

**DETERMINANTS OF ECONOMIC GROWTH:
A COMPARATIVE ANALYSIS OF ESTONIA AND GEORGIA**

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Abstract¹

We study and compare the economic growth performance of Estonia and Georgia since the collapse of the Soviet Union in 1991. We focus on the contributions of increased efficiency in the use of capital and other resources (intensive growth). Our main findings show that good governance, institutional reforms, and improvements in the educational system play a more significant role in raising economic output and efficiency. While Georgia continues to have problems related to weak governance in the public and private spheres, Estonia has made major advances in all areas explaining her superior economic performance.

Keywords: Economic growth, governance, transition economies

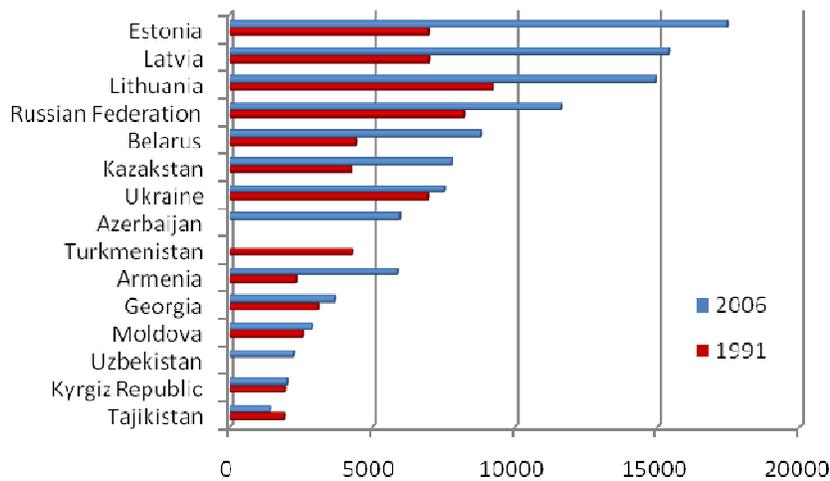
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¹ Parts of the paper draw on Gylfason and Hochreiter (2007).

1. Introduction

One of the most striking features of economic life in Eastern Europe since the collapse of the Soviet Union in 1991 has been huge divergences in the economic development of the 15 countries of the former Soviet Union (FSU). While three of the FSU states have become members of the European Union others have been lagging behind in their economic development to various degrees (*Figure 1*). The question is: Why?

Figure 1. Gross National Income per capita 1991 and 2006
(International dollars at purchasing power parity)



Note: Data for Turkmenistan 2006 and Azerbaijan and Uzbekistan 1991 are not available.

Source: World Bank, *World Development Indicators 2007*.

This paper tries to answer this question by applying standard growth economics to a comparison of the recent economic performance of two of the FSU countries, Estonia and Georgia. Both countries are small (45,226 km², population 1.3 million, and 69,700 km², population 4.7 million, respectively). Both are poorly endowed with natural resources, and both share a distant history of prosperity.

Under Soviet rule (Georgia from 1921 and Estonia from 1940), the economic decline of Estonia (relative to western European countries) was substantial but, all

things considered, her economic situation remained better than that of other Soviet republics, not least that of Georgia.

After centuries of Russian/Soviet rule, both countries reclaimed their independence in 1991.

Estonia, after regaining independence, quickly embarked on bold and decisive political, institutional, and economic reforms that were carried out by successive coalition governments from different parts of the political spectrum. The prospects of joining the EU certainly helped to maintain political, institutional, and economic reform. Within less than fifteen years, Estonia was able to accede to the EU and its GDP per capita rose substantially. Today, Estonia continues to grow strongly although, recently, some bottlenecks have appeared to emerge.

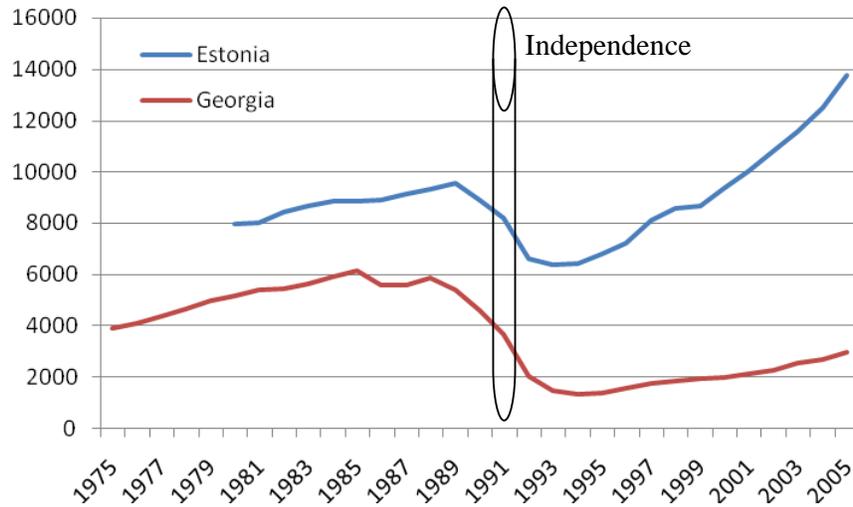
In contrast, Georgia, after regaining independence, was torn by civil war, was caught in a low-income trap, and suffered from pervasive corruption as well as from a conspicuous lack of economic and institutional reforms. The absence of an EU perspective in Georgia did not help.

It was not until the Rose Revolution in 2003, that the situation of the country changed enough to rekindle hopes for fundamental political, institutional, and economic reforms that could make economic catch-up feasible. In 2007, Georgia became “the number one economic reformer” according to World Bank (2007). Between 2006 and 2007 Georgia skyrocketed from 112th place to 18th by the World Bank’s Ease of Doing Business Index where Georgia is now just one place behind Estonia in 17th place (same source).

