in the economy's structure, low firm-level productivity, and the need for innovation and investment in research and development to break the low-productivity cycle.

**3. Growth has not been inclusive enough, as the unemployment rate remains high and a large share of the labor force is trapped in low-productivity sectors.** Poverty, regional disparities, and income inequalities remain relatively high in Georgia (Box 1). Furthermore, these trends are mostly concentrated in rural areas and among ethnic minorities, partly reflecting limited access to good education, which is hindering learning outcomes and skills development. As noted in IMF 2013, empirical evidence suggests that a high level of inequality impedes growth over the medium and long term. Moreover, inclusive growth, accompanied by a commensurate level of job creation, is the best way to reduce poverty sustainably.

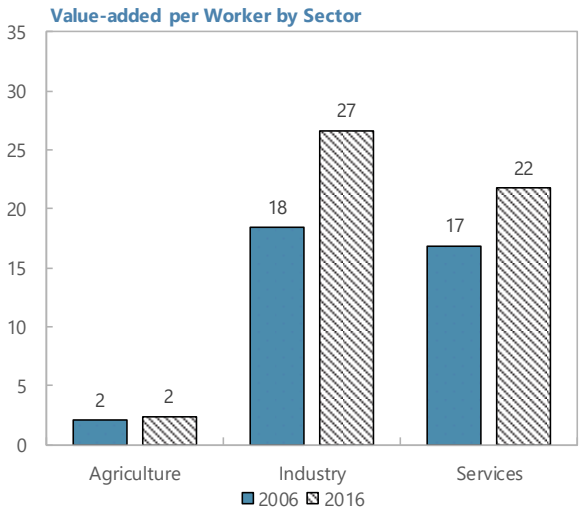
**Text Figure 1. Georgia: Growth, Employment and Unemployment**

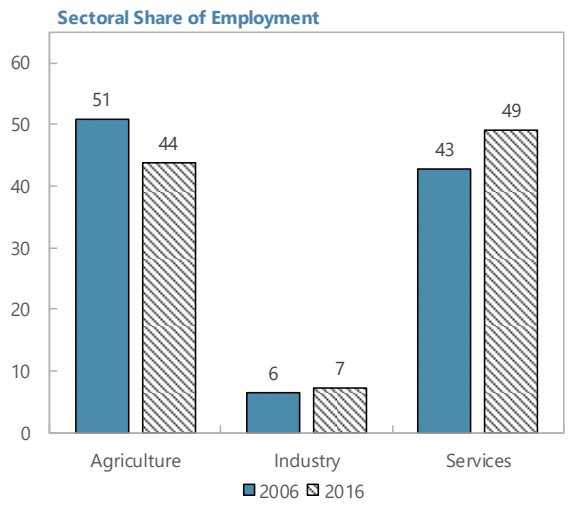



Sources: ILO, IMF and World Bank staff calculations.

**Text Figure 2. Georgia: Productivity and Employment by Sector**




Sources: ILO, IMF and World Bank staff calculations.

**4. Labor skills have increasingly become an obstacle to growth, job creation, and poverty reduction.** The 2017–18 World Economic Forum (WEF) ranks workforce skills as the most problematic factor for doing business in Georgia. The Ministry of Economy and Sustainable Development (MoESD) recently conducted a survey of businesses that showed that the main challenges they faced when filling vacancies were the applicants' lack of qualifications and experience and salary demands. The World Bank's 2015 Skills Toward Employment and Productivity (STEP) survey indicates that Georgians do not have the skills demanded by businesses. An inadequately educated workforce is also identified as one of the top five obstacles for innovators in Georgia by the Business Environment and Enterprise Performance Survey. While information and communications technology (ICT) skills are becoming increasingly important, one in five firms sees the lack of workers with solid digital skills as a major or severe problem that constrains their growth.

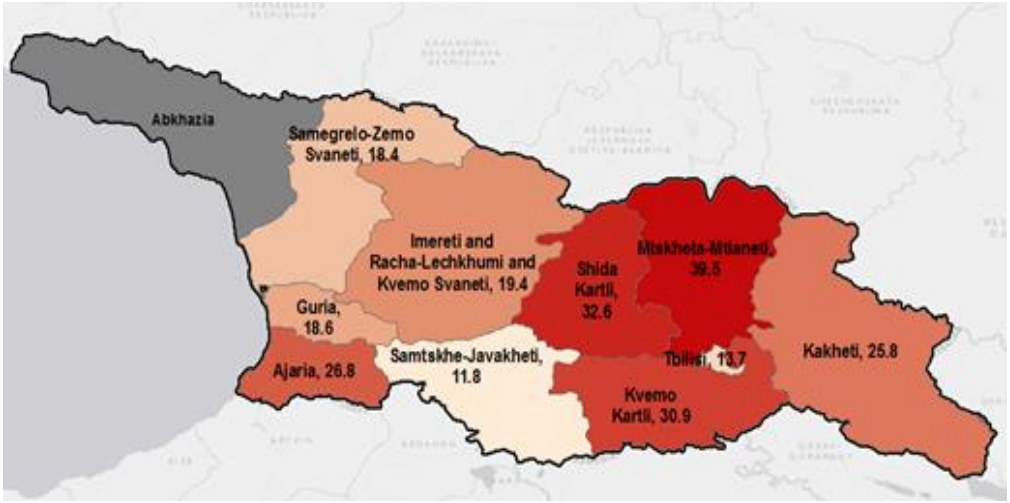
**5. This paper focuses on how to improve Georgia's workforce skills in order to support more robust and inclusive growth.** The next section looks at the main characteristics of Georgia's labor market, followed by a discussion of some of the labor market constraints and reform priorities. The paper, while underscoring that job creation is the result of many interconnected forces, focuses on the role of education and skills training for enhancing employment and productivity and in ensuring more equitable access to jobs.

### Box 1. Poverty and Inequality

**One in every five Georgians is still poor, and almost half the population is vulnerable to falling into poverty.** According to the 2018 World Bank Systematic Country Diagnostic report, the share of the population that is vulnerable to poverty hovered between 47 and 54 percent during 2009–16. Based on the global poverty line for lower-middle-income countries, the poverty headcount in Georgia, which is currently 17.3 percent, is only lower than that of Tajikistan and Kyrgyzstan (59.5 percent and 23.3 percent, respectively) in the Europe and Central Asia (ECA) region. Georgia's rate is also higher than in neighboring Armenia (13.5%), despite a similar level of GDP per capita.

**Poverty Headcounts, 2015**

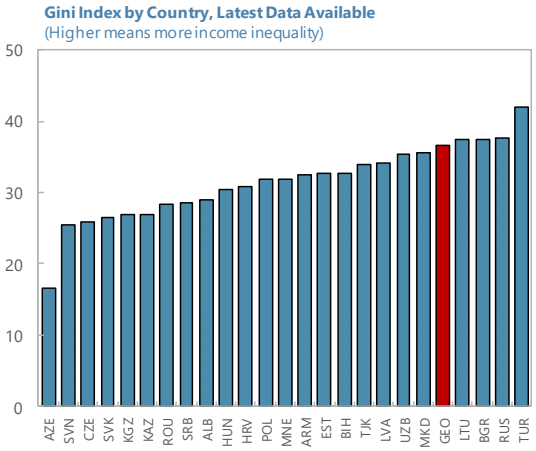
(By regions)




Source: World Bank Georgia Systematic Country Diagnostic Report (2018).

### Box 1. Poverty and Inequality (concluded)

**Georgia has one of the highest levels of inequality in the ECA region.** Although inequality has declined since 2010, reaching a consumption Gini coefficient of 36.5% in 2016, it remains high. There are large urban-rural and intra-regional disparities in poverty incidence that highlight the economic dualism in Georgia. Regional differences within rural areas are substantial, with remote and mountainous regions bearing the highest burden of poverty.




Source: World Bank, *World Development Indicators.*

## B. Georgia's Labor Market

**6. Slow job creation and high unemployment in Georgia may reflect underlying labor market problems.** This section looks at Georgia's labor market (labor demand, labor supply, employment, unemployment, and labor market institutions) and compares it to other countries to identify reasons for suboptimal labor market outcomes.

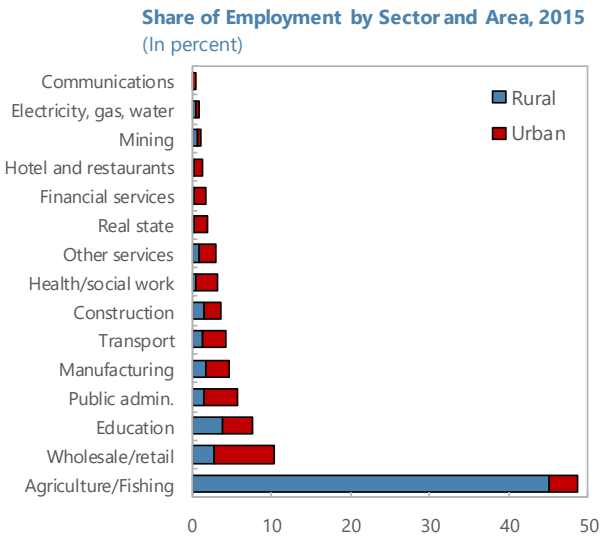
### Labor Market Demand

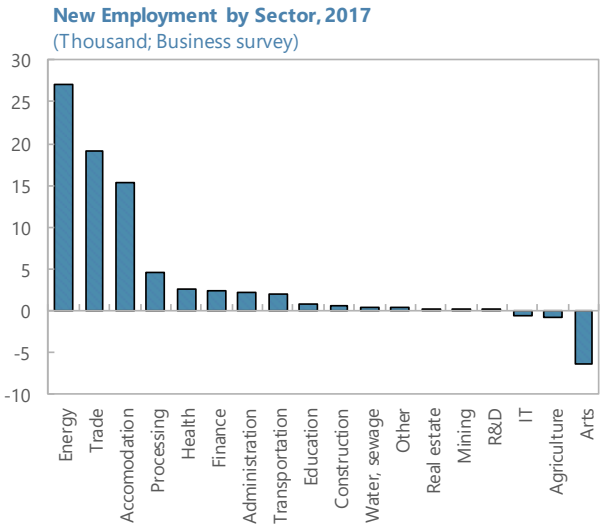
**7. Jobs are concentrated in low-productivity sectors, though recently some jobs have been created in more dynamic sectors.** Most of the jobs in Georgia are in agriculture, retail and wholesale trade, and public and social services, such as education. However, according to a recent survey of businesses conducted by the Ministry of Economy and Sustainable Development, new jobs are being created in the energy, tourism, and trade sectors.

**8. Georgia has introduced policies to create an environment for private firms to generate more and better jobs, but more is needed.** The World Bank's Doing Business ranks Georgia 9th overall (from 112 countries in 2018?). The country is now among the top 10 in registering property, starting a business and protecting minority investors. However, getting electricity, trading across borders, and resolving insolvency remain top areas for improvement. In particular, an effective insolvency law would facilitate the reallocation of resources from unproductive to productive firms, preserve jobs through restructuring, and improve access to finance.[6]

[6] Georgia's business insolvency law does not provide room for successful debt restructuring and business rehabilitation. The authorities are revamping the law to bring it in line with international bets practices.

## Text Figure 3. Georgia: Employment by Sector

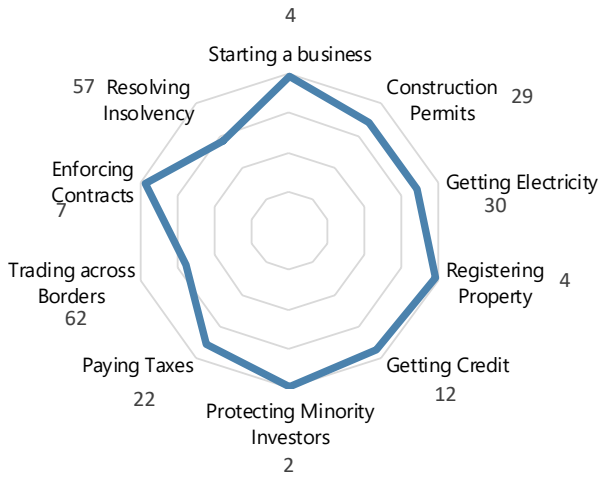



Sources: GEOSTAT, survey by Ministry of Economy and Sustainable Development, WB and IMF staff calculations. The share of employment by sector includes both employed and self-employed individuals. The business survey by MoESD focuses on businesses and therefore excludes self-employed, which are typically associated with the agriculture sector.

**9. Inadequate skills in the labor force has emerged as a major obstacle to growth in Georgia (Figure 1)**. The WEF, in its 2017–18 Global Competitiveness Index, ranks Georgia 67th (from 85th in 2006). It highlights that the government of Georgia has made commendable efforts to resolve issues related to corruption, tax regulation, inefficient bureaucracy, and policy instability. As these problems were tackled, labor market issues, such as inadequately educated workforce and poor work ethics, have come to the forefront as an impediment to growth. In particular, while education enrollment rates are relatively high, businesses have highlighted the poor quality of general, basic, and secondary education; vocational education and higher education; and the limited provision of on-the-job training as top challenges. There is a limited access to quality preschool education, which is essential for development of higher-order cognitive and socio-emotional skills, along with a strong sense of teamwork and empathy, and preparing Georgia for the future of work. Expansion of preschool education will also enable greater participation of women in the labor force, as child-caring responsibilities and lack of childcare services are among the key constraints to female labor force participation.

**Text Figure 4. Rankings on Doing Business Topics, 2018**




*Source:* Doing Business 2018.

## Georgia's Population, Labor Force, Employment and Unemployment

**10. Georgia faces adverse demographic trends, highlighting the need for a more productive labor force (Figure 2).** Georgia's population is expected to continue shrinking and aging, with the share of the population that is 65 and older expected to increase significantly. The population decline is attributable to low birthrates and sustained net emigration. The latter reflects a lack of well-paying job opportunities in Georgia, underscoring the need to boost the quantity and quality of jobs. To support future growth, enhancing productivity and employment will require upgrading skills (through lifelong learning opportunities and well-targeted vocational training courses in high demand sectors, for example).

**11. Georgia's labor force participation rate is relatively high, especially for older people and women.**[7] The older generation in Georgia is likely compelled to actively participate in economic activities due to poverty, low retirement savings, and an inadequate basic public pension.[8] This results in Georgia having a very high share of its labor force over the age of 65 (Figure 3). Excluding the impact of the high participation rate of the older population, Georgia's participation rate would still be slightly above its peers. The female participation rate in Georgia is about 20 percentage points below that of male counterparts, but higher than in countries with similar levels of development. As discussed in the forthcoming Georgia Jobs Diagnostic by the World Bank, the lower female participation rate is in part explained by a lack of childcare opportunities, significant wage disparities between men and women (about 35 percent), and the lack of flexible employment opportunities.

