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## Modern Analyses of Macroeconomic Indices for Medium and Long Term Plans in Georgia

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### Abstract

This paper analyzes the economic growth of Georgia through the lens of two key indicators: income/GDP per worker (representing productivity) and income/GDP per capita (representing prosperity). It emphasizes the importance of using Purchasing Power Parity (PPP) adjusted data to avoid misleading comparisons between countries with different price levels. The paper highlights three key stylized facts about Georgia's economy: Transformational Shock: Georgia's GDP per capita fell dramatically by 468% in less than ten years due to the collapse of the Soviet economic system. This is a unique event in modern economic history, with no other country experiencing such a sharp decline; Unstable Growth Rates: Unlike the U.S. which shows a relatively stable 2% annual growth rate over 150 years, Georgia's economic growth rates lack a clear trend and fluctuate significantly; Negative Correlation Between Cyclical Unemployment and GDP Gap: The cyclical unemployment rate and the GDP gap in Georgia are inversely correlated. As the unemployment rate falls below the natural rate of unemployment, the GDP gap widens, indicating potential overheating in the economy. The paper argues that existing models of economic growth, often based on developed economies with different macroeconomic realities, may not be suitable for analyzing Georgia's situation. It calls for the development of models that explicitly consider the unique features of Georgia's economy, including the transformational shock, unstable growth rates, and the

relationship between unemployment and GDP. Overall, the paper raises important questions about the nature of economic growth in Georgia and the need for tailored models to understand its specific dynamics.

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**Keywords:** Macroeconomic facts, economic growth, macroeconomic policy, growth forecasts

## Introduction

The fundamental facts of economic growth and their analysis can be found in detail in the book by *Blanchard O.J., Fisher St. (1993)*, which is extremely interesting from the point of view of analytical research methods and assessments. See also *Daron Acemoglu (2009)* macroeconomic facts analysis and *Charles E. Jones (2016)*, which compile and specify the main macroeconomic facts (data) that are the basis for modern growth theories.

The article considers and focuses on two indicators of the well-being of the average citizen: (1) income and GDP per worker, i.e. an index of productivity, and (2) income and GDP per capita, which represents the Prosperity Index. These indicators are correlated with many other important well-being indicators, such as consumption, life expectancy, infant mortality rates, etc. The available data can be generalized in the form of some basic facts. Penn World Tables represents the primary source of real income data for counties. These data and some of the main problems associated with international comparisons are described in the work by *Summers R., Heston (1991)*. The most recent version of these data is available on the website of the National Bureau of Economic Research (NBER): (<http://www.nber.org>).

### 1. Measurement problem