The national economy of the Soviet Union and its constituent republics have been stagnant or worse for quite some time before the economic collapse that commenced in 1989. The severity of the plunge during and after 1989 varied from republic to republic. As *Figure 2* shows, the plunge was significantly deeper and lasted longer in Georgia than in Estonia. In Georgia, GDP per capita measured in constant USD at 2000 prices and adjusted for purchasing power parity contracted by almost 80 percent from 1988 to 1994 while in Estonia the contraction amounted to 33 percent from 1989 to 1993. Even so, since 1993, Estonia’s GDP per capita has grown more rapidly than that of Georgia, or by 6.6 percent per year compared with 6.1 percent in Georgia.

Figure 2. Gross Domestic Product per capita 1975-2005

(Constant 2000 international dollars at purchasing power parity)



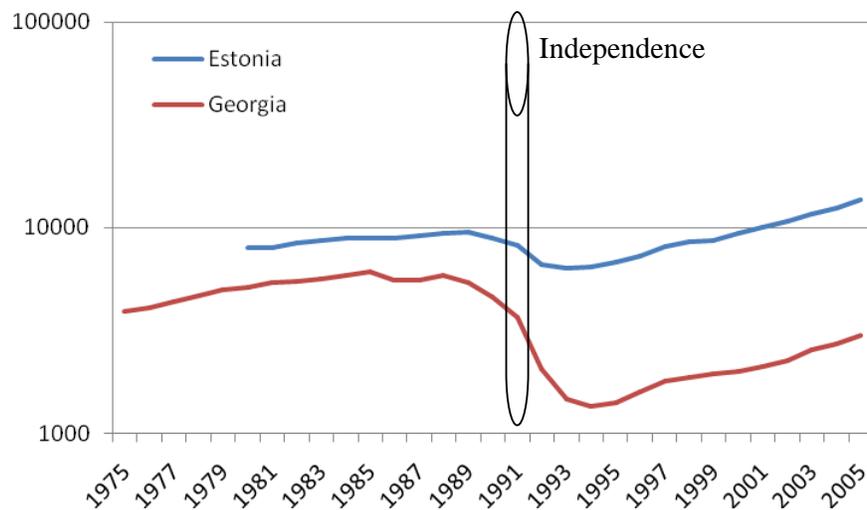
Source: World Bank, *World Development Indicators 2007*.

Estonia's more rapid growth after the initial plunge may seem surprising because it might have appeared easier for Georgia to grow more rapidly from such a low initial level of output after the fall. The fact that Estonia grew more rapidly than Georgia after the collapse suggests that initial output was only one of several determinants of the two countries' growth trajectories during this period. In 1980, Estonia's GDP per head was about 1.5 times that of Georgia. Since 1993, the income differential between the two countries has exceeded four, approaching five. A logarithmic representation of the evolution of GDP per capita in *Figure 3* suggests that the income differential between the two countries in 2005, the latest year for which comparable GDP figures are available from the World Bank's *World Development Indicators 2007* at the time of writing, stems mostly from the fact that, of the two, Georgia suffered a much deeper contraction of measured output after 1989. The puzzle here is why, then, did Georgia not grow more rapidly than Estonia thereafter? Our hypothesis is that the rebound effect to be expected after a large initial decline in output did not materialize in Georgia because of the absence of a real

growth effect emanating from rapid institution building, liberalization, and good governance as occurred in Estonia.²

Figure 3. Gross Domestic Product per capita 1975-2005

(Constant 2000 international dollars at purchasing power parity, logarithmic scale)



Source: World Bank, *World Development Indicators 2007*.

To repeat, Estonia has had a double advantage over Georgia. Estonia grew much more rapidly from 1991 to 2006 both because the initial slump of output was shallower and more short-lived than in Georgia and also because, after the slump, Estonia managed to grow more rapidly than Georgia despite Georgia's much lower initial level of output per person when growth resumed in 1994.

The remainder of the paper is organized as follows: Section 2 lays out, in the simplest possible terms, the theoretical framework guiding the discussion to follow. In Section 3, selected economic, political, and social indicators are employed to illuminate the possible reasons for the divergent economic developments in the two countries under review. Section 4 discusses the policy implications of the growth experiences and suggests potential lessons for other countries that lag behind their erstwhile equals and sums up.

² See Berengaut et al. (2002) and Havrylyshyn (2007, p. 16).

2. Theoretical Background

Economic growth can be either *extensive*, driven forward by the accumulation of dead capital, or it can be *intensive*, by which is meant growth that springs from more efficient use of existing capital and other resources. Among the numerous alternative ways of increasing economic and social efficiency, one of the most obvious is the accumulation of live capital – that is, human capital – through education, on-the-job training, and health care. There are many other ways as well to increase efficiency and economic growth. Adam Smith and David Ricardo showed how free trade can enable individuals and countries to break outside the production frontiers that, under autarky, would confine them to lower standards of life. Other examples abound, as the theory of endogenous economic growth and its empirical implementation in recent years have made clear.

In the rapidly advancing theoretical and empirical literature on economic growth in formerly centrally planned economies (e.g., Fischer and Sahay, 2000, and Campos and Coricelli, 2002),³ it is now widely recognized that the quality of institutions and good governance can help generate sustained growth and so can also various other factors that are closely related to economic organization, institutions, and policy (Acemoglu and Johnson, 2005; see also Dixit, 2004). We want to ascertain whether the growth differential between Estonia and Georgia since 1991 can be traced mostly to efficiency (i.e., intensive growth), as we suspect, rather than accumulation (i.e., extensive growth).