**12. Georgia's labor force is also relatively rural and educated (Figure 3).** Georgia's share of labor force in rural areas is slightly higher than its peers, reflecting high employment in low-productivity agriculture. Georgia's labor force is also relatively well educated, and, as in most countries, women are typically more educated than men. The high share of educated people in the labor force may reflect social norms rather than the requirements of the labor market.

**13. Georgia's overall employment has barely recovered from job losses in the mid-2000s (Figure 4).** The conflict with Russia in 2008, the public-sector downsizing (2004-08), and the global financial crisis took a toll on employment. Since then, employment has gradually recovered (except in 2010), while the share of public sector employment has declined significantly, suggesting that public sector layoffs have been broadly absorbed by the private sector. The share of public employment is now consistent with Georgia's level of development.

**14. The composition of employment suggests labor market duality.** Self-employed workers are predominantly in rural areas (typically in agriculture) and are less likely to have access to quality training and more lucrative nonfarm employment opportunities. Georgia also has a relatively high share of employment related to "contributing family workers," which are typically unpaid jobs associated with the agricultural sector. Sectors like agribusiness and tourism may help create jobs in rural areas but would require development of skills through quality education and learning opportunities. In contrast, urban

[7] The population aged 15 and older is divided into two categories: those in the labor force (employed and unemployed) and people outside the labor force (those not actively seeking work). The labor force participation rate is the ratio of the labor force to the population.

[8] The basic pension in Georgia amounts to GEL180 per month, marginally higher than the subsistence minimum.

employment is more likely to be associated with better jobs (hired or wage employment) in more productive sectors with higher wages.

**15. Georgia's labor mobility across sectors has followed international trends, but too much employment remains trapped in the low-productivity sector of agriculture (Figure 5).** As economies develop, the share of employment in the agricultural sector typically diminishes, while the share of employment in industry and the service sector trends up. While Georgia has experienced these trends, its share of employment in the agricultural sector remains relatively high.

**16. Georgia's unemployment rate is high despite robust growth and a supportive business environment (Figure 6)**. This is attributable to a relatively high male unemployment rate, as the female unemployment rate is broadly comparable to regional peers and the world average. The high unemployment rate may be due to lack of sufficient job creation, high reservation wages, skills mismatches, a lack of labor mobility, and insufficient labor matching.

**17. Georgia's youth unemployment and the share of youth neither in employment, education or training (NEET) are high, especially for women.** Since a large share of Georgia's youth is neither working or acquiring skills, their chance of finding good jobs declines over time. Approximately one-third of those aged 15–19 are not in education, employment, or training and over 60 percent of them are women. While the unemployment rate for women is lower than for men, so is the participation rate: among all 25-to-40-year-old non-working individuals who are neither studying nor actively looking for employment, almost 9 out of 10 are women. Based on the World Bank's STEP survey, NEET individuals also differ from employed individuals in their skill profiles. For example, they are not as proficient in reading and tend to use computer skills less often. In the context of adverse demographic trends, a high share of youth NEET could hamper future growth in Georgia.

**18. Georgians with advanced education account for a large share of the labor force but also constitute a significant percentage of the unemployed, suggesting an oversupply of educated labor and/or a weak education system.** Over 50 percent of all unemployed Georgians have a secondary school diploma and as many as 40 percent have a higher education degree. In urban areas, the proportion of unemployed with higher education is even higher at 46 percent. Significant unemployment among highly educated workers carries considerable individual and social costs, leading to a paradoxical situation of simultaneous high unemployment and a shortage of qualified labor and a loss of human capital investment. While education typically provides some level of protection from unemployment in high-income countries, this is generally not the case in low income and lower middle-income countries, such as Georgia.[9] This may reflect an oversupply of educated labor in the latter countries and/or an education system that does not prepare students well for the requirements of the labor market.

## C. Labor Market Constraints

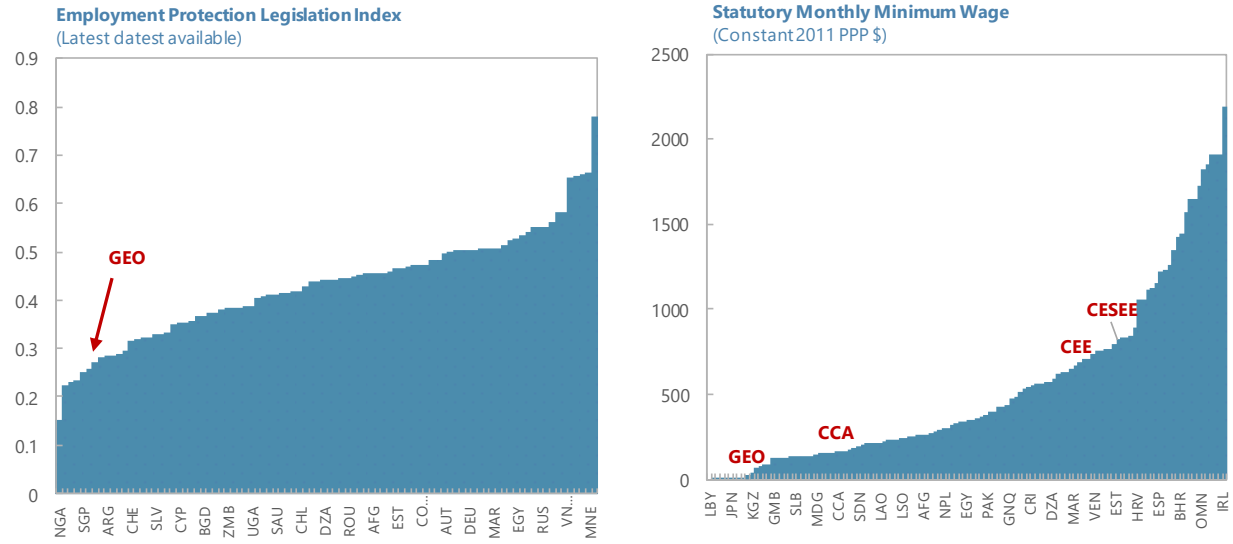
**19. This section looks at Georgia's labor market policies and education system, and their impact on the observed job outcomes**, which includes slow job creation, a low participation rate of women in the labor force, and a high unemployment rate—especially for women and youth.

[9] See Key Indicators of Labor Market (KILM) 2015, International Labor Organization.

## Georgia's Labor Market Institutions

**20. Job creation in Georgia is not hindered by labor market institutions.**[10] Georgia's **employment** protection legislations are relatively unrestrictive and are thus unlikely to have a detrimental impact on aggregate employment or hinder structural changes in the economy. There is no unemployment insurance in Georgia, which could in principle lead to high reservation wages and ultimately lower employment and longer unemployment spells.[11] Georgia's statutory minimum wage is one of the lowest in the world, which makes it unlikely to prevent employment, including from typically disadvantaged groups (such as youth, women, and minorities). Ribe et al (2006) show that Georgia's tax wedge is relatively low and thus unlikely to unduly affect employment.

**Text Figure 5. Georgia: Labor Market Institutions**




Sources: ILO and IMF staff calculations.

**21. Labor matching and other active labor market policies have been limited.** The government of Georgia offers service that lists vacancies by sector/region to facilitate matching labor demand (employers) and supply (employees). Registering for this service is mandatory for recipients of social security assistance. Overall, 140,000 job seekers have registered (roughly 7 percent of the labor force and about 50 percent of unemployed). The government also regularly holds job fairs where employers can meet job seekers. Based on a survey of employers' needs, the government supports job seekers who are willing to attend training courses provided by licensed facilities. The government has also established an apprenticeship program and provides wage subsidies for vulnerable segments of the labor force. Around 1800 workers have benefitted from the government's programs.

[10] Blanchard et al (2013) discuss how labor market policies can provide the "micro" and "macro" flexibility needed to promote labor market efficiency and equity. Micro flexibility facilitates the re-allocation of workers to jobs needed to sustain growth while macro flexibility helps the economy adjust to economic shocks. As discussed in Duval et al (forthcoming), emerging and developing economies (EMDEs) need more of both types of flexibility than advanced economies (AEs), as EMDEs require greater structural transformation but also typically face larger macroeconomic shocks.

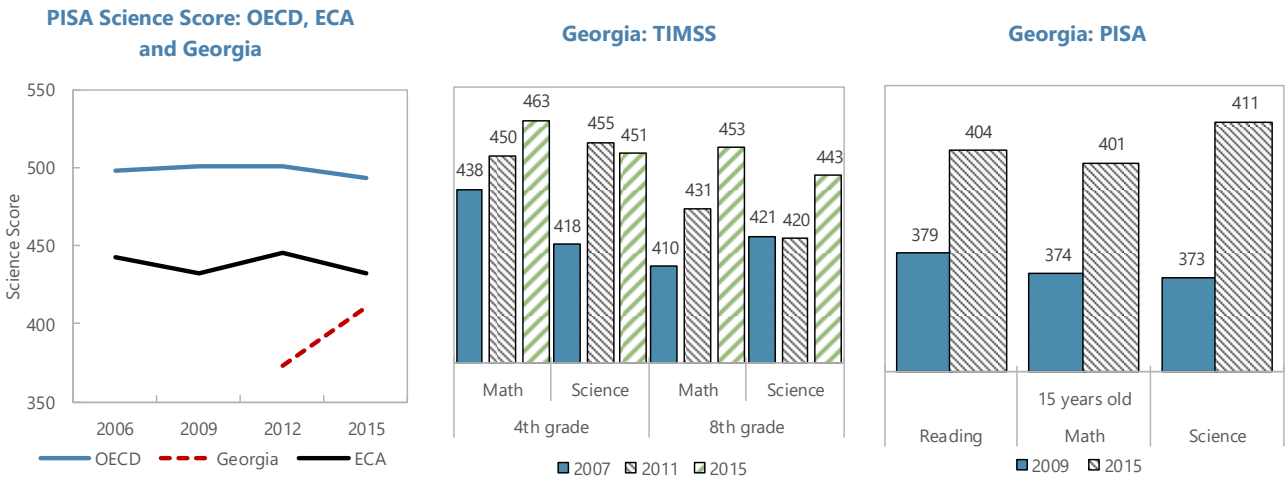
[11] High public-sector wages and robust remittances could also translate into higher reservation wages.

## Education and Skills

**22. A series of education reforms has recently been undertaken in Georgia, but more needs to be done.** Two decades of education reforms in Georgia helped improve school governance, curriculum design, teaching methodology, grades assessment, and education financing practices in Georgia. The education infrastructure upgrade in schools, followed by an increased use of IT and communication technology, improved the learning environment in schools. The recently adopted teachers' evaluation via certification system creates ground for preparation, professional development, and career advancement of the teachers through pre-designed scheme, incentivized by salary grades.

**23. The quality of education and student learning outcomes in Georgia have improved but remain poor**. Georgia remains far behind most countries that participated in international student performance assessments, such as PISA and TIMSS (Figure below). In the most recent PISA (2015), while there have been some improvements, Georgia ranked 60th in mathematics, 63rd in science, and 65th in reading out of 72 participating countries. In TIMSS, Georgia ranked 33rd and 35th in 4th grade math and science, respectively, out of 42 participant countries and 25th and 30th in 8th grade math and science out of 38 countries. Moreover, there are substantial in-country differences in performance by location, wealth, and availability of school resources. Children growing up in rural areas perform poorly. Georgia's education system needs further reform to promote academic excellence and cultivate talent and leadership for the 21st century.

**Text Figure 6. Georgia: International Student Performance Assessment**




Sources: IMF and World Bank Staff Calculations based on OECD PISA and TIMSS.

**24. While Georgians are highly educated, they do not have the relevant skills demanded by businesses.** The World Bank's 2015 STEP survey (Box 2) highlights important differences between labor demand and supply. In particular, businesses demand mostly low and middle technically skilled workers while the majority of job seekers are university graduates. This may reflect a lack of information about labor market demands or social pressures to pursue higher education, irrespective of relevance of the field of study. The survey also shows that employers have had difficulties filling job vacancies due to a lack of required skills.

**25. Lack of skills in the workforce hinders investments, job creation, and growth.** In particular, a lack of skills constrains innovation and the expansion of businesses. It also holds back the structural transformation needed for jobs to move from low to higher productivity sectors and from rural to urban areas. Recent research shows that development of the right skills among workers is central to achieving labor productivity, as workers who acquire more relevant skills make capital and other workers more productive. They also facilitate the adoption and invention of new technologies.

**26. Recognizing that the education and training system is not producing adequate job-relevant skills, Georgia has made education reform one of its top priorities**.[12] Despite a large share of the workforce having higher education degrees, there is dearth of skills relevant for the labor market. Georgia's employers regularly report their dissatisfaction with the supply of skills and unmet demand for job-relevant skills, socio-emotional skills, creative and critical thinking, problem solving, teamwork, and leadership and decision-making. The existing public financing model of higher education based on a fixed grant per student has provided no incentives to improve the quality of teaching and learning and research and development. The vocational education and training (VET) system has many challenges that constrain its quality and relevance: limited access in rural areas; low overall enrollment rate; low popularity among the Georgian youth; no smooth transition to other higher levels of education; and limited private sector involvement, including with helping define and prioritize curriculum (to be in line with labor market demand), deliver skills trainings, and share their costs.[13] The Georgian authorities are aware that the country would risk being marginalized in a competitive global knowledge economy if its education and training systems are not equipping learners with the skills they need in the 21st century.

**27. Lack of skills hinders entrepreneurship**. The prevalence of entrepreneurship is low as measured by the percentage of total employment.[14] Georgian entrepreneurs tend to have lower levels of educational attainment (compared to non-entrepreneurs) and lower income levels and scores in job-relevant, socio-emotional, and cognitive skills than wage earners. This may indicate that entrepreneurship is not often linked to innovation and higher productivity activities.

[12] The four-point plan of the government includes (1) improving infrastructure and connectivity to leverage Georgia's location as a transit and tourism hub; (2) reforming education to promote skills development, labor productivity, and job creation; (3) improving governance and the efficiency of government; and (4) enhancing the role of the private sector as an engine for growth.

[13] According to the 2017 Employment Survey by Ministry of Economy and Sustainable Development, only 1 percent of interviewed enterprises reported cooperation with vocational education institutions.

[14] Georgia has recently created the Georgia Innovation and Technology Agency (GITA). The aim of GITA is to facilitate technology transfer and the creation of private and public-sector knowledge through commercialization of research results and promoting innovative entrepreneurship. GITA is also acting as an incubator and accelerator for startup companies.

