Economic Growth in Georgia: Historical Perspectives and Prognosis

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Abstract: *While output declined in virtually all transition economies in the initial years, the speed and extent of the recovery that followed had varied widely across the transition countries. The paper examines some aspects of transition experiences of 1990s and the dynamics of GDP in Georgia during transition recession and following post-recession recovery. GDP prognostic econometric model for Georgia is developed.*

Keywords: economic growth, GDP, transitional economy, prognostic model, non –linear trend

Introduction

Economic growth is a field that has been the subject of intensive research during the past decade although the general theory was developed by classical economists from Smith to Max (Classical Growth Theory), neoclassical economists from Solow to Ramsey (Neoclassical Growth Theory), and modern Endogenous Growth Theory (Lucas and Romer). Despite this, the growth experience of the last 50 years has abundant examples of economists' inability to anticipate successes, such as China, India, Indonesia, Korea, Singapore, and Thailand; economists' and markets' inability to predict crises, such as the financial crises of the 1990s.

The end of communist era brought much optimism over the growth possibilities of the economies that are now referred to as the transition countries. An inefficient system, rife with distortions and without intensives, was to be replaced by the market. For most former Soviet Union countries, the 1990s will be remembered as a costly and traumatic decade. While everyone knew that the transition to a market economy would be tumultuous and difficult, the output loss was longer and deeper than expected. It took more than a decade for the best-performing economies to

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return to GDP and income levels prevailing at the beginning of the transition, and some of the worst cases are still below the starting point.

The experience of 1990s highlighted the importance of the investment climate, and of providing predictable conditions for investors and other economic agents. It also highlighted that growth entailed more than the efficient use of resources. Growth entailed structural transformation, diversification of production, change risk taking by producers, correction of both government and market failures, and changes in policies and institutions. It was also a process of social transformation: people will change activities and live in different places. The central result of the exercise was rediscovering the complexity of economic growth, recognizing that it is not amenable to simple formulas.

Growth is difficult to predict as it implies social transformation: a break with past trends, behaviors, and institutions that reflect deep forces in societies and how they organize themselves. But, firstly, Theory of economic growth has to predict the rate at which a country's economy will grow over time and, secondly, when the country has achieved sustainable growth and when the basic structural changes had happened we may using econometrical methods predict GDP trend for a short-run period at least.

The paper is organized as follows. The next section offers a descriptive analysis of growth performance and development in transition countries basing on major lessons of 1990s . Section III examines dynamics of GDP in Georgia in course of transitional recession and the post-recession recovery. In section IV GDP prognostic model for Georgia is worked out. Brief conclusion ends the paper.

Growth and Development in Transition

Economists, like everybody else, were surprised when the first reassuring signs appeared that the socialist experiment was over. Some transition economies developed their own approaches to transition; others were heavily depended on the advice of external advisers - IMF and World Bank specialists in the first place. From the beginning, the transition has been “leaning by doing”. Since, prior to the present transitional era, there was little theory and even less experience both about the transition of itself and economic growth during this period. In the Soviet Union the extensive growth strategy, achieved by rapid industrialization was prevailed. The pattern of economic growth pre-1989 was based on extensive growth, that is, it favored accumulation instead of technological and organizational

changes. Therefore, during the transition period countries had to reconstruct not just the structure of their economies but dramatically change the type of growth as well.

The 1990s yielded many lessons. The most important perhaps was that our knowledge of economic growth was extremely incomplete because it became clear that the accumulation of capital was not a panacea, and that misguided policies were costly for growth.

Another lesson concerned trade as a component of growth. Rising trade volumes are related to growth, but the direction of causation is unclear. As an economy grows it expands its stock of physical and human capital, its opportunities for trading will increase, even if tariffs remain the same. Also, some countries increased exports by reducing import tariffs, while others did so by creating export processing zones; or offering exporters incentives, including duty rebates; or making the exchange rate more competitive; or improving trade-related infrastructure—with export liberalization preceding import liberalization. So, trade reforms stimulated growth and helped reduce poverty when export incentives improved. At the same time, trade is an opportunity, not a guarantee, and that it was overly naive to expect that simply reducing tariffs would automatically increase growth.