Consider the constant-returns-to-scale production function:

$$(1) \quad Y = AH^aK^bN^cL^{1-a-b-c}$$

Here Y is national economic output, A is a parameter that reflects total factor productivity (TFP), or efficiency, that is, the ability to convert inputs into output, H is human capital, K is real capital, N is natural capital, including land, and L is raw labor. The four exponents are the output elasticities of the inputs and lie between zero and one. By dividing through the production function by labor, we obtain this standard expression for output per person:

³ For an excellent survey, see Havrelyshyn (2002).

$$(2) \quad \frac{Y}{L} = A \left(\frac{H}{L}\right)^a \left(\frac{K}{L}\right)^b \left(\frac{N}{L}\right)^c$$

Hence, output per capita depends on four factors:

- (i) Efficiency
- (ii) Human capital per person
- (iii) Capital/labor ratio
- (iv) Natural capital per person

There are two things to note about this classification. First, if it so happened that human capital, real capital, and natural capital all grew at the same rate as the labor force, then advances in efficiency (A) would remain as the sole source of economic growth, by which we mean the rate of growth of output per person. The second point is that just as, in nature, some plants grow faster than others, so do different types of capital grow at different rates. While experience suggests that real capital grows at roughly the same rate as output over long periods, rendering the capital/output ratio constant over time, human capital can easily grow more rapidly than real capital, while natural capital – certainly that part of it that is nonrenewable, but also some renewable natural capital such as fish in the sea – tends to grow less rapidly than real capital. This, by the way is why increased population growth, against common intuition, tends to slow down economic growth.

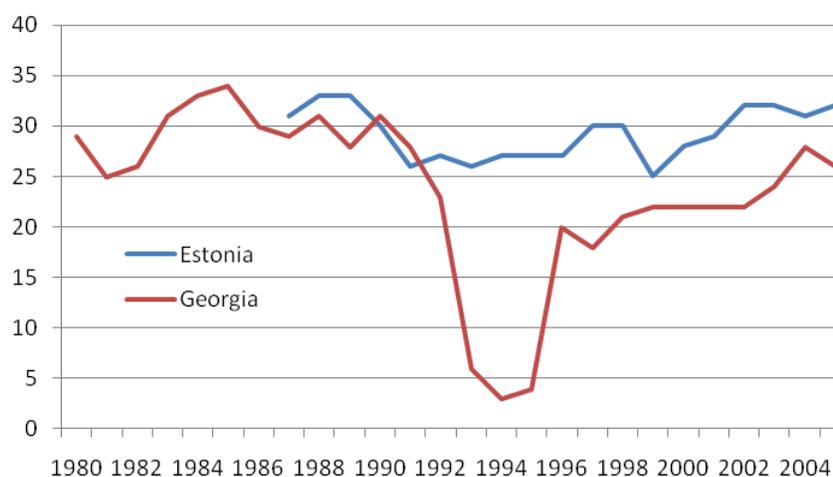
3. Empirical Evidence

Fifteen years of macroeconomic data following the collapse of the Soviet Union that started in 1989, of course, is too short a period to be amenable to a fully fledged long-run economic growth analysis. Instead, against the background provided in the preceding section, we intend to ask whether the pattern of those macroeconomic variables that recent growth research has identified as potentially important determinants of output per person and thereby also ultimately of long-run economic growth in cross-country comparisons have behaved in ways that can shed some light on economic developments in Estonia and Georgia since independence.

A. Investment and Education

Let us start with domestic investment, a key determinant of the capital/labor ratio and of economic growth. Which of the two countries has put aside more resources for capital formation since 1989? As *Figure 4* shows, Estonia invested 29 percent of GDP in machinery and equipment on average from 1989 to 2005 compared with 20 percent in Georgia.

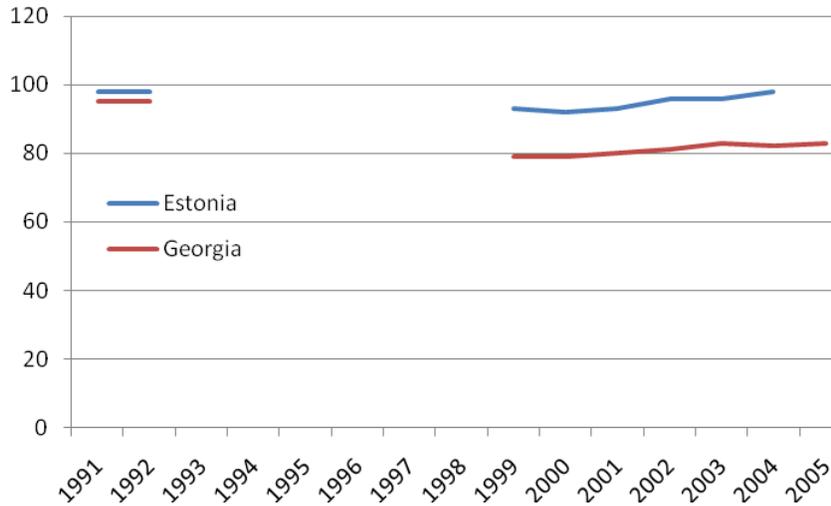
Figure 4. Gross Capital Formation 1980-2005 (% of GDP)



Source: World Bank, *World Development Indicators 2007*.

The same applies to investments in human capital. With 95 percent enrolment at the primary-school level, Georgia has not quite achieved parity with Estonia's 100 percent primary-school enrolment rate. Moreover, *Figure 5* shows that nearly all Estonian youngsters attend secondary schools compared with four fifths of Georgians. In 2004, nearly two thirds of young Estonians attended colleges and universities compared with 42 percent in Georgia. In recent years, public and private expenditure on education amounted to about six percent of GDP in Estonia compared with two percent in Georgia.