### Box 2. Summary of the World Bank 2015 STEP Survey

The 2015 World Bank's Skills Toward Employment and Productivity (STEP) was based on extensive surveys of households and employers undertaken between 2012 and 2013 that covered Georgia's urban population. The key findings are listed below:

- **Employers are dissatisfied with the supply of skills** Employers have difficulties hiring workers with the required skills, even college graduates. Employers have more demand for middle-skilled workers than for high-skilled workers. Beyond educational background, employers are primarily looking for job-related skills, followed by positive personality traits. They generally believe that the educational system is not responding to the labor market needs.
- **Socioeconomic background is associated with educational attainment and skills acquisitions.** Low quantity and quality of educational attainment in rural and minority populations compared to urban populations raise equity concerns. Inequalities in the early years of one's life have a lasting impact throughout the lifecycle.
- **Level of skills is positively associated with labor market outcomes.** This association is as strong as the positive associations with educational attainment. Low participation in on-the-job training and other training opportunities may be hampering skill acquisition and skill updating.
- **Entrepreneurship in Georgia is low and entrepreneurs typically have a low level of education and skills.** Compared to wage earners, entrepreneurs exhibit lower use of job-relevant and cognitive skills, and are more likely to work in low-productivity sectors. There is no evidence of an income premium for being an entrepreneur.
- **The school-to-work transition for individuals aged 25-40 is moderately fast.** The transition time depends on educational attainment and job-relevant skills. Rapid transitions are associated with better labor market outcomes. Most first out-of-school jobs are in skilled occupations and are likely to be filled by tertiary education graduates who possess and utilize cognitive and job-relevant skills more intensely.
- **A severe gender disparity characterizes the inactive population.** Amongst individuals aged 25–40 neither in employment, education or training (NEET), almost 9 out of 10 are women. The inactive population is found to be less proficient in reading and tend to use computer skills less often than employed individuals. These differences are likely to further limit their prospects of finding quality jobs.

## D. Reform Priorities

**28. Georgia needs to build the skills of its workforce**. The inadequate education and training of the **labor** force is one of the most significant obstacles for expanding businesses. There are several key areas that need to be given attention to build a highly skilled Georgian workforce.

- **Get children off to the right start.** The World Bank's STEP survey shows that effective participation in early childhood education (ECE) results in higher levels of cognitive and socio-emotional skills and better labor market outcomes later in adulthood. A particular focus should be on closing the participation gap in ECE between urban and rural areas and among socioeconomic and ethnic groups. The immediate challenge is to expand the service provision to meet the increased demand while maintaining service quality standards. Policies and strategies are needed to define central and local government roles and responsibilities in terms of setting standards, financing, and providing services, as well as monitoring and evaluating performance and to tap into the potential of the private sector to expand ECE service provision.
- **Ensure that all students learn**. Georgia has a well-educated population overall, but the skills obtained through the country's education system appear more limited than in other countries. Moving forward, Georgia will need to prioritize the following actions: (1) improve learning outcomes and skills formation in the education system by having a high-quality and effective teaching force and a strong quality assurance and accountability system for learning results; (2) strengthen tertiary education, emphasizing a close link with the labor market's need for a skilled and innovative labor force, not only as employees, but also as entrepreneurs; (3) tertiary education reforms could prioritize more institutional twinning with foreign universities; and (4) narrow the learning outcome and skills gap by supporting those who lag behind, especially in terms of socioeconomic background and the rural-urban divide.
- **Build job-relevant skills.** The World Bank's STEP survey also shows that participating in on-the-job training, professional certification, and apprenticeship is associated with higher level of skills, which improves employment opportunities and earnings. Building skills will require a re-thinking of the three important channels of skill formation: (1) the VET system could be improved by greater involvement of employers in the educational process, prioritizing practical training, and supporting labor market-oriented professional trainings; (2) develop and expand students' pathways from VET to polytechnics institutions and universities; (3) on-the-job training could benefit from incentives designed to encourage firms to provide such training and apprenticeship opportunities in collaboration with schools and training institutions; and (4) encouraging lifelong skills acquisition in order to maintain or upgrade workers' skills to keep up with business needs, production processes, and technological change.
- **Strengthen science & technology.** This could be done through establishing centers of excellence in priority economic growth areas and sectors to boost competitiveness of the economy.

**29. Education sector management and financial planning should be bolstered.** This will help ensure reforms become sustainable. Georgia could improve resource planning in the sector and rationalize networks of schools and education institutions. Public-private partnerships (PPPs) in the

education sector could be undertaken, in the context of the forthcoming PPP framework, to establish cost sharing with labor market stakeholders and to improve the labor market relevance and the efficient delivery of education and skills training programs.

**30. Enhance communications about labor market trends and improve job matching services.** This could take the form of (1) enhancing further annual reports on labor market trends (for example, list

marketable skills and professions) to help students and workers make informed decisions about their future careers; (2) improving labor market information systems, including career guidance for skilled and low-skilled workers; and (3) enhancing the matching services provided by the government to reduce unemployment.

**31. Encourage greater participation of women in the labor force.** This could be achieved by enhancing child care services and encouraging more flexible working hours and part-time employment.

**32. Georgia could encourage entrepreneurship and innovation.** Future policies can aim to create a business environment that encourages entrepreneurship, particularly in innovative sectors, by improving business-supporting services, as well as risk management policies and instruments. The country should also work to align some of the education and training courses, particularly at the tertiary level, with the objective of fostering entrepreneurship by equipping trainees with essential knowledge, skills, and attitudes.

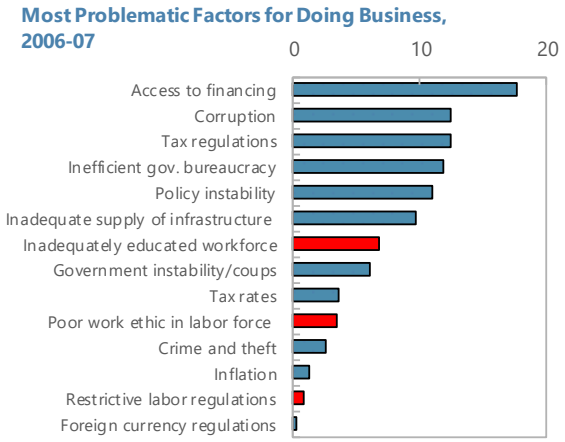
## E. Conclusion

**33. Georgia's robust growth in the last decade has not been accompanied by job creation.** Unemployment has remained high, and a large share of the labor force is trapped in low-productivity sectors, such as agriculture. Furthermore, a large share of Georgia's unemployed have tertiary education, and an alarmingly high level of youth, especially women, remain outside the labor force.

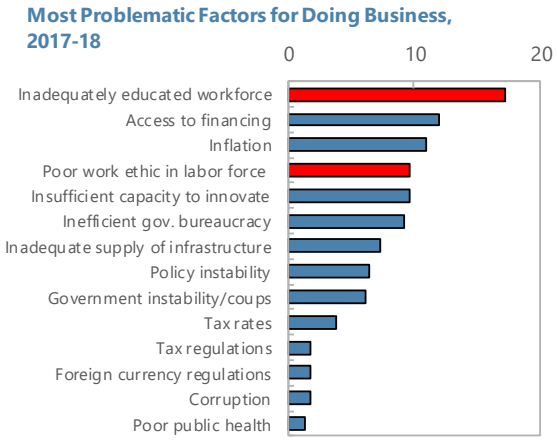
**34. More robust and inclusive growth will require reforming the education sector and strengthening some labor market policies.** Education reform would entail (1) improving early childhood education; (2) strengthening the education system to improve learning outcomes; (3) enhancing the VET system, and supporting on-the-job training and lifelong learning; (4) encouraging science and technology; and (5) strengthening education sector management. Labor market policy improvement should aim to (1) provide more information on labor market needs; (2) enhance labor matching services; and (3) encourage a greater participation of women in the labor force.

## Figure 1. Georgia: Labor Demand

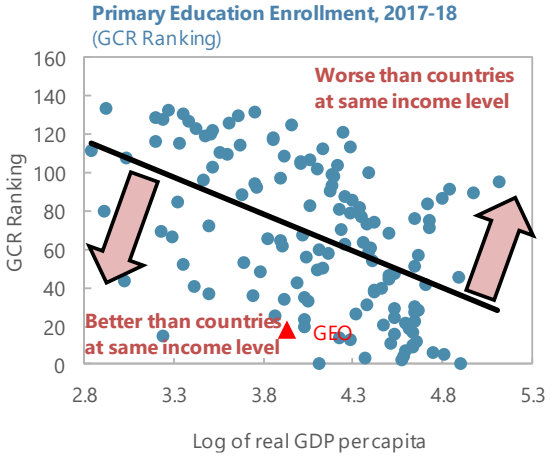
*Problems faced by businesses have evolved from access to financing, corruption, tax regulations…*



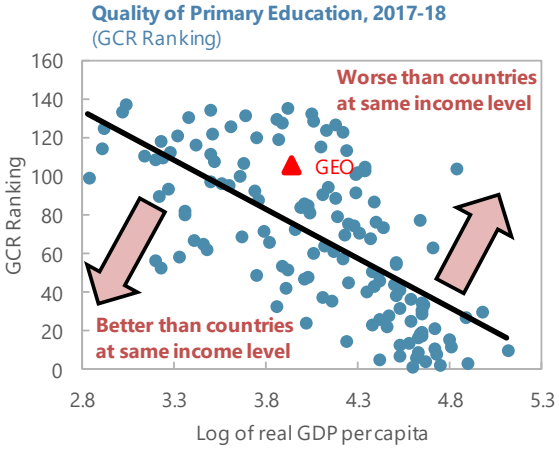

*… to labor market issues.*



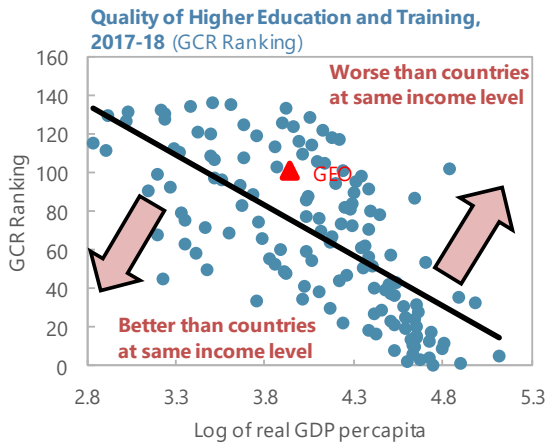

*While Georgia ranks well in terms of primary education enrollment…*



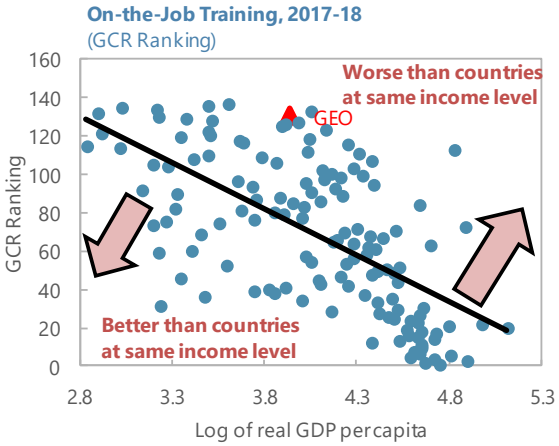

*the quality of primary education could improve.*




*Similar findings apply to higher education…*



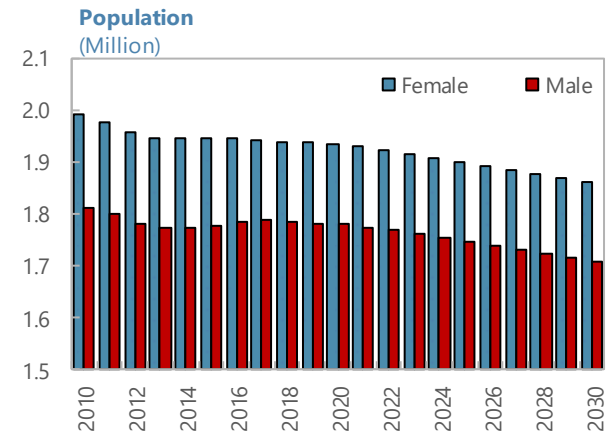

*… and on-the-job training.*



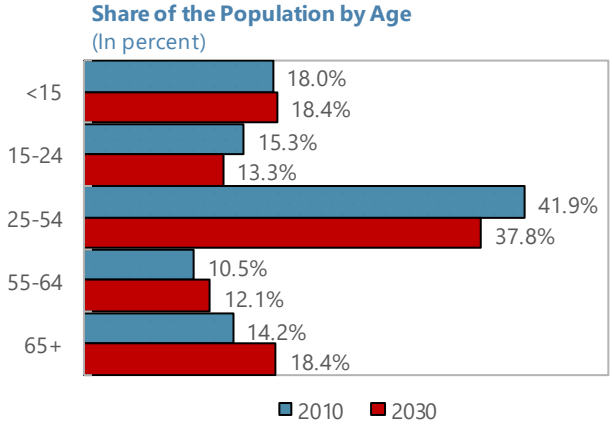

Source: World Economic Forum, Global Competitiveness Report 2006–07 and 2017–18. Log of real GDP per capita is the 2012–16 average of real GDP per capita (PPP 2011 international dollars).

## Figure 2. Georgia: Population and Participation Rate

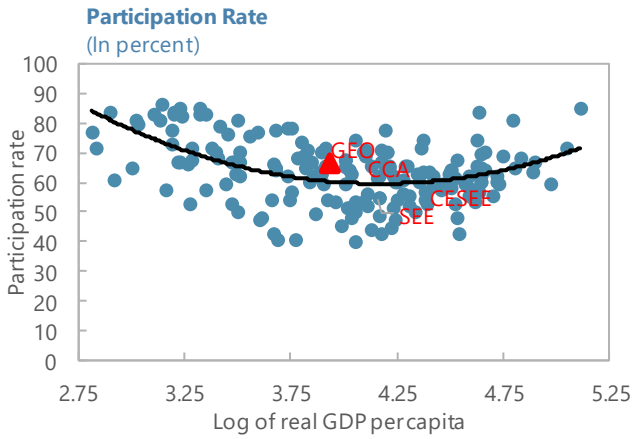
*Georgia's population is expected to decline...*