Similar conclusions about expectations hold true throughout the whole range of policy areas. The reforms of the 1990s focused on the efficient use of resources, not on the expansion of capacity and growth. They enabled better use of existing capacity, thereby establishing the basis for sustained long-run growth, but did not provide sufficient incentives for expanding that capacity.

It is clear now that the necessary conditions for economic growth can be created in numerous ways and not all of them equally conducive to growth. Generally speaking, any sustained growth process is based on accumulation of capital, efficient use of resources, technological progress, and a socially acceptable distribution of income. These functions of growth were best achieved in economies with macroeconomic stability, market allocation of resources, and openness to international trade. But in 1990s these principles were translated into "minimize fiscal deficits, minimize inflation, minimize tariffs, maximize privatization, maximize liberalization of finance," with the assumption that the more of these changes that were made, the better. Not surprisingly, that any reform, however beneficial for efficient resource allocation, is not necessarily

growth-inducing.

The 1990s made us realize that how macroeconomic stability is achieved matters for growth. Lowering inflation on the basis of appreciating nominal exchange rates stunts exports and thus GDP growth. So does reducing fiscal deficits through declines in public spending or lowering domestic interest rates through excessive external borrowing.

During the transition government discretion is needed for a wide range of activities essential for sustaining growth, from regulating utilities and supervising banks to providing infrastructure and social services. For that reason, reducing government discretion should not be the guiding principle of national development policies. Instead, the focus should be on improving checks and balances on government discretion and putting in place conditions that lead to better decision making. New Growth Theory promised to link policies with growth performance. In other words, it was recognized that better policies would deliver faster growth or policies matter for growth and policy improvements should lead to higher growth.(See, for example, William Easterly, Ross Levine (2002) Tropics, Germs, and Crops: How Endowments Influence Economic Development)

Transitional recession and the post-recession recovery in Georgia

To understand the transitional problems in Georgia let turn to the statistics.

Table 1. Transition Economies: Output performance, 1989-2003.

	Transition year	**Year in which output was lowest**	**Maximum output decline since the transition**	**Average output growth until 2003**
Baltics			**38.1**	**4.87**
Estonia	1992	1994	29.4	4.80
Latvia	1992	1993	44.2	5.3
Lithuania	1992	1994	40.6	4.49
CIS-7			**46.0**	**5.72**
Armenia	1992	1993	14.1	6.97
Azerbaijan	1992	1995	57.9	7.93
Georgia	1992	1994	65.4	5.37
Kyrgyz Republic	1992	1995	44.8	4.68
Moldova	1992	1999	62.2	5.40
Tajikistan	1992	1996	58.8	6.66
Uzbekistan	1992	1993	17.5	3.01
CIS-5			**42.0**	**7.0**
Belarus	1992	1995	31.5	5.75
Kazakhstan	1992	1995	31.1	5.34
Russia	1992	1998	45.6	6.08
Turkmenistan	1992	1997	45.9	11.00
Ukraine	1992	1999	55.2	6.81

Source: Stanley Fischer, Ratna Sahay (2004) Transition Economies: The Role of Institutions and Initial Conditions, IMF

A few remarks are in order.

- There has been a massive output fall all over the Post Soviet countries. In the event, the initial output declines looked more like collapses (or "Great Transitional Depression"(Kornai J.,1990)) than the more measured declines that were expected.

- As it can be seen, in Georgia transition towards a market economy began as in most Post Soviet countries in 1992.

- In Georgia the output fall was the largest among the CIS economies - about 70%.

- After initial delay, according to major macro-economic indicators and GDP in particular, the positive tendency was more dynamic in Georgia than in other post Soviet republics.

- There seems to be a “Baltic puzzle”: although Estonia, Latvia and Lithuania all had output contractions comparable to other CIS countries, their recovery was much faster.

- And finally, it is also true that output took longer to recovery in Georgia than in the Baltics. Once output began to grow, the average growth rate in CIS-5 and CIS-7 was higher than in the Baltics countries, which grew at about 4.87%, 7% and 5.72% correspondingly. But the impressive GDP growth actually corresponds to an extremely small volume of economic activity.