Figure 5. Secondary-School Enrolment 1991-2005 (% of Cohort)



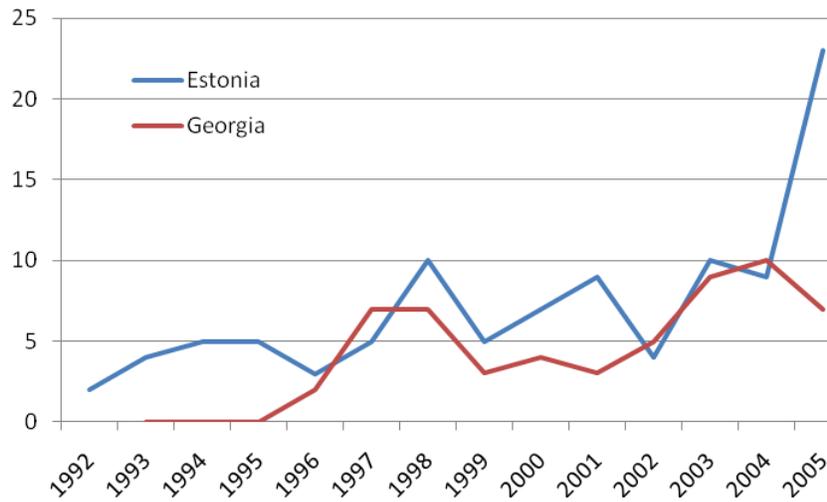
Source: World Bank, *World Development Indicators 2007*.

Other indicators point in the same direction. In Estonia, there were 483 personal computers per 1,000 inhabitants in 2005, almost the same figure as in Finland, compared with 42 personal computers in Georgia in 2004. Likewise, in Estonia, there were 513 internet users per 1,000 inhabitants in 2005, the same as in Finland in 2004; the Georgian figure for 2004 is 39 internet users per 1,000 inhabitants. Estonia now has more mobile phone subscribers than people, surpassing even Finland next door, while Georgia has 326 mobile phone subscribers per 1,000 inhabitants. Education and technological sophistication are clearly conducive to a business-friendly climate for domestic as well as foreign investment.

Understandably, foreign investment was virtually nonexistent in the early 1990s, but since then Estonia has attracted more capital from abroad than Georgia. Specifically, net inflows of foreign direct investment in Estonia amounted to seven percent of GDP 1992-2005 on average compared with four percent in Georgia (*Figure 6*).⁴ Estonia has clearly been more open toward the influx of foreign capital.

⁴ The difference between Estonia and Georgia is even larger if computed on a per capita basis.

Figure 6. Foreign Direct Investment 1992-2005 (Net Inflows, % of GDP)



Source: World Bank, *World Development Indicators 2007*.

Through the buildup of real and human capital, domestic and foreign investment and education at all levels are important determinants of output per person and economic growth. As far as those two time-honored pillars of productivity and growth are concerned, Estonia outperformed Georgia during the transition period, so there is perhaps little wonder, then, that Estonia's output per person has grown more rapidly than that of Georgia. Today, the people of Estonia enjoy a markedly higher standard of life than they did under Soviet rule whereas the people of Georgia remain significantly worse off (recall Figures 1 and 2).⁵

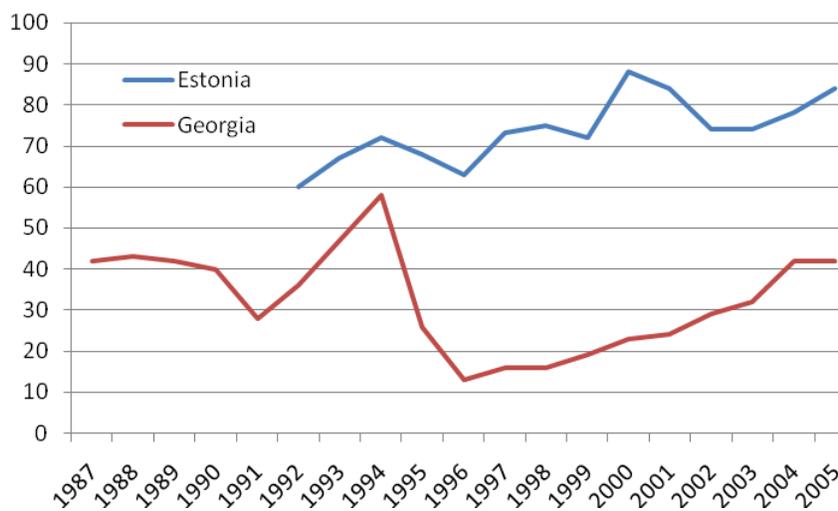
B. Exports, Inflation, and Economic Structure

Estonia has also been more open than Georgia toward foreign trade. Exports of goods and services from Estonia were equivalent to 73 percent of GDP on average 1992-2005 compared with 33 percent in Georgia (*Figure 7*). The export figures include re-exports. While Estonia eliminated all import duties after 1995 in the context and framework of preparing for future EU accession, Georgia could, in the absence of

⁵ It is difficult to compare data from the Soviet time with those of the post-Soviet period. Hence, the statement in the text has to be interpreted with care, especially if the cost of queuing, product range and quality, etc., is included in the GDP measure. If so, it could be argued that Georgians, on average, are already (2005/2006) better off than in Soviet times.