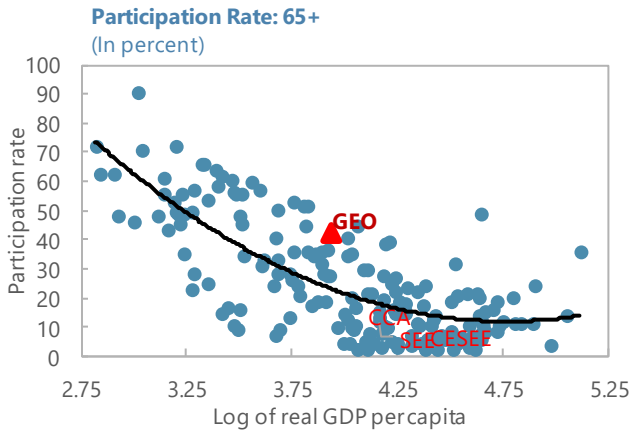

*... and to become older.*



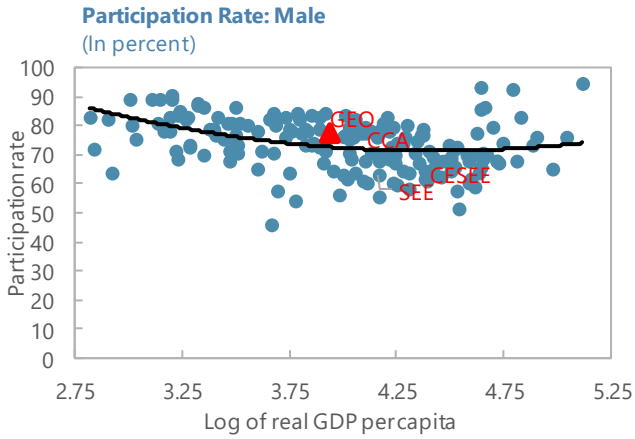

*Georgia's participation rate is relatively high,..*



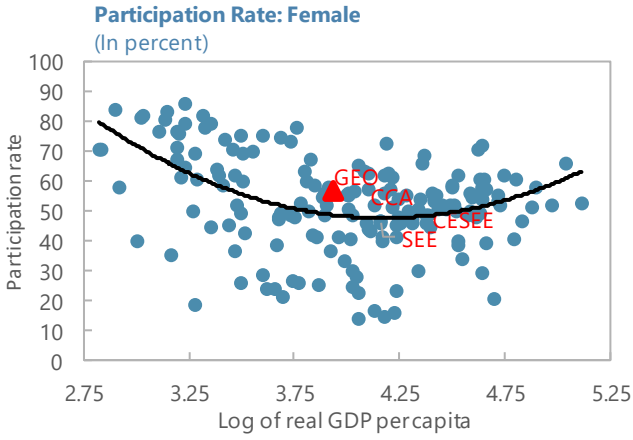

*... especially for the older generation.*




*Male participation rate is slightly above peers.*



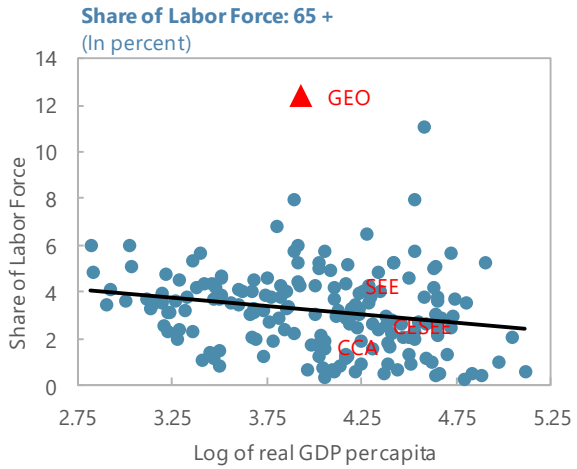

*Georgia's female participation is also above peers, but well below male's.*



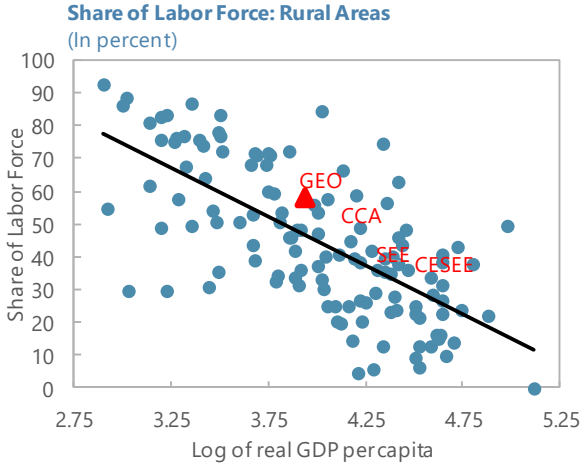

Sources: ILO, GEOSTAT and IMF staff calculations. Log of real GDP per capita is the 2012–16 average of real GDP per capita (PPP 2011 international dollars). Latest available data.

## Figure 3. Georgia: Labor Force

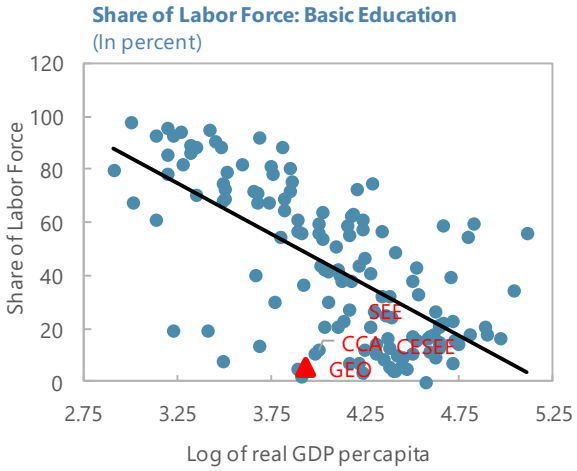
*Georgia's labor force is relatively old …*



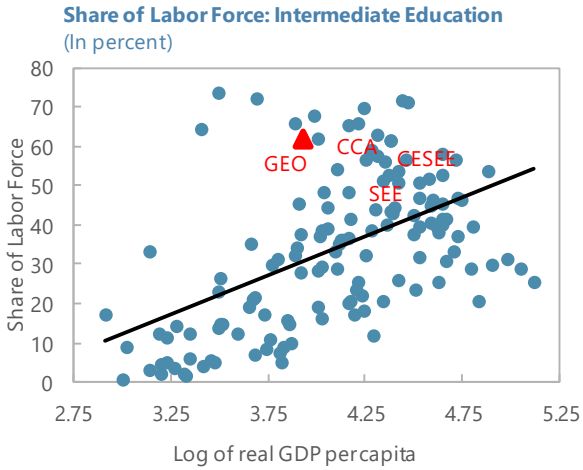

*… and rural.*



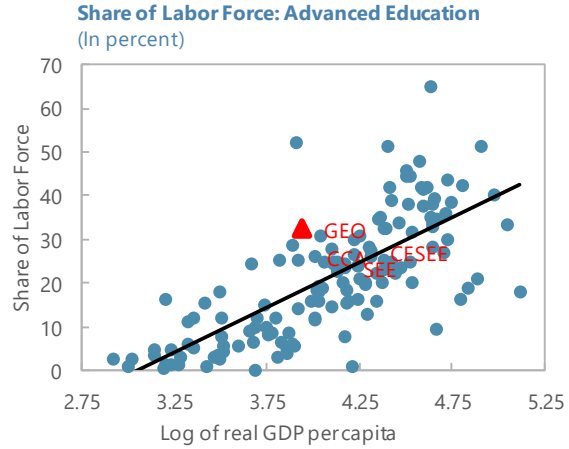

*A very low share of the Georgian labor force has received only basic education (or less) …*



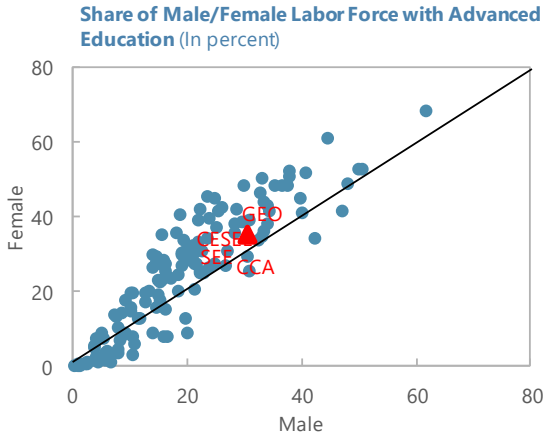

*… with a large majority of the labor force having intermediate education.*




*A relatively high share of Georgians has received advanced education.*



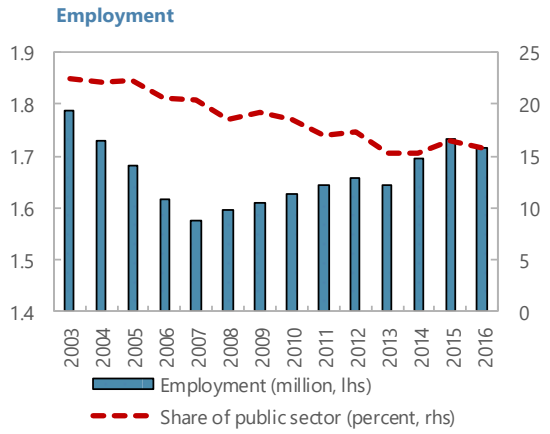

*A greater share of women has pursued advanced education.*



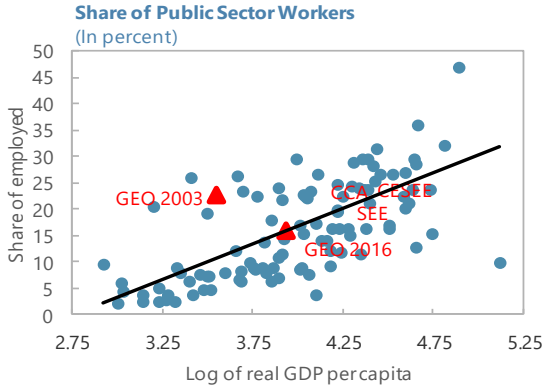

Sources: ILO, GEOSTAT and IMF staff calculations. Log of real GDP per capita is the 2012–16 average of real GDP per capita (PPP 2011 international dollars). Latest available data.

## Figure 4. Georgia: Employment

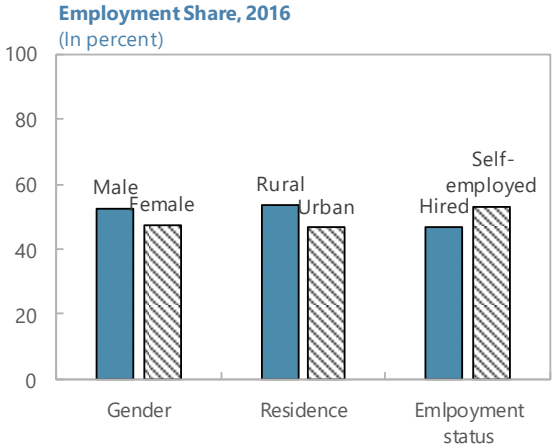
*Employment has been recovering since 2008-09, while the share of public employment has been trending down.*



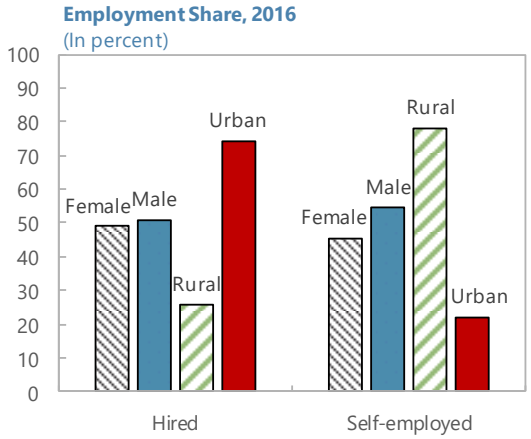

*The size of the public sector is now consistent with Georgia's level of development.*



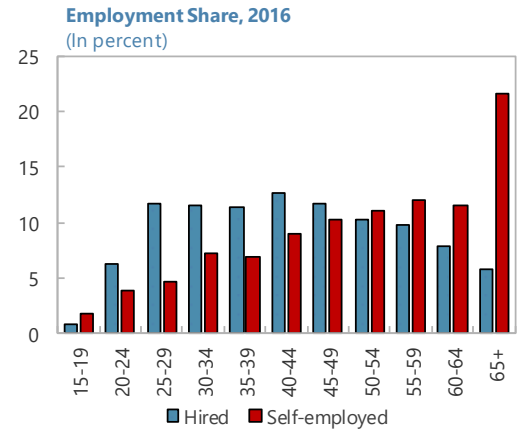

*Employment is more likely to be found in rural areas and for self-employed workers.*



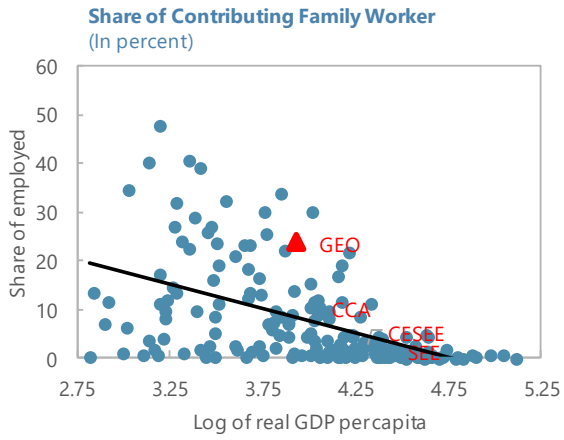

*Self-employed workers mostly live in rural areas, while "hired" workers are more prevalent in urban areas.*




*Self-employed workers are typically older.*



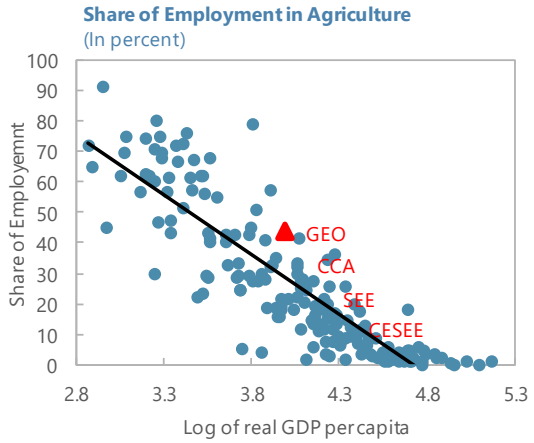

*Georgia also has a high share of contributing family workers (typically unpaid and associated with the agriculture sector)*



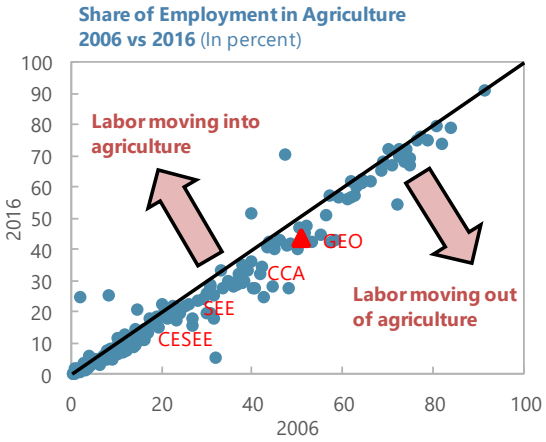

Sources: ILO, GEOSTAT and IMF staff calculations. Log of real GDP per capita is the 2012–16 average of real GDP per capita (PPP 2011 international dollars). Latest available data.