1996 was marked by definite progress in the national economy of Georgia (see Table 2 and Table 3) resulting in high rate of growth and the beginning of post-recession recovery.

Table 2. Indices of real GDP in Georgia, 1989-1996

Years	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**
annual change (%)	-4.8	-15.0	-20.1	-39.7	-29.3	-12.1	3.3	11.2

Source: Human Development Report: Georgia 1998, UNDP

Table 3. Indices of real GDP in Georgia, 1997-2003

Years	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
annual change (%)	10.5	3.1	2.9	1.8	4.8	5.5	11.1

Source: State Department of Statistics of Georgia

Real GDP had grown by 3.3 % already in1995, while in 1996 the

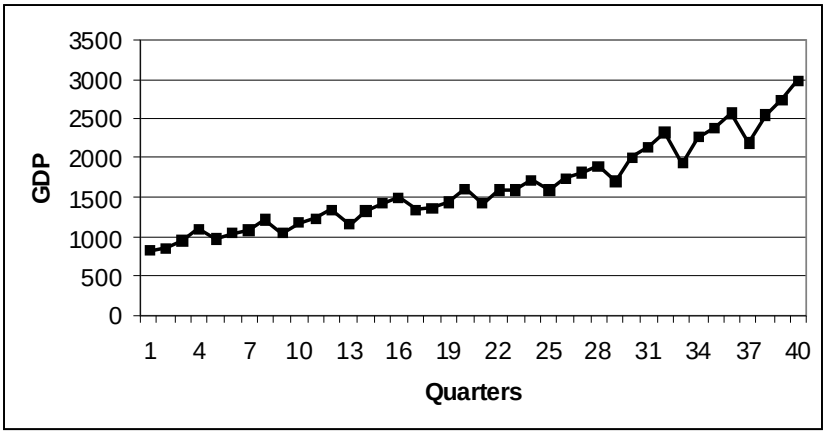
GDP of the country grew by up to 11.1 % compared with the previous year. Such growth is significant since it also implies a considerable change in country's growth strategy on one hand[1], and the political stabilization which started in 1994-1995 on another. It is important to remember that economic growth of recent times which seems spectacular if judged by its rate, should be considered against the preceding background of the totally collapsed economy.

Work out of GDP prognostic model for Georgia.

Figure 1 presents statistical data of nominal GDP in Georgia from 1996 to 2005, which can be considered as a time series (horizontal axes represents the through numbers of total quarters from 1 through 40) (For basic data see "National Bank of Georgia: statistical data").

Figure 1 shows that within each year the nature of quarterly change of the modeled indicator remains the same: GDP demonstrates rather monotonous growth, being close to the linear one with the rates (angular coefficients) slightly changing from year to year. The rates or angular coefficients show the obvious trend to increase just at the end of the period - 2003-2005, quarters 29-40. At the same time the global, also rather monotonous increasing annual trend is absolutely obvious, because the indicator of each first quarter of a current year exceeds the indicator of the corresponding quarter of a previous year. The global trend can be easily separated if a dependence of first years' indicators on through number of a year is built (see Figure 2).

Figure 1. Dynamics of Georgia's GDP by quarters.



[1] On February 7, 1994 the Head of State issued a degree entitle "Anti-crisis Program of the Republic of Georgia"

The exponent was chosen as an approximating curve, which (as one can see from Figure 2) describes adequately the set of points being under consideration. As linearizing transformation logarithm was used: exponent dependence $\mathbf{y=ae^{bt}}$ was transformed to the linear one:

$$lny=lna+bt, \quad (1)$$

where a and b are parameters to be found;

t is a time variable with the unit of one year (t>0)

Figure 2. Global growth of first quarters: the exponent $768.78e^{0.101t}$ was used as approximating dependence.