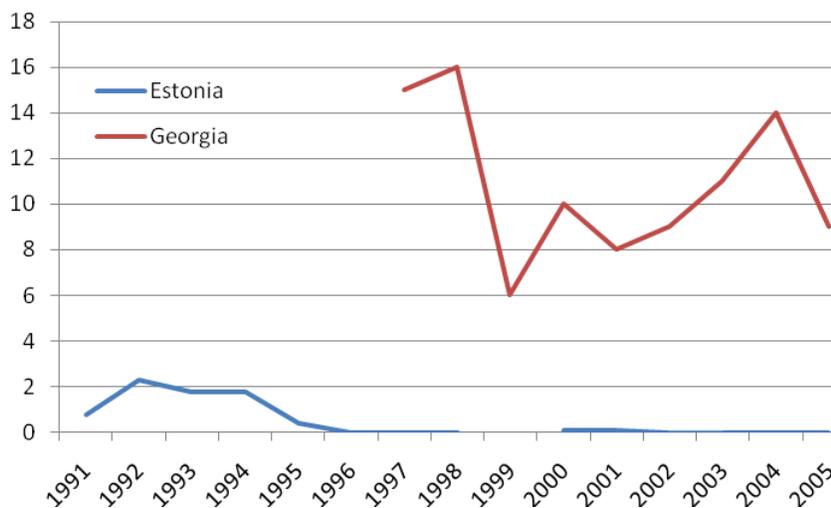
such an EU perspective, only resort to unilateral liberalization of its trade. In practice, Georgia has continued to depend on import restrictions for about ten percent of its tax revenues (*Figure 8*). Further, it takes, on average, twice as long for importers to clear customs in Georgia (3.4 days) as in Estonia (1.7 days). Free trade is good for growth.

Figure 7. Exports of Goods and Services 1987-2005 (% of GDP)



Source: World Bank, *World Development Indicators 2007*.

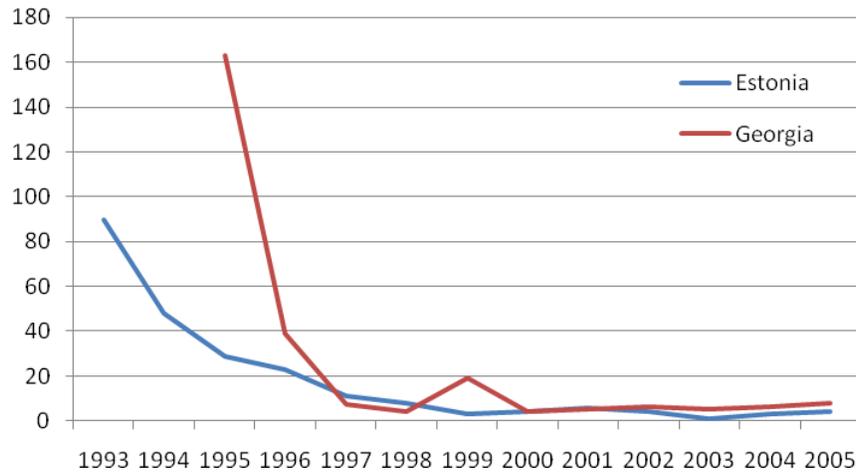
Figure 8. Customs and Other Import Duties 1991-2005 (% of Tax Revenue)



Source: World Bank, *World Development Indicators 2005 and 2007*.

Price stability is also good for growth. *Figure 9* shows that in the 1990s Georgia managed to bring inflation down almost as far as Estonia.

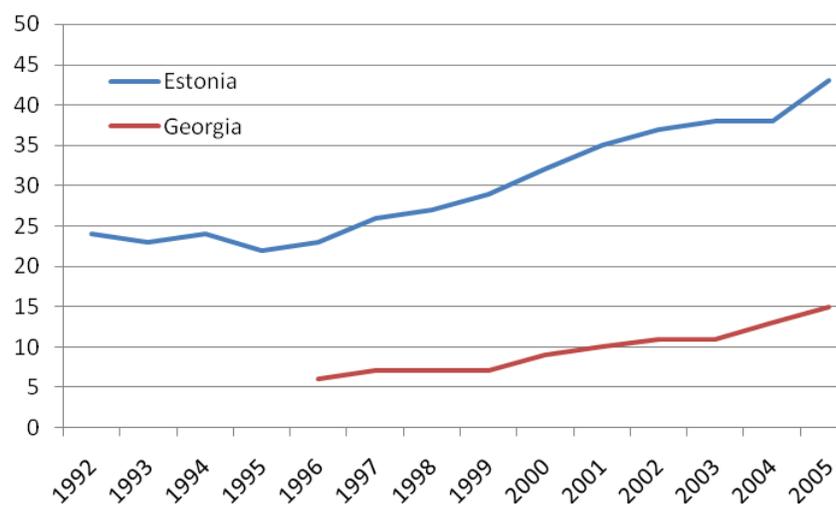
Figure 9. Inflation 1993-2005 (% , Consumer Prices)



Source: World Bank, *World Development Indicators 2007*.

However, in the early 1990s inflation was much higher in Georgia than in Estonia as a result of severe initial monetary overhang and other problems. It is, therefore, not surprising that the process of monetization of economic transactions has been slower in Georgia than in Estonia (*Figure 10*). Most African countries have a higher ratio of broad money to GDP – that is, greater financial depth – than Georgia. High inflation tends to hold back economic growth through various channels. It tends to do so by reducing financial depth, among other things, or, if you prefer, by discouraging the accumulation of financial capital, thus depriving the economic system of necessary lubrication in the form of adequate liquidity, and insufficient lubrication hampers economic efficiency and growth.

Figure 10. Financial Depth 1992-2005 (Broad Money as % of GDP)



Source: World Bank, *World Development Indicators* 2007.