## Figure 5. Georgia: Employment by Sector

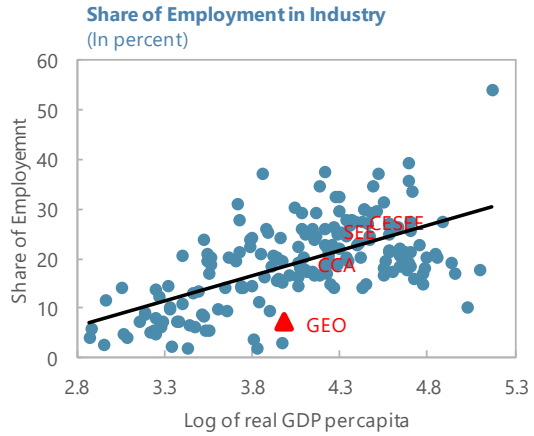
*Georgia's share of employment in agriculture remains high…*



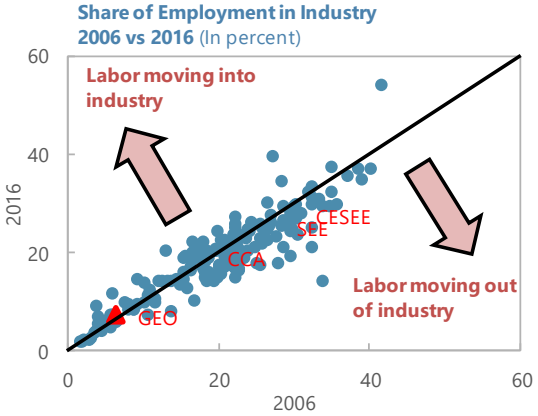

*… despite a marked reduction since 2006, consistent with a broad trend in labor moving out of agriculture.*



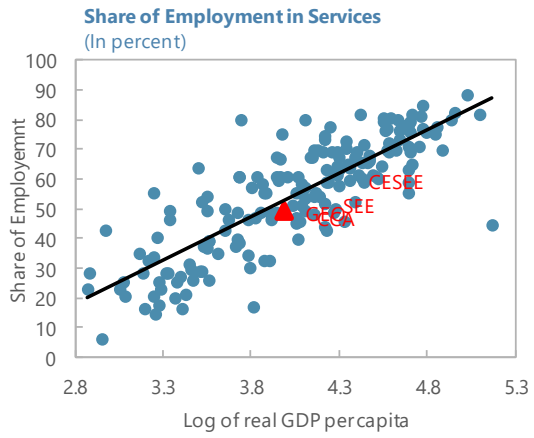

*Georgia's share of employment in industry is lower than peers…*



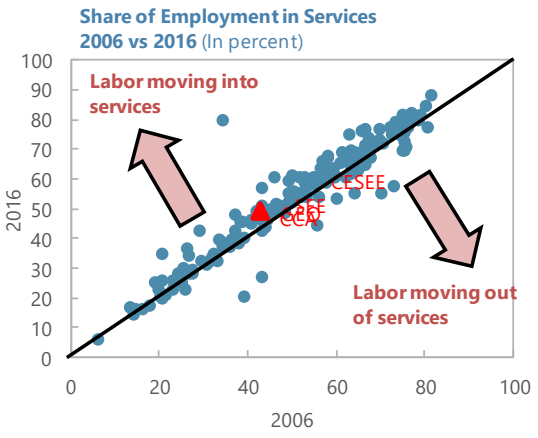

*… and Georgia's share of employment in industry has increased slightly, while a majority of countries have experienced a decline.*




*Georgia's share of employment in services could be increased further…*



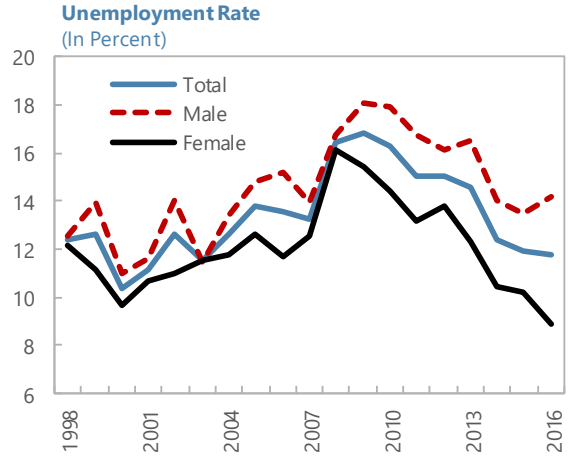

*…after some gains in the last decade.*




Sources: ILO and IMF staff calculations. Log of real GDP per capita is the 2012–16 average of real GDP per capita (PPP 2011 international dollars).

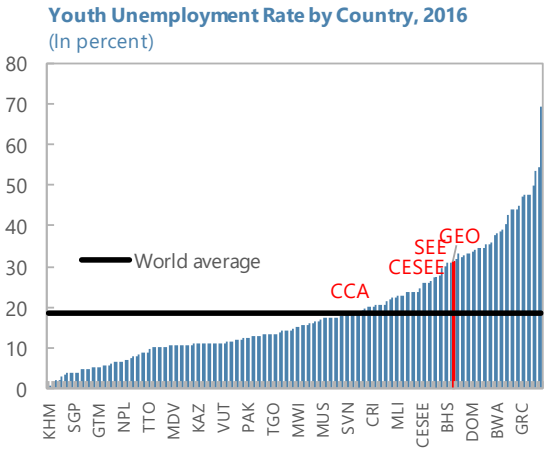
## Figure 6. Georgia: Unemployment

*Georgia's unemployment rate remains high despite recent decline.*

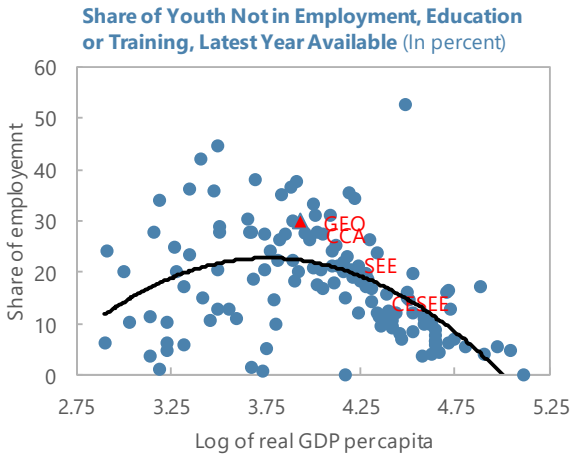



*Young Georgians have the highest unemployment rate.*

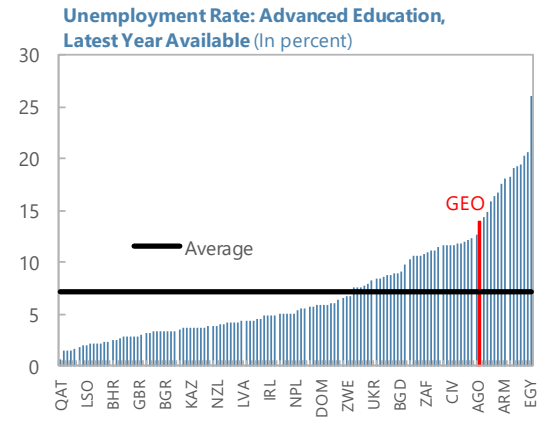

*Youth unemployment rate is Georgia is much higher than the world average…*



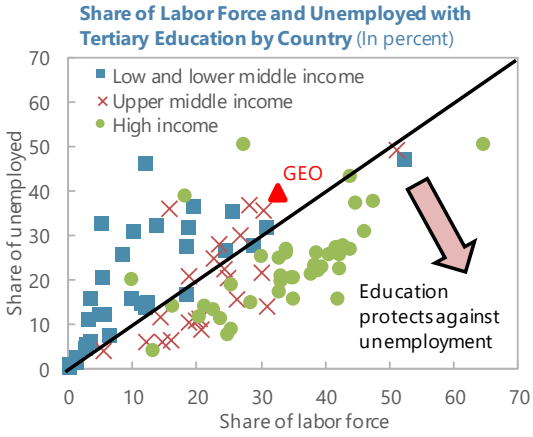

*… and Georgia's share of youth NEET is alarmingly high given Georgia's adverse demographics.*




*Georgians with advanced education have a relatively high unemployment rate…*




*… which is consistent with an over-supply of advanced education in low and lower middle-income countries.*




Sources: GEOSTAT, ILO and IMF staff calculations.

# References

Blanchard, O., Jaumotte, F. and Loungani, P., 2013, *"Labor Market Policies and IMF Advice in Advanced Economies During the Great Recession." IMF Staff Discussion Note* No. 13/02.

Duval, R. and Lougani, P. (forthcoming), *"Designing Labor Market Institutions in Emerging and Developing Economies: Evidence and IMF Advice"*. International Monetary Fund, 2018.

McMillan, M. and Rodrik, D, 2011, *"Globalization, Structural Change and Productivity Growth"*, NBER Working Paper No. 17143, JEL No. O1.

International Labor Organization (ILO), 2015, *"Key Indicators of the Labor Market"*.

International Monetary Fund, 2013, *"Jobs and Growth: Analytical and Operational Considerations for the Fund"*.

Ribe, H., Robalino, D. and Walker, I. , 2010, *"Achieving Effective Social Protection for All in Latin America and the Caribbean"*. World Bank Group, Washington D.C.

World Bank, 2013, Rutkowski, Jan, "*Workforce Skills in the Eyes of the Employers"*.

World Bank, 2015, Valerio, Alexandria, Katia Herrera-Sosa, Sebastian Monroy-Taborda, and Dandan Chen, *"Georgia Skills Toward Employment and Productivity (STEP) Survey Findings (Urban areas)"*.

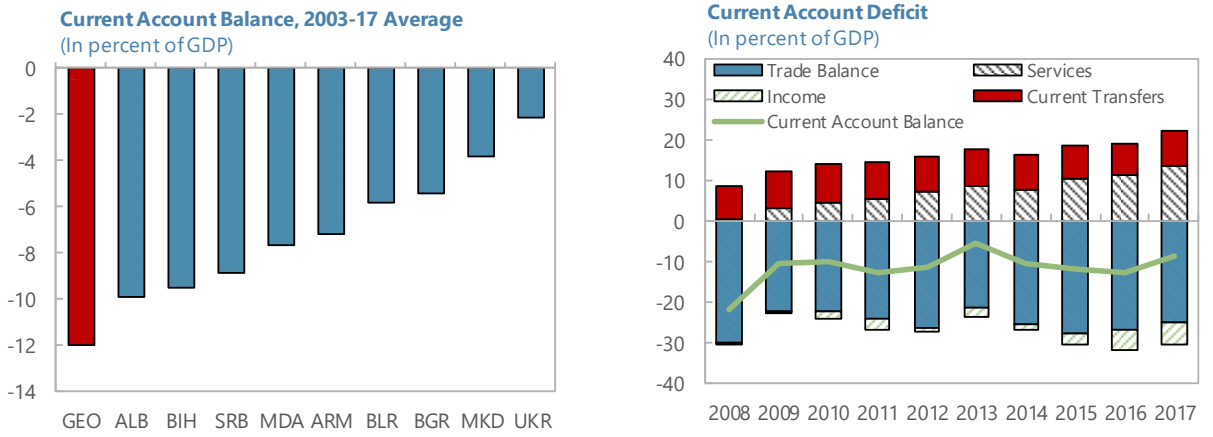
# GEORGIA'S PATH TO ECONOMIC DIVERSIFICATION

*Georgia's persistently large current account deficit partly reflects limited export product diversification. This paper assesses Georgia's export potential based on its current comparative advantage and identifies drivers of export product diversification. The analysis suggests that Georgia's potential to upgrade to more complex products and to products that offer greater opportunity for future diversification is limited. Structural reforms that support human capital accumulation and improvements in institutions can help Georgia expand its export potential.*

## A. Introduction

**1. Relative to its peers[1], Georgia's current account (CA) deficit has been persistently large**. The current account deficit hovered around 12 percent of GDP for each of the past 15 years. Georgia's trade deficit has been a major contributor to the CA deficit and has stayed, on average, at about 25 percent of GDP, reflecting both high imports and low export growth.

**Figure 1. Georgia: Current Account Balance**

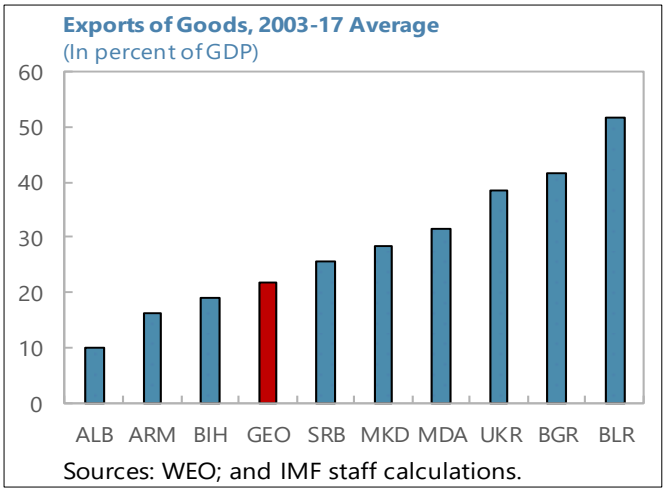



Source: Country authorities, *World Economic Outlook,* and IMF staff calculations.

**2. Merchandise exports have been relatively low compared to peer countries and highly concentrated in a few products.** The persistently large current account deficit partly reflects the underlying narrow production structure. Compared to its peers, Georgia's exports to GDP—averaging around 22 percent of GDP during the past decade—are among the lowest in its peers. In addition, almost 60 percent of total merchandise exports are concentrated on a few products, including ferrous products, copper, beverages, and, recently, medicines.

[1] Peers are selected based on population size, income, and geographical location. They include Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Macedonia, FYR, Moldova, Serbia, and Ukraine.

**3. Expanding export markets and products could help boost Georgia's growth and increase its economic resilience.** Diversification in exports and in domestic production accelerates economic growth and is associated with lower output volatility and greater macroeconomic stability (Stanley and Bunnag, 2001; Mobarak; 2005; Agosin, 2007; Koren and Tenreyro, 2007; and Bertinelli et al., 2009; IMF, 2014). This approach increases productivity (Melitz, 2003) and allows countries to be less dependent on particular products—especially primary products and commodities, which tend to be associated with higher price volatility (Hadad et al., (2013)).

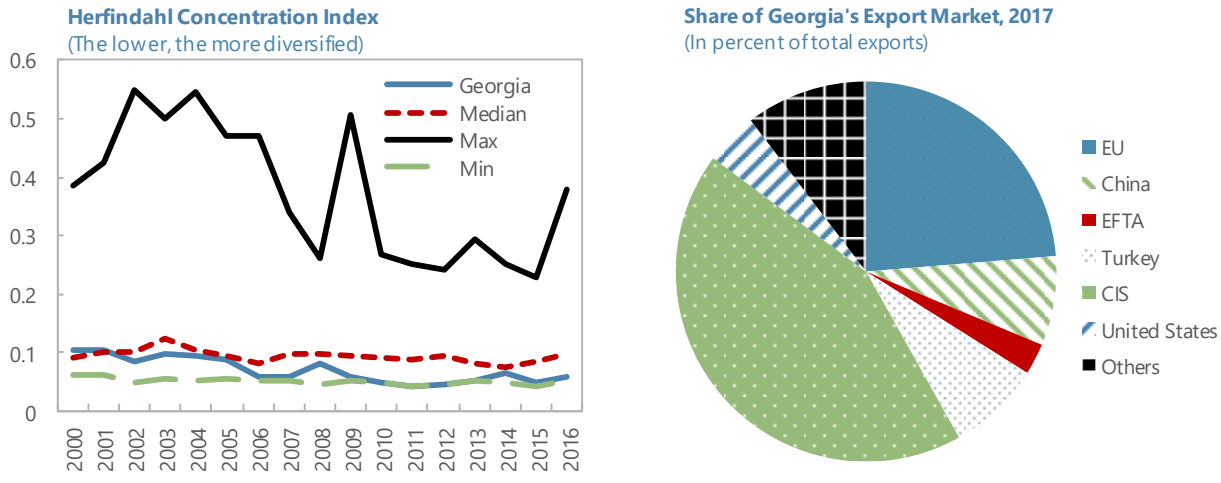



**4. The paper is outlined as follows.** The next section assesses Georgia's export diversification compared to comparator countries. After that, the analysis will identify Georgia's potential export products based on its current comparative advantage. The paper will then analyze the drivers of export diversification, which is followed by a discussion of policy implications and a conclusion.