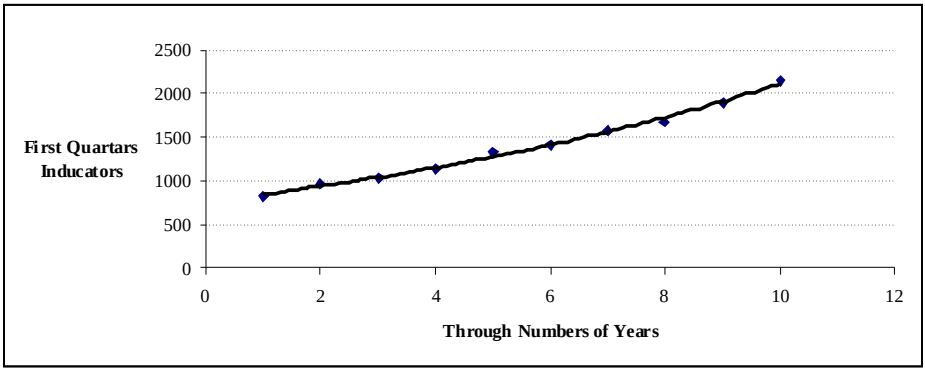


Table 4. Results of regression equation identification

1	2	3	4	5	6
Free term (lna)	Angular coefficient (b)	Correlation coefficient (r)	t-criterion for lna	t-criterion for b	F-criterion
6.64 (Exp(6.64)=768.8)	0.101	0.99	447.7	42.4	1795.3

The results of the regression equation identification (1) are shown in Table 4. They allow us to conclude that :

1. The regression equation for data representing the statistical dependence of values of GDP's first quarters on through numbers of the first 8 years observations (Figure 2) has the form:

$$fk=768.78e^{0.101t} \quad (2)$$

2. Adequacy level of the equation obtained is rather high that is

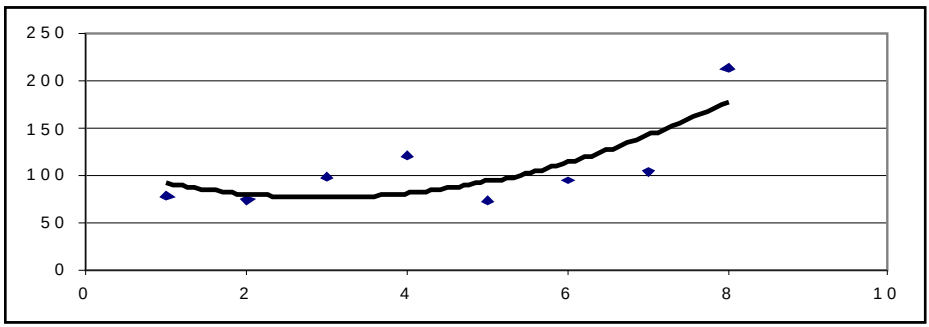
confirmed by high values of computed statistics (columns 3-6)

Table 5. Identification of angular coefficients for intraquaterly dynamics

Year	1996	1997	1998	1999	2000	2001	2002	2003
gular coefficient	78.1	75.1	98.9	121.5	73.1	95.7	105.6	213.7
Correlation coefficient	0.95	0.96	0.98	0.96	0.91	0.92	0.97	0.97
t-criterion	8.5	10.8	15.9	11.6	5.5	7.7	13.9	15.2
F-criterion	32.7	43.7	79.6	37.4	15.1	16.3	56.6	68.8

Further, for the same 8 years (1996-2003) 8 linear regressions of intra-quarterly dynamics were built and relevant angular coefficients were computed. Results are shown in Table 5 and they confirm rather satisfactory identification. Dynamics of annual rates is graphically shown in Figure 3.

Figure 3. Annual growth dynamics: on the ordinate axis growth rates (angular coefficients), on the abscissa axis – through numbers of 8 first years of observations (1996-2003) are labeled.