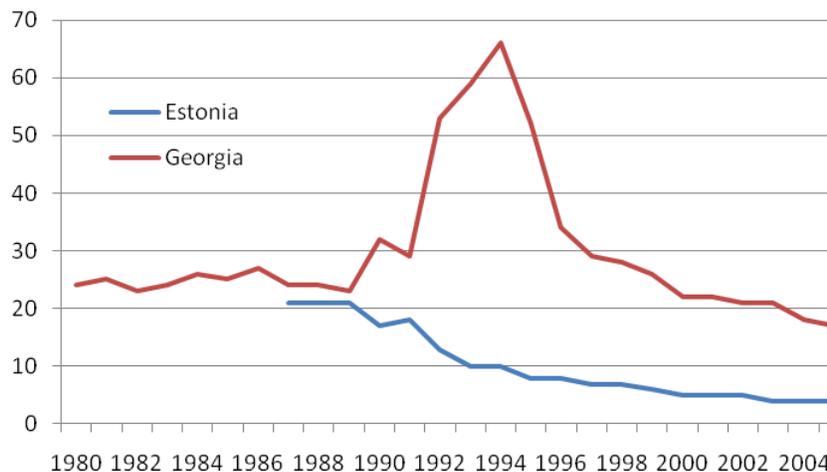
We now turn to the exchange rate regime. In transition economies, there is some evidence that exchange rate pegs go along with less inflation and less economic growth than do more flexible exchange rate regimes (see, e.g., Levy-Yeyati and Sturzenegger, 2003). Gosh, Gulde, and Wolf (2000), however, report that countries with hard pegs have not only less inflation but also more growth. The two countries under study opted for exchange rate regimes at opposite ends of the spectrum. Estonia adopted a currency board shortly after independence, and maintained it ever since. Georgia, instead, opted for a managed float, and has intervened to build up official reserves and smooth the exchange rate. The fact that Estonia has grown more rapidly than Georgia (*Figure 3*) and had less inflation (*Figure 9*) may, however, have less to do with their different exchange rate regimes than with the development of better fiscal, financial, and monetary institutions in Estonia than in Georgia.

Even though inflation has been largely brought under control, macroeconomic management and organization remain problematic in Georgia. The interest-rate spread – that is, the interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits – is a simple measure of the efficiency of the banking system the commercial part of which, by the late 1990s, had in both countries been put into private hands. In

Estonia foreigners own almost all banks assets compared with about two thirds in Georgia. In 2005, the interest spread was three percent in Estonia like in Finland in 2004, a respectable figure by international standards. In Georgia, on the other hand, the interest spread in 2005 was fourteen percent, suggesting continued inefficiency and lack of competition in the banking system, or high credit risks, despite full privatization (see Clark, Cull, and Shirley, 2004). Privatization and foreign ownership may not be enough, however, to increase competition and efficiency in the banking system. What matters most is the transfer of know-how, managerial experience, and fresh capital. Still, the Georgian figure of fourteen percent constitutes a significant improvement from earlier years when, from 2000 to 2004, the interest spread was between 20 percent and 24 percent even if inflation had been brought down to single digits (recall Figure 9).

Also, the Georgian economy remains heavily dependent on agriculture that still accounts for about a fifth of GDP as it did in the 1980s. By contrast, Estonia has little by little managed to diminish the share of its agriculture in GDP down to five percent which is only a little more than the EU average (*Figure 11*).

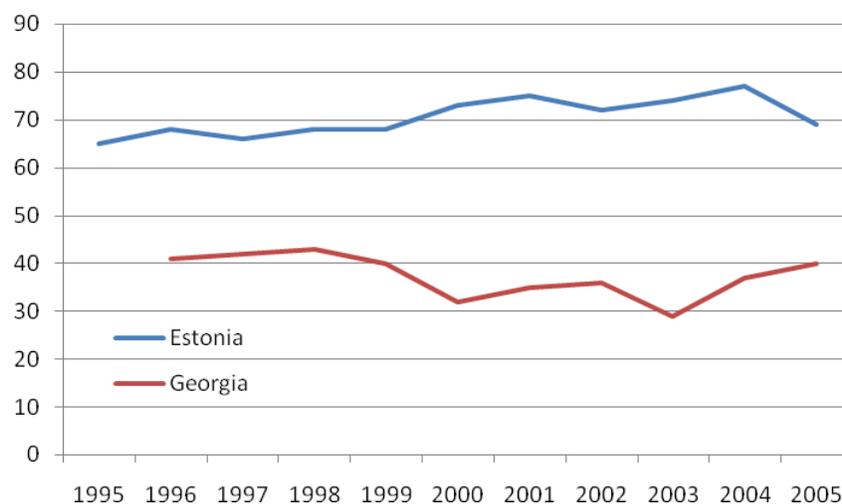
Figure 11. Agriculture 1980-2005 (Value Added as % of GDP)



Source: World Bank, *World Development Indicators 2007*.

This suggests both a stronger effort by the government to modernize the economy – by reducing farm support, for example – as well as greater mobility of labor and other factors of production between industries in Estonia than in Georgia. Accordingly, manufacturing and services have grown more rapidly in Estonia than in Georgia. During 1995-2005, manufacturing accounted for almost three fourths of Estonia’s exports compared with about a third in Georgia (*Figure 12*). This matters because a strong manufacturing sector is ordinarily an important contributor to economic growth, partly because it is conducive to research and technological progress far beyond agriculture as well as to the buildup of human capital. Estonia’s infrastructure is being modernized at a rapid pace.