## B. Export Diversification in Georgia: A Cross-country Perspective

**5. Compared to peers, Georgia's export markets are relatively diversified, according to the Herfindahl market concentration index.[2]** Thanks to free trade agreements with the European Union, China, and EFTA (Iceland, Liechtenstein, Norway, and Switzerland), the share of Georgia's exports to those markets increased from 22 percent to 34 percent during 2013–17.

**Figure 2. Georgia: Export Market Diversification**

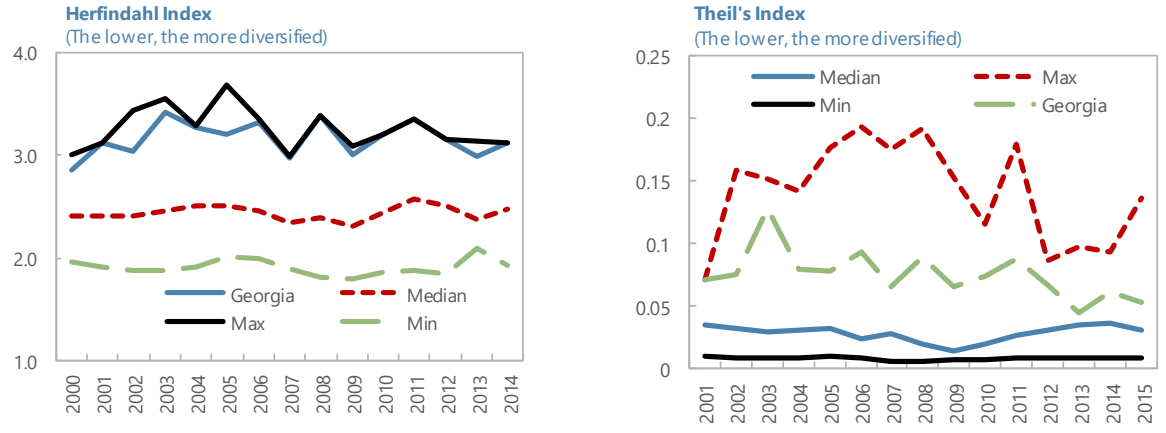



Sources: World Bank; and IMF staff calculations.

[2] The lower the index, the more diversified the country is.

**6. However, Georgia's export product diversification is relatively low and has not improved over time.** Both Herfindahl product concentration and Theil's index point to a similar finding: In relative terms, Georgia is less diversified in terms of export products. Theil's overall index, which captures both extensive (new products) and intensive (exports volume across products) margins, shows that Georgia is among the worst performers among peers in terms of product diversification. This illustrates the need for improvement in product diversification, though the potential for achieving this goal depends on the current export structure.

**Figure 3. Georgia: Export Product Diversification**




Sources: World Bank; and IMF staff calculations.

## C. Export Potentials: Assessing Opportunities

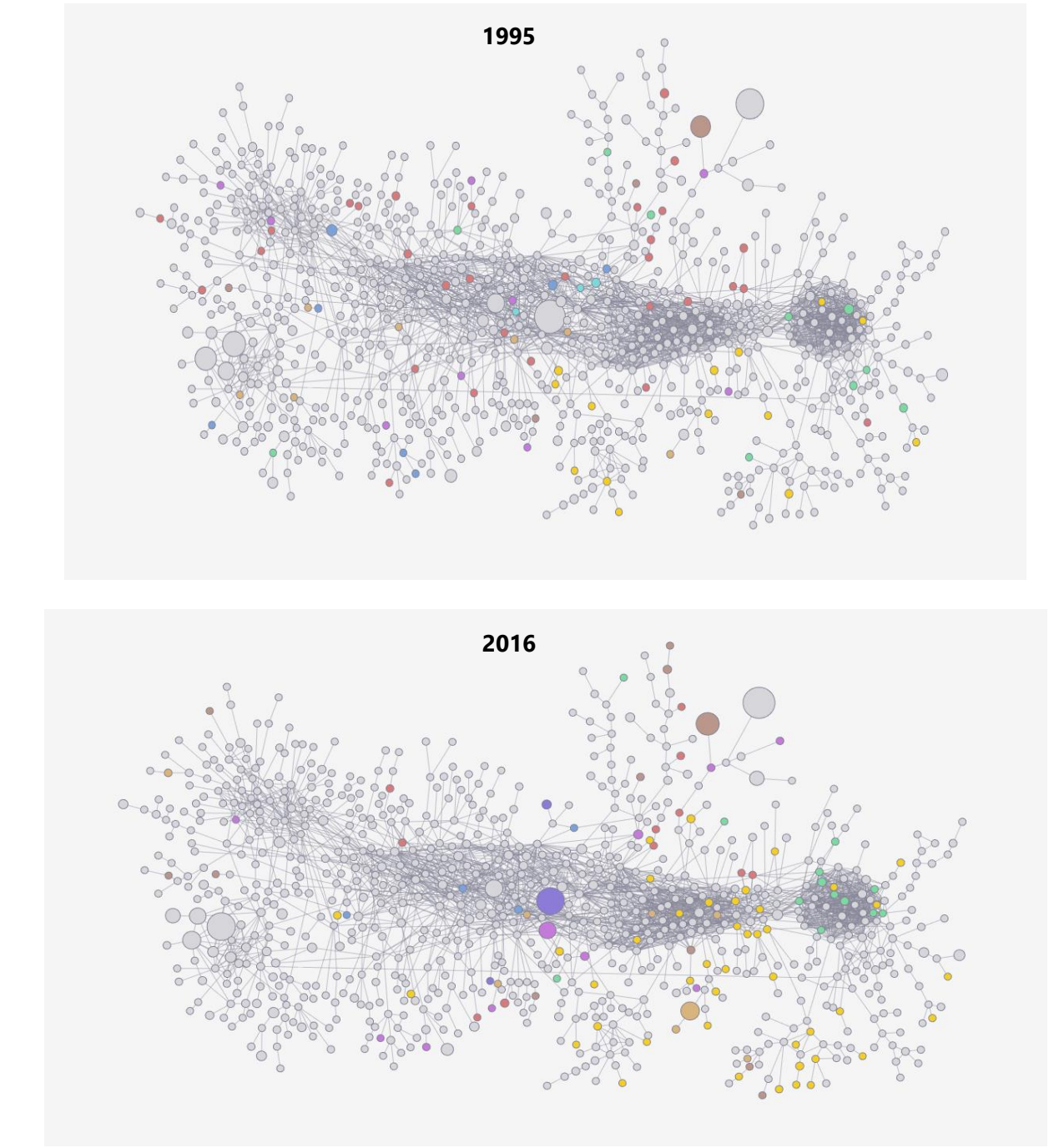
**7. The paper uses product space analysis to assess Georgia's potential to diversify its export products based on its current comparative advantage.**[3] The product space highlights two important points. First, a country's prospects for economic diversification depend, in part, on what it currently produces and exports. If the country has a comparative advantage over the products that connect to many nearby products (that is, located in the middle and dense part of the product space), it is easier for a country to diversify. Second, what a country produces and exports reflects its underlying productive factors, including skills, technological know-how, and institutions.

**8. Georgia's potential to diversify has improved but is still limited.**[4] We compare the product space for Georgia in 1995 and 2016. In 1995, Georgia's merchandise exports with comparative advantage (colored bubbles in Figure 4) are mostly located on the periphery of the product space. This implies that there are limited links to products that Georgia can diversify into. In 2016, Georgia's prospect for diversification improved, since products with comparative advantage expanded to the dense and middle part of the product space. Those products—including cars, chemicals, and plastics—have many linkages to others nearby. By having a comparative advantage in those products, Georgia has increased its potential to diversify its production.

[3] The country has comparative advantage on a product if its revealed comparative advantage is greater than 1.

[4] See Annex for more details of the product space.

## Figure 4. Georgia: Product Space: 1995 and 2016




Source: The Atlas of Economic Complexity.
Note: The colored bubble represents the products Georgia has comparative advantage, defined as RCA is greater 1. The size of the bubble indicates the share of the product in the world trade. The product space calculates RCA based on gross exports. For Georgia, some industries, i.e., vehicles, are subject to high re-export content and therefore it may not fully reflect true competitiveness of the sectors.

**9. Georgia faces challenges in its efforts to upgrade its merchandise exports to more complex products.** Not only should a country look to diversify its products that are closely linked to the current production (requiring similar know-how), it should look to expand into products that are more complex, given its current income level. This can be shown by the mapping "distance" and "economic complexity" (Figure 5A). Distance shows how easy it is for a country to produce new products (shown in the chart), given a country's current mix of exports. The larger the distance, the more difficult it is to produce a particular product.[5] Economic complexity ranks the complexity of a country's export basket. Countries that have a substantial diversity of productive know-how—particularly complex, specialized know-how—are able to produce a greater diversity of sophisticated products, which, consequently, heightens the complexity of their economies. The red vertical line in Figure 5A depicts Georgia's current level of complexity based on its current export basket. The products that are located above the red line can raise the average complexity of Georgia's current export basket. As seen in Figure 5A, potential products that are closely linked to Georgia's current export basket (shorter distance) such as sugar, fish, and vegetables are mostly less complex than Georgia's current economic complexity.

**10. Georgia's potential to diversify into products that offer greater opportunity for future diversification is also limited.** Apart from expanding to more complex products, a country should also diversify into new products that can facilitate future diversification. Figure 5B shows the relationship between distance and opportunity gain. The higher the opportunity gain, the easier the country can diversify in the future.[6] However, there is a tradeoff between distance and products with more opportunity.

[5] For example, given Georgia's current export basket, it is more difficult to diversify into producing electronics than minerals because electronics has longer distance.

[6] For instance, the opportunity gain for electronics is generally higher than that of agricultural products. Based on the product space analysis, comparing to producing agricultural products, producing electronics has more linkages to the production of other goods

## Figure 5. Georgia: Export Opportunities


Source: The Atlas of Economic Complexity
Note: Size of the bubble indicates the share of a product to total trade.

## D. Drivers of Export Product Diversification

**11. Literature suggests export product diversification is driven by both demand and supply factors.** Key factors that have been consistently found to be robust in explaining export product diversification include per capita income, human capital, population, terms of trade, exchange rate, and institutional and governance factors. Higher income per capita and population provide more incentive for firms to produce a wider range of products for consumption to satisfy diverse and complex tastes and preferences (Parteka and Tamberi, 2011). Favorable terms of trade are, theoretically and empirically, shown to increase export concentration (lower economic diversification) because investment and productive factors will be diverted away from the development of a new sector (Agosin, 2012). Human capital accumulation and good governance are prerequisites for a good business environment that can attract investment and, in turn, help promote economic diversification, especially in high value and quality sectors. Finally, exchange rate overvaluation is associated with lower economic diversification since it undermines the competitiveness of the export sector.

**12. To assess the drivers of export product diversification, we use panel regression analysis.** The analysis focuses on key determinants of export product diversification for middle income countries, excluding small states and islands during the period of 2000-14. We use Theil index as a measure of export product diversification. Since the index is largely stable over time, we divide the sample into 3 clusters—average of the Theil indices during 2000-04, 2005-09, and 2010-14. The independent variables include GDP per capita, human capital, terms of trade, population, rule of law, and trade openness. To eliminate an endogeneity issue, we regress the independent variables at time 2000, 2004, and 2010 onto the 5-year averages of Theil indices.

**13. The analysis shows that export product diversification is positively associated with macroeconomic fundamentals and structural factors that are consistent with the literature.** Across all specifications, higher GDP per capita, improving human capital, more population, and better quality of institutions are associated with higher economic diversification, while favorable terms of trade decrease the degree of economic diversification. All factors are statistically significant at 1 percent. Moreover, we found that trade openness is statistically insignificant at explaining product diversification.

**Text Table 1. Drivers of Export Product Diversification**

| | Dependent Variable: Theil's Index | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Variables | OLS | OLS | OLS |
| Log GDP per capita | -0.156*** | -0.083** | -0.080** |
| | [0.038] | [0.037] | [0.037] |
| Human Capital Index | -0.178*** | -0.143*** | -0.147*** |
| | [0.049] | [0.045] | [0.044] |
| Terms of Trade (Growth) | 0.008*** | 0.006*** | 0.006*** |
| | [0.002] | [0.001] | [0.001] |
| Population (Billions) | -0.474*** | -0.388*** | -0.377*** |
| | [0.061] | [0.041] | [0.045] |
| Rule of Law (-2.5 to 2.5= best) | | -0.231*** | -0.234*** |
| | | [0.048] | [0.049] |
| Trade Openness | | | 0.026 |
| | | | [0.047] |
| Year FE | Yes | Yes | Yes |
| Observations | 192 | 192 | 192 |
| R-squared | 0.954 | 0.962 | 0.962 |

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1
Source: IMF staff calculation.

**14. Further efforts are needed to support export product diversification by expanding Georgia's productive**

**factors, such as skills, technological know-how, and quality of institutions.** The product space assumes the underlying productive factors are relatively specific to a set of products. A more complex export basket reflects sophisticated productive factors of the economy. Georgia's limited opportunity to diversify underlines its structural weaknesses, including skills mismatches, low technological know-how, and limited quality of institutions in some areas. According to the Global Competitiveness Report, the most problematic factors for doing business in Georgia include an inadequately educated workforce (see accompanying SIP on "Georgia's Labor Market and Education System"). Innovation and business sophistication also lag comparators. In addition, despite improvements, the business environment could be further strengthened through improvement to the quality of institutions. According to the 2018 World Bank's Doing Business, Georgia fares well in terms of ease of doing business, starting a business, registering property, protecting minority investors, and enforcing contracts. However, further improvements could be made, especially in the areas of easing insolvency procedures, trading across borders, and innovation.