From Figure 3 it is obvious that the obtained set of points can be approximated by the 2-nd order polynomial:

$$y = ax^2 + bx + c \qquad (3)$$

The obtained regression equation (4) is shown below, and in Table 6 the results of estimation of relevant statistics are given:

$$y = -23.08t^2 + 3.93t + 111.08 \qquad (4)$$

where t_i –time variable with unit of one year (i=0,1,2,3)

Table 6. Annual growth rates identification

1	2	3	4
	Free term, c	Coefficient a	Coefficient b
Coefficients values	111.08	-23.08	3.93
t-criterion	2.37	-0.96	1.52
F-criterion	4.02		
Multiple correlation coefficient	0.78		

One can easily see that precision degree of correlation is not high, which is particularly seen from the t-criterion. Small values of the Fisher criterion are evidence of relatively large residual variance, which in turn, is evidence of poor forecast precision obtained by the equation (4). Nevertheless, due to the relative change of quarterly GDP values are not large, we can expect that poor forecast precision of (4) will not affect the final GDP forecast.

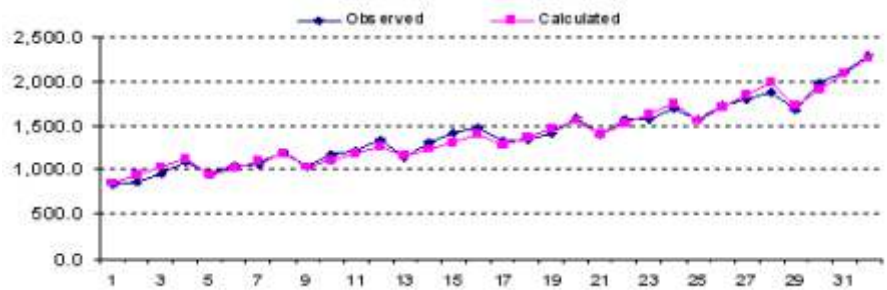
Combining the equations (2) and (4) we obtain the final time series model for Georgia's GDP:

$$GDP = 768.78 * e^{0.101t} + (111.08 - 23.08t + 3.94t^2)t_1 \qquad (5)$$

where t and t_i are, as it was noted, time variables, the first variable represents time change by years, and second one- within years, by quarters.

Two time series both observed and computed values of GDP are shown in Figure 4.

Figure 4 . Observed and calculated values of GDP



It is worthy to note that the identification of the model was performed on the basis of observations of 1996-2003; although the values of GDP in 2004, 2005 and the first quarter of 2006 were known data were used just for verification of the forecast precision. The prognostic values of quarters 2, 3, 4 of 20006 were also computed, but their actual values were unknown at the moment of writing the present article.

In Table 7 both observed and calculated values of GDP and estimation of forecast precision are shown:

Table 7. Forecast of Georgia's GDP

Year and # of quarter	Observed	Computed	Forecast error	Relative forecast error
2004, 0	**1,889.9**	1907.98	-18.1	0.96%
2004, 1	**2,229.6**	2130.48	99.2	4.45%
2004, 2	**2,337.2**	2352.98	-15.7	0.67%
2004, 3	**2,532.7**	2575.48	-42.7	1.69%
2005, 0	**2,157.1**	2110.754	46.3	2.15%
2005, 1	**2,500.8**	2385.034	115.8	4.63%
2005, 2	**2,700.4**	2659.314	41.1	1.52%
2005, 3	**2,934.3**	2933.594	0.7	0.02%
2006, 0	**2,414.2**	2335.077	79.1	3.28%
2006, 1	-	2669.017	-	-
2006, 2	-	3002.957	-	-
2006, 3	-	3336.897	-	-

As one can see, forecast precision made on the basis of equation (5) is rather high: the relative forecast error does not exceed 5%, which allows the model developed to be used for practical computations.

Conclusion

Economists still consider economic growth as an engine for creation of employment opportunities and poverty reduction. For the transition countries such as Georgia, the 1990s were difficult times to achieve any of these goals. The decade is referred as the "lost decade" for developing world because it was characterized by deep transitional recession. Since 1996 Georgian economy demonstrates the favorable short- and medium-term trends represented by the strong economic recovery based on the stable and in some year's impressive economic

growth. The elaborated model of economic growth proves the mentioned above and van be used to make reliable predictions and relevant economic estimations of entire economic growth of Georgian Economy.

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