Figure 12. Manufactures Exports 1995-2005 (% of Merchandise Exports)



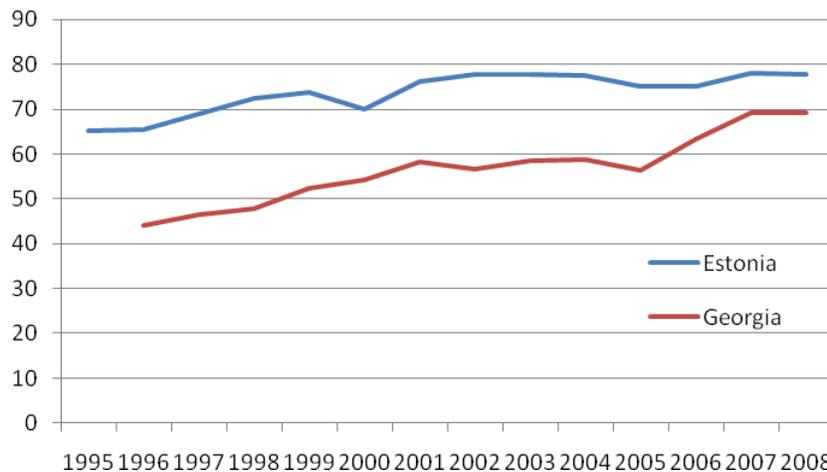
Source: World Bank, *World Development Indicators 2007*.

While, in 2006, it took 35 days to start a business in Estonia against 16 days in Georgia, more recent figures (World Bank, 2007) show that the time required to start a business in Estonia has fallen to a maximum of 7 days compared with 11 days in Georgia. The World Bank’s Ease of Doing Business Index that ranks 178 countries by how conducive the regulatory environment is to business operation now puts Estonia in 17th place and Georgia in 18th, up from 112th place in 2003, as mentioned before (see <http://www.doingbusiness.org>). If this improvement of the Ease of Doing

Business Index is maintained, investment could rise and Georgia's growth rate could also rise.

To recapitulate, economic growth requires capital to be accumulated and to be efficiently used: real capital, human capital, foreign capital, and financial capital, all of which we have covered thus far, and also social capital to which we now turn.

Figure 13. Economic Freedom Index 1995-2008



Source: Heritage Foundation, www.heritage.org/index/.

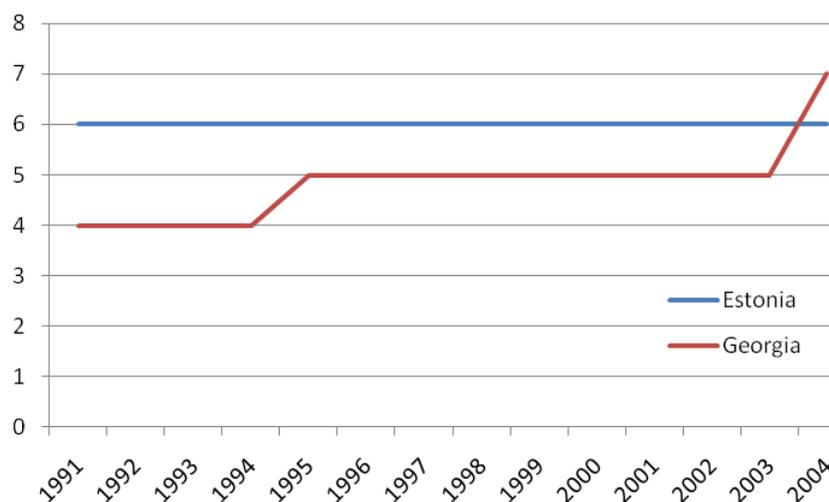
C. Democracy, Governance, and Demography

Due to the difficult status of its Russian citizens, Estonia does not score as high in surveys of democracy as its neighbors, Latvia and Lithuania. According to political scientists at the University of Maryland (the Polity IV Project; see Marshall and Jaggers, 2001), Lithuania has scored a perfect ten since reclaiming its independence in 1991, Latvia eight, and Estonia six. For comparison, Georgia has scored between four and five since 1992 and, more recently, in 2004, seven (*Figure 14*).⁶ Democracy, we think, is good for growth because it improves governance. Democratization can be viewed as an investment in social capital by which we mean the infrastructural glue that holds society together and keeps it working harmoniously and well. Social capital

⁶ Even so, freedom ratings for Estonia by Freedomhouse are consistently higher than for Georgia, also for earlier years. See <http://www.freedomhouse.org/uploads/fiw/SubScoresFIW2007.xls>. Also, recall Figure 13.

comprises several other ingredients, including trust, the absence of rampant corruption, and reasonable equality in the distribution of income and wealth (see Paldam and Svendsen, 2000). The idea here is that political oppression, corruption, and excessive inequalities tend to diminish social cohesion and thereby also the quantity or quality of social capital.

Figure 14. Democracy 1991-2004 (Index from -10 to 10)



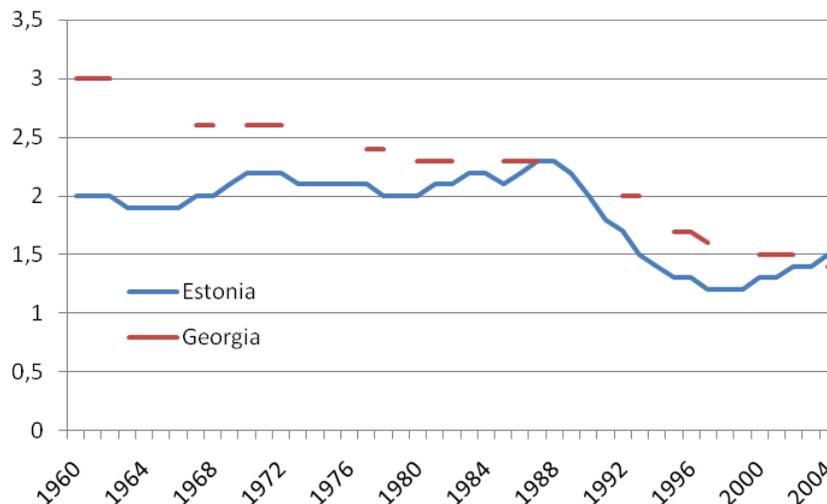
Source: World Bank, *World Development Indicators* 2007.