## E. Policy Implications and Conclusion

**15. The product space analysis and drivers of export product diversification highlight two key policy implications**:

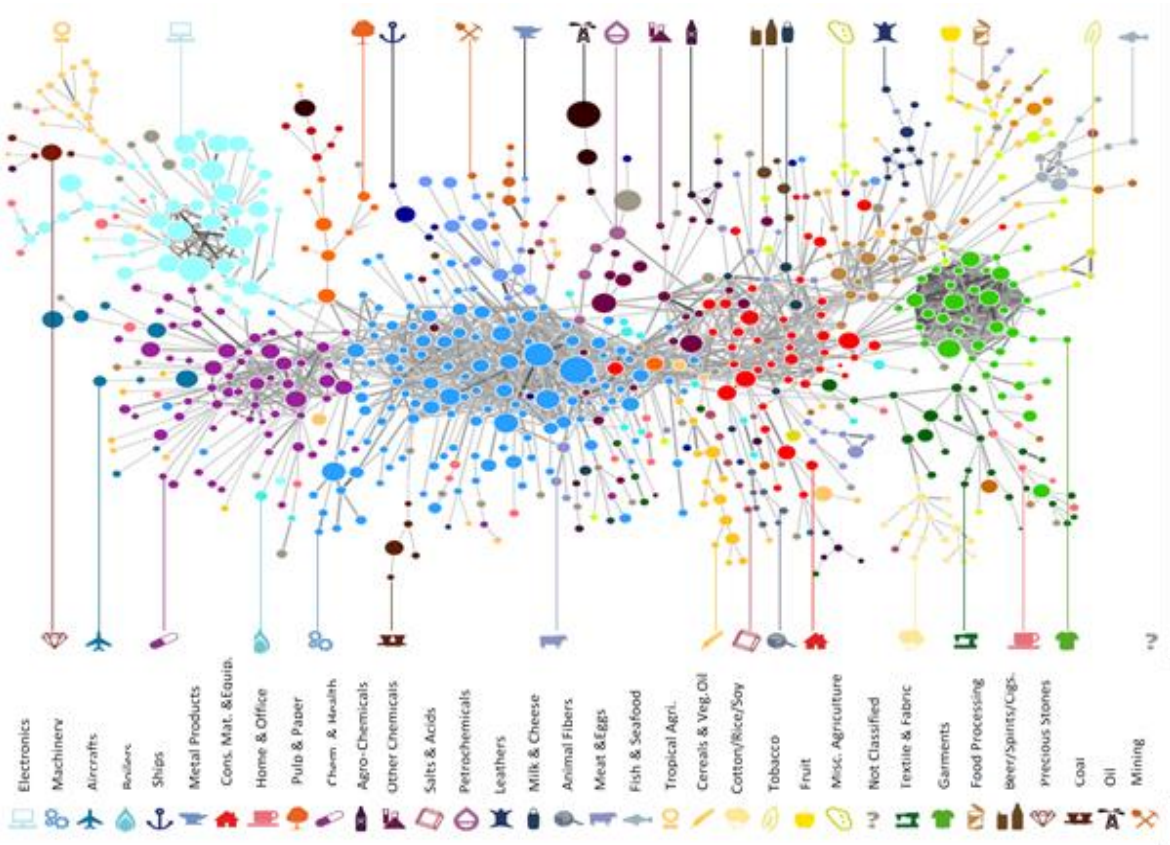
- In term of choosing potential products to diversify, a country should strategically consider producing products that 1) are similar or closely linked to the existing products because they employ similar know-how and hence are more efficient to produce; 2) are connected to many other potential products or at the core of the product space; and 3) provide more economic complexity.
- For expanding underlying productive factors of the country, structural reforms aiming at advancing human capital accumulation and improving quality of institution are warranted to increase product diversification.

**16. An analysis of Georgia's path to economic diversification suggests that human capital accumulation and better quality of institutions can help expand the country' current capacity to diversify its exports**. Compared to others, Georgia fares well in term of export market diversification, thanks to free trade agreements with large markets such as the European Union and China. However, Georgia's export product diversification is relatively low due to its narrow production base. A product space analysis shows that despite improving prospects for economic diversification, Georgia's underlying capacity limits its potential to upgrade current export baskets to higher value-added products. The study also shows that human capital, quality of institutions, GDP per capita, terms of trade, and population are significantly and positively associated with economic diversification. As a result, structural reforms that support human capital accumulation through better quality of education, as well as improvements to the quality of institutions, can help Georgia expand its current capacity.

# Annex I. Product Space Analysis

**Product space analysis:** The produce space (Hildago et al, 2007) proposes that countries co-produce goods that are related because they require similar institutions, capital, infrastructure, and technology. Dissimilar goods are less likely to be co-produced.[1] The products in the core dense part of the product space display many links to nearby products. They are closely connected and share similar capabilities. Hence, it is easier for a country to move to the next product if it already produces a highly connected good. These products include metal, machinery, and chemicals. In contrast, products located on the periphery of the product space, including fishing, tropical, cereal and agriculture, have fewer links to other products, hindering diversification.

**Annex Figure 1. Georgia: Product Space Network Representation**




Source: The Atlas of Economic Complexity
Note: Each dot represents product at 4-digit level HS. The size of the dot indicates a share of the product to world trade. The grey lines represent linkages between products.

[1] For example, a probability of a country that co-produces shirts and blouses is higher than the probability of producing shirts and jet engines since it takes similar capabilities and skill sets to produce the former.

**Revealed comparative advantage (RCA):** A country has Revealed Comparative Advantage in a product if it exports more than its "fair" share—that is, a share that is equal to the share of total world trade that the product represents (Balassa, 1965).

$$\boldsymbol{RCA = X\_cp/(\sum\_c X\_cp)/(\sum\_p X\_cp)/(\sum\_p \sum\_c X\_cp)}$$

$\boldsymbol{X_{cp}}$ represents the exports of country *c* in product *p*. A country *c* has revealed comparative advantage in product *p* if its RCA>= 1.

# References

Agosin,M., 2007, "Export Diversification And Growth In Emerging Economies," Working Papers wp233, University of Chile, Department of Economics.

Agosin. R., R. Alvarez, and C. Bravo-Ortega, 2012, "Determinants of Export Diversification Around the World 1962-2000," The World Economy.

Balassa, B., 1965, Trade Liberalization and Revealed Comparative Advantage, The Manchester School, 33, 99-123.

Bertinelli, L. Heinen, A. and E. Strobl, 2009, "Export Diversification and Price Uncertainty in Developing Countries: A Portfolio Theory Approach,"

Haddad, M., J. J. Lim, and C. Saborowski, 2013, "Trade Openness Reduces Growth Volatility when Countries are Well Diversified," Canadian Journal of Economics, Vol. 46, pp. 765–790.

Hausmann, R., C.A. Hidalgo, S. Bustos, M. Coscia, S. Chung, J. Jimenez, A. Simoes, M. Yildirim, 2011, "The Atlas of Economic Complexity," Puritan Press, Cambridge MA.

Hidalgo, Klinger, Barabasi and Hausmann (2007),"The Product Space Conditions the Development of Nations" Science.

International Monetary Fund, 2014, "Sustaining Long-run Growth and Macroeconomic Stability in Low-income Countries—The Role of Structural Transformation and Diversification".

Koren, M., and S. Tenreyro, 2007, "Volatility and Development," Quarterly Journal of Economics, Vol. 122, pp. 243–87.

Melitz, M., 2003, "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity," Econometrica, Vol. 71, pp. 1695-1725.

Mobarak, A.M., 2005, "Democracy, Volatility, and Economic Development," Review of Economics and Statistics, Vol. 87, pp. 348–61.

Parteka, A., and M. Tamberi, 2011, "Export Diversification and Development—Empirical Assessment," Universita Politecnica delle Marche, Working Paper 359.

Stanley, D. and S. Bunnag, 2001,"A new look at the benefits of diversification: lessons from Central America," Applied Economics, Taylor and Francis Journals, vol. 33(11), pp 1369-1383.

# ASSESSING THE MONETARY STANCE IN GEORGIA[1]

*This paper assesses the adequacy of monetary policy stance in Georgia using two approaches. We first construct financial condition indexes (FCIs) for Georgia to explore the links between financial conditions and real economic activity. This is complemented with an estimation of the natural interest rate, which is higher than the policy rate. The analysis suggests slightly loose monetary conditions. However, in the absence of price and wage pressures, the monetary policy stance is considered broadly adequate. The National Bank of Georgia should stand ready to tighten if inflationary pressures emerge. In parallel, credit should be closely monitored to prevent a build-up of financial vulnerabilities.*

## A. Introduction

**1. Financial conditions suggest that the monetary stance is slightly loose, but there is no evidence of price pressures.** This paper provides an assessment of the monetary stance in Georgia using two complementary methods: (i) a financial conditions index which provides a historical perspective and allows assessment of relative tightness or looseness of financial conditions; and (ii) natural interest rate for Georgia and comparing it to central banks' policy rate to assess the stance of monetary policy. In the context of rapid credit growth, the National bank of Georgia (NBG) should continue to monitor inflation and credit dynamics closely to support that the monetary policy stance remains adequate.

**2. Financial conditions are found to have predictive power for GDP growth**. FCI serves as a useful tool for the conduct of monetary policy since it encompasses variables capturing important channels of monetary policy transmission in a single indicator. Further, since financial indicators are known to have predictive power, FCI can be used as an input for econometric models for GDP growth forecasting.[2]

**3. The paper is organized as follows**. Section B provides an overview of the methodologies and results from calculating FCI's. Section C assesses the predictive power of FCIs. Natural interest rate is estimated in section D, and section E concludes.

## B. Building a Financial Conditions Index for Georgia

**4. We construct the FCI using two complementary methods.** Following the literature, a regression-based FCI and a factor based FCI's are two parametric approaches used to estimate FCIs.[3]

### VAR-Based FCI

**The FCI is constructed based on vector auto-regression (VAR)**: $FCI_t = \sum_{i=1}^{n} \omega_i \, (x_{it} - \bar{x_i})$

[1] Prepared by Umang Rawat (MCM).

[2] English et al. (2005), Swiston (2008), and Hatzius et al. (2010) show that FCIs are highly correlated with GDP and have a strong predictive power for future economic activity.

3 See Beaton et al. (2009) and Hatzius et al (2010) for useful overviews of the FCI literature and existing FCIs.

Wherein, FCI in each period is calculated as a weighted average of n different financial variables ($x_{it}$), where $\omega_i$ is the weight attached to the variable and $\bar{x}_i$ is the variable mean over the sample (2003Q1–2017Q4). Since, financial variables enter the FCI as deviations from means, we can interpret them as shocks to the variables at each point in time.

**5. The variables in the FCI are selected based on various channels of monetary policy transmission and their impact on GDP growth**. Financial variables reflecting various channels of monetary policy transmission (interest rate, exchange rate, credit, and asset price channel) are selected based on theory. The final variables included in the model are chosen based on an exploratory process like Swiston (2008). Further, the weight of each variable, $\omega_i$, included in the model is estimated as the cumulative 5-quarter impulse response of GDP growth to a unit shock of $x_{it}$. The impulse responses are estimated from a recursive VAR including all financial variables, real GDP growth and the GDP deflator. Finally, the identification of structural shocks is based on a Cholesky decomposition.

**6. Both external and domestic variables play a role in defining financial conditions**. The initial dataset includes various measures of consumer and asset prices, interest rates, exchange rates, risk and banking sector indicators, and external sector indicators. The final variables in the FCI are included following this criterion: (i) the time span should cover at least the last 10 years, and (ii) the impulse response of GDP growth to a unit shock in financial variable should be economically meaningful. The final set of variables included in the estimation include deposit growth, REER, loan spread (domestic variables) and VIX (Chicago Board Options Exchange Volatility Index), EUR-OIS spread (spread between 3-month Euribor and Euro Overnight Index Average (EONIA)) (external variables).[4] The FCI tracks GDP growth better than individual indicators (Table 1). FCI is strongly correlated with current and future GDP growth.

**Text Table 1. Correlation between Real GDP Growth and Financial Variables**

| | Real GDP Growth | | | | |
|---|---|---|---|---|---|
| | **t** | **t+1** | **t+2** | **t+3** | **t+4** |
| **FCI** | 0.544*** | 0.644*** | 0.629*** | 0.608*** | 0.533*** |
| **VIX** | -0.363** | -0.425*** | -0.476*** | -0.320* | -0.305* |
| **EUR-OIS spread** | -0.0815 | -0.247 | -0.294* | -0.446*** | -0.479*** |
| **Deposit growth** | 0.787*** | 0.763*** | 0.607*** | 0.493*** | 0.187 |
| **Loan spread** | -0.0961 | -0.097 | -0.0834 | -0.0779 | -0.0907 |
| **REER** | -0.484*** | -0.553*** | -0.547*** | -0.505*** | -0.451*** |
| ***N*** | 60 | 60 | 60 | 60 | 60 |

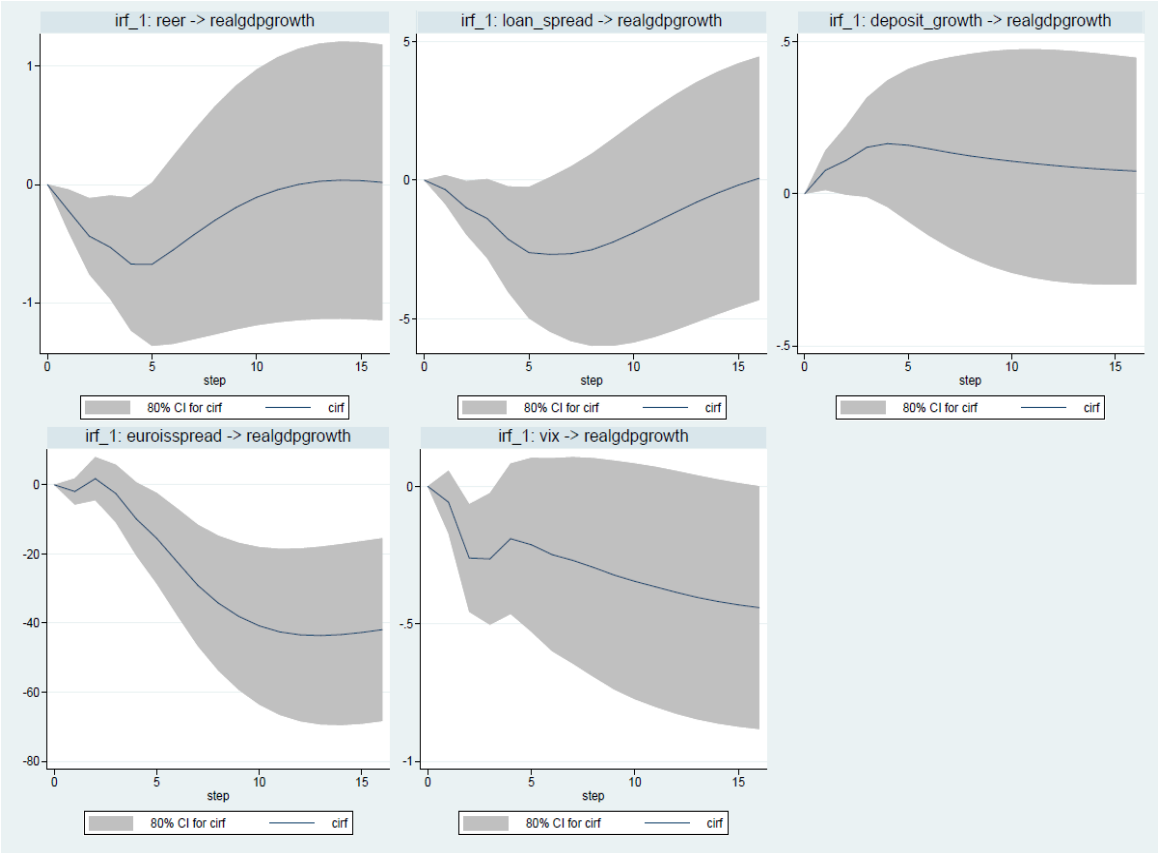
p < 0.05, ** p < 0.01, *** p < 0.001

Source: IMF staff calculations.

[4] Equity prices were dropped due to limited availability of data and low stock market capitalization in Georgia. House price index was dropped as we failed to find a significant and economically relevant relation with GDP growth.

**7. The impact of selected variables on GDP growth is in line with expectations (Figure 1).** The structural shocks are identified using Cholesky decomposition using the ordering: VIX, EURIBOR – OIS, GDP growth, GDP deflator, deposit growth, loan spread, REER, following Ho and Lu (2013). This assumes that domestic financial conditions do not affect growth and inflation contemporaneously, and similarly domestic variables (both real and financial) do not have a contemporaneous effect on external variables. GDP growth falls in response to exchange rate appreciation, higher loan spread, and higher VIX and EUR-OIS spread reflecting tight global credit and liquidity conditions. In contrast, higher deposit growth is found to increase GDP growth.

**Figure 1. Georgia: Response of GDP Growth to Financial Shocks**




Source: IMF staff calculations.

## Factor-Based FCI

**8. The FCI is calculated based on the factor analysis**, wherein an unobserved common factor is extracted that captures the greatest common variation in our chosen financial variables. The common factor is extracted by estimating an equation of the form: $X_t - \mu = \beta F_t + \mathcal{E}_t$

Where $X_t$ is a vector of financial variables, $\mu$ is a vector of variable means, and $F_t$ is the common (unobserved) factor.

**We further purge the common factor of any influence of past economic activity**. This alleviates concerns about causality from economic activity to financial conditions. In particular, we regress $F_t$ on current and lagged values of output growth: $F_t = B(L)y_t + \vartheta_t$

Where $B(L)$ is the lag operator, $y_t$ is the GDP growth and the error term, $\vartheta_t$ is our measure of factor-based FCI.

**9. We use the same set of variables (as in VAR) for constructing the FCI using factor analysis**. Except for loan-spread, the correlation of each individual financial variables with the common factor is greater than 50 percent, reflecting the importance of each variable. The financial variables have similar qualitative effect on the common factor as in VAR-based FCI: positive correlation for deposit growth and negative correlation for REER, VIX, EUR-OIS spread and loan spread (Figure 2).

**Overview of the FCIs**

**10. The financial conditions are assessed to be slightly loose in recent period.** This is driven largely by loose global monetary and liquidity conditions coupled with cyclical recovery in Georgia and relatively stable exchange rates.

**11. The two measures of FCI are highly correlated with each other, and with GDP growth** (Figure 3). An increasing index indicates easing financial conditions while a decreasing index reflects tightening.

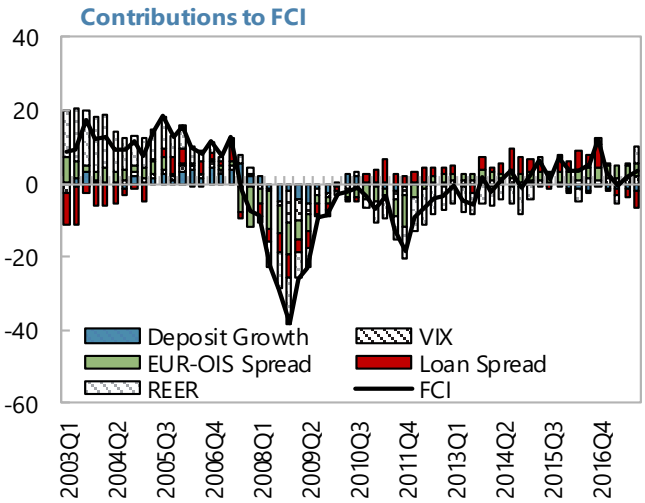
**12. Historically, exchange rate has been the most important driver of financial conditions; and global factors are increasingly important.** The weight of each variable is given by the cumulative five quarter response of GDP growth to a unit shock in the financial variable. Financial conditions were supportive prior to the global financial crisis (GFC). However, they tightened significantly in 2008 due to the dual effect of GFC and armed conflict with Russia. Financial conditions somewhat recovered before further deteriorating in 2011 coinciding with the period of rapid monetary contraction in response to food price shock. Among domestic variables, exchange rate and loan spread appear to be most important. Both VIX and EUR-OIS spread also have a significant impact, particularly after the GFC.

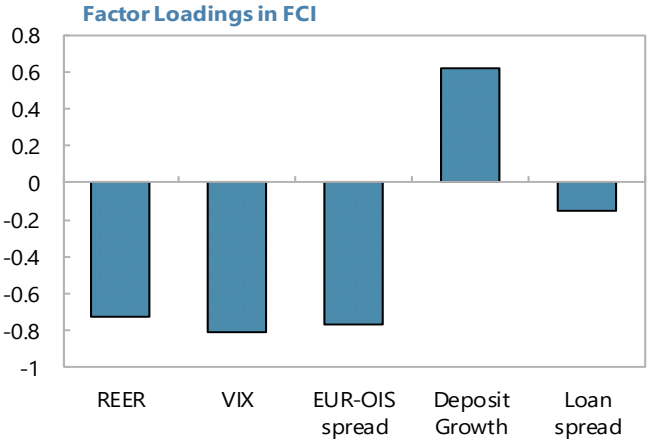
## C. Forecast Evaluation Using FCI

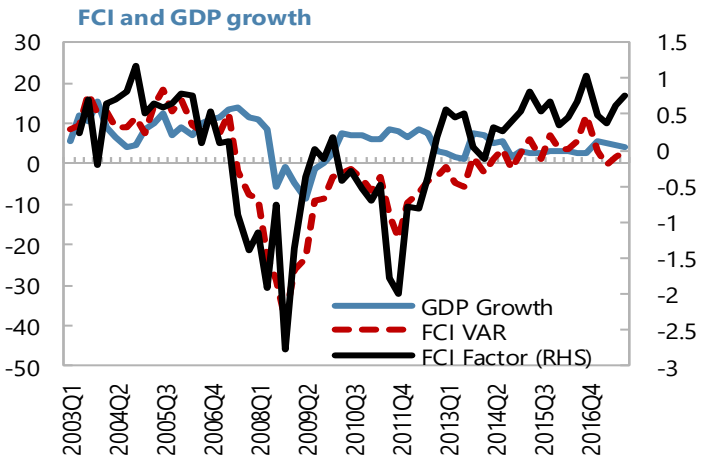
**13. The FCI may be used to assess future GDP developments**. The forecasting properties of both VAR and factor-based FCI's suggest that they both have meaningful predictive power. Adding FCI as an additional variable in equation 1 significantly increases the R-squared. FCI's can explain up to 30 percent of the variation in GDP growth not explained by lagged GDP growth (Figure 1). Hence, adding FCI increases the predictive power of the model. Specifically, we estimate the following regression equation: $\boldsymbol{y_{t+h} = \beta_0 + \sum_{i=1}^{k} \beta_1 y_{t+1-i} + \gamma X_t + \varepsilon_t}$ $\boldsymbol{(1)}$

Where $y_{t+h}$ is the h quarter ahead forecast of the variable of interest (GDP growth) and $X_t$ denotes the indicator being evaluated (FCI). The number of lags included in the model are chosen based on Akaike information criteria (AIC).

## Figure 2. Georgia: Financial Conditions Index

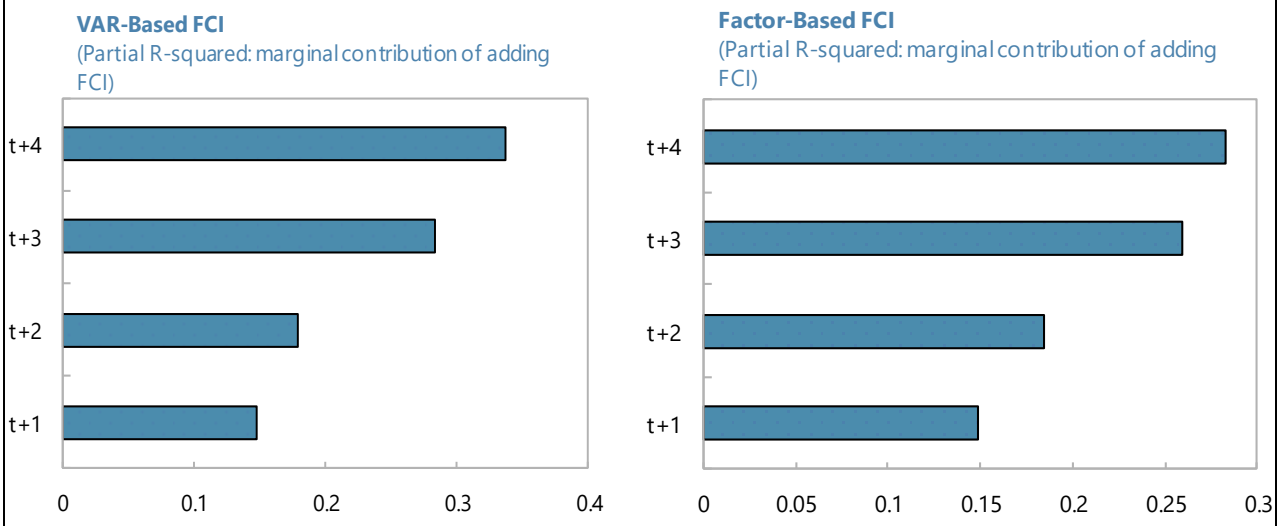



Sources: National Bank of Georgia, and IMF staff calculations.

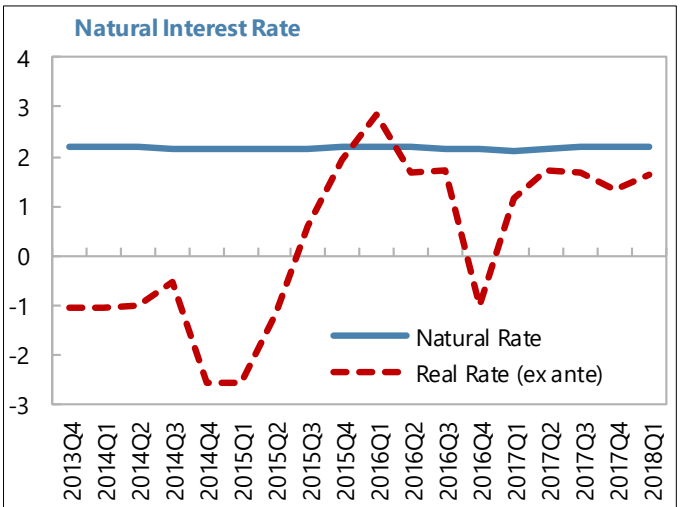
**Figure 3. Georgia: FCI Predictive Power**




Sources: National Bank of Georgia; and IMF staff calculations

## D. Estimating the Natural Interest Rate for Georgia

**14. We estimate natural interest rate for Georgia to assess its monetary policy stance**. The natural interest rate is defined as a rate at which an economy is in a stable price equilibrium. Natural interest rate is a useful tool to assess the appropriateness of monetary policy wherein a policy interest rate higher (lower) than the natural rate reflects tight (loose) monetary policy. A time varying parameter vector auto-regression (TVP-VAR) is estimated to extract the natural rate, since the natural interest rate is unobserved. We follow Lubik and Matthes (2015) to estimate TVP-VAR for three variables—the growth rate of real gross domestic product, the inflation rate, and a measure of real interest rate. The natural interest rate is then extracted by using a long-horizon forecast (5-year forecast) of the observed real rate as a measure of the natural rate of interest.




Sources: National Bank of Georgia; and IMF staff calculations.

**15. Georgia's real natural interest rate is estimated to be around 2 percent**, and is found to be largely stable over the sample period (2013Q4 – 2018Q1). Using survey-based inflation expectations, Georgia's real interest rate at 1.6 percent is lower than the natural rate, reflecting slightly loose monetary policy.

**16. However, natural rate is estimated with uncertainty.** While the estimated natural rate is lower than the real rate, uncertainty remains due to (i) estimation methodology wherein natural rates are usually estimated with large standard errors (Laubach and Williams, 2003; Lubik and Matthes, 2015) and (ii) difficulty in accurately measuring inflation expectations, particularly for emerging market economies.

## E. Conclusion

**17. Monetary stance is assessed to be broadly adequate.** In this paper, we assess the monetary stance by estimating financial condition index and natural rate for Georgia. Both approaches suggest a slightly loose monetary stance. However, in the absence of price pressures (2.5 percent inflation in April 2018) despite cyclical upswing in the economy and narrowing output gap, monetary stance is assessed to be broadly adequate at this point.

# References

English, W., Tsatsaronis, K., and Zoli, E. (2005), "Assessing the Predictive Power of Measures of Financial Conditions for Macroeconomic Variables," BIS Papers No. 22.

Grinberg, F., 2017, "A Financial Conditions Index for Malta," IMF Country Report 17/57 (Washington: International Monetary Fund).

Hatzius, J., P. Hooper, F. Mishkin, K. L. Schoenholtz, and M. W. Watson, 2010, "Financial Conditions Indexes: A Fresh Look after the Financial Crisis," NBER Working Paper No.16150.

Ho, G., and Y. Lu, 2013, "A Financial Conditions Index for Poland," IMF Country Report 13/188 (Washington: International Monetary Fund).

Hofman, D., 2011, "A Financial Conditions Index for Russia," IMF Country Report 11/295 (Washington: International Monetary Fund).

Laubach, T., and J. C. Williams, 2003. "Measuring the Natural Rate of Interest," The Review of Economics and Statistics, MIT Press, vol. 85(4), pages 1063-1070, November.

Lubik, T. A., and C. Matthes, 2015, Calculating the Natural Rate of Interest: A Comparison of Two Alternative Approaches, Richmond Fed Economic Brief, issue Oct, p. 1-6.

Osorio, C., R. Pongsaparn, D. F. Unsal, 2011, "A Quantitative Assessment of Financial Conditions in Asia," IMF Working Paper 11/170 (Washington: International Monetary Fund).

Manning, J., and M. Shamloo, (2015), "A Financial Conditions Index for Greece", IMF Working Paper No. 15/220.

Swiston, A., 2008, "A U.S. Financial Conditions Index: Putting Credit Where Credit is Due," IMF Working Paper 08/161 (Washington: International Monetary Fund).