According to the World Bank’s Enterprise Surveys, about the same proportion of managers surveyed in 2005 said they lacked confidence in the court system to uphold property rights (30 percent in Estonia, 29 percent in Georgia). In Estonia, two percent of the managers surveyed described crime as a major business constraint compared with 24 percent in Georgia. Further, according to Transparency International, there is a marked difference between Estonia and Georgia in terms of corruption. Since 1999, Estonia has made some progress in the battle against corruption. However, Georgia has not, and remains one of the most corrupt countries in the region, and the world. This probably makes a difference because corruption is not good for growth (Mauro, 1995; see also Bardhan, 1997). Georgian managers say they have to spend three percent of their time dealing with officials compared with two percent in Estonia.

The distribution of income has become somewhat less unequal in Estonia than in Georgia; in 2003, the Gini index of inequality was 36 in Estonia and 40 in Georgia, whereas in the late 1990s it was 38 in both countries.

Figure 15 shows that both countries have suffered a collapse in fertility as measured by the number of births per woman since 1987. Estonia has had a partial recovery since 1996, but Georgia has not. The population of both countries continues to decline. Even if excessive fertility holds back economic growth in many developing countries, population decline is not likely to increase per capita growth in Estonia and Georgia, on the contrary. Life expectancy at birth took a deep dive in Estonia before 1990, did not recover until a decade later, and then sailed past that of Georgia in the late 1990s. Public and private health expenditures in Estonia have exceeded those in Georgia in recent years, but the gap between the two countries has narrowed. In 2001, Estonia had 6.7 hospital beds per 1,000 inhabitants compared with 4.3 in Georgia. In recent years, all child births in Estonia have been attended by skilled medical staff compared with 92 percent in Georgia. Public health and fertility are closely related to human capital accumulation and hence important to economic growth over time.

Figure 15. Fertility 1960-2005 (Live Births per Woman)



Source: World Bank, *World Development Indicators 2007*.

4. Conclusion

The different economic development of Estonia and Georgia since regaining independence suggests policy implications that seem especially relevant to Georgia and other second-tier FSU states as well as to other countries elsewhere that have lagged behind their erstwhile equals (recall Figure 1). In brief, rapid economic growth requires

- (i) Public policies that foster education and training, free trade, and domestic as well as foreign investment in a business-friendly environment.
- (ii) Monetary and fiscal policies that support price stability and sound private banking and other financial intermediation, sustainable government budget positions, and international, consumer-friendly competition.
- (iii) Sound and transparent societal institutions that support the rule of law.
- (iv) Good governance of both the public sector and the private sector.

Further, in countries such as those under review the prospect of EU membership may create favorable conditions for sound economic policies, rapid structural change, and institution building. Such an EU perspective may also help to forge a broad-based political consensus on the policy actions required for change.

By and large, it seems that on all counts Estonia, up to now, has surpassed Georgia. While recent developments and data suggest that Georgia, at last, has begun to catch up, doubts remain regarding the country's institutional reform agenda as well as the still unresolved territorial disputes.

Referring back to the classification of the main determinants of economic efficiency and growth implied by the aggregate production function presented in Section 2, we can now summarize our findings as follows.

First, Estonia has invested significantly more relative to GDP than Georgia and also attracted more foreign investment than Georgia, thereby accumulating capital and increasing output per person. Increased high-quality investment contributes to more rapid growth over long periods, other things being the same.

In second place, Estonia sends more young people to secondary schools as well as to colleges and universities than Georgia does, thereby building up precious human capital that, like real capital accumulation, helps lift output per person to higher levels and encourage long-term growth. Estonia's strong emphasis on education at all levels

is reinforced by its rapidly increasing technological sophistication as evidenced by widespread personal computer and mobile phone ownership.

Third, Estonia has done more than Georgia to increase economic efficiency – that is, total factor productivity. This effort has taken many different forms. Let us start with the important trinity of liberalization, privatization, and stabilization. Estonia has managed to

- (i) Increase its openness to trade in goods, services, and capital,
- (ii) Privatize its banks and other erstwhile state enterprises while ensuring competition through, among other things, foreign ownership, and
- (iii) Stabilize prices following the temporary bout of inflation that was bound to follow the rapid liberalization of prices at the beginning of transition.

Georgia has not managed to liberalize trade to the same extent, nor has Georgia managed to privatize its banks and other state-owned enterprises while ensuring strong competition. On the other hand, Georgia has successfully stabilized prices, albeit a bit less rapidly than Estonia. On top of all this, according to almost all the different governance indicators that we compared for the two countries, Estonia has moved farther and faster in a growth-friendly direction. Most notably, corruption and associated problems are much less of an issue in Estonia than in Georgia.

In view of all this, it comes not as a surprise that Estonia has grown more rapidly than Georgia, despite Georgia's advantage of starting from a much lower level of initial income after the plunge following independence. Our story suggests that the growth differential between the two countries since 1993 would probably have been significantly larger than half a percentage point – that is, the difference between Estonia's 6.6 percent growth per year and Georgia's 6.1 percent – had both countries started out in the same initial position. Likewise, the growth differential would have been significantly smaller had Georgia embarked earlier on fundamental reforms. The proportions in which the different factors we have discussed, including the rebound effect and the various aspects of efficiency, account for the growth differential between the two countries since 1991 remain to be quantified in detail. Even so, we think the qualitative point we have made is pretty clear. You judge.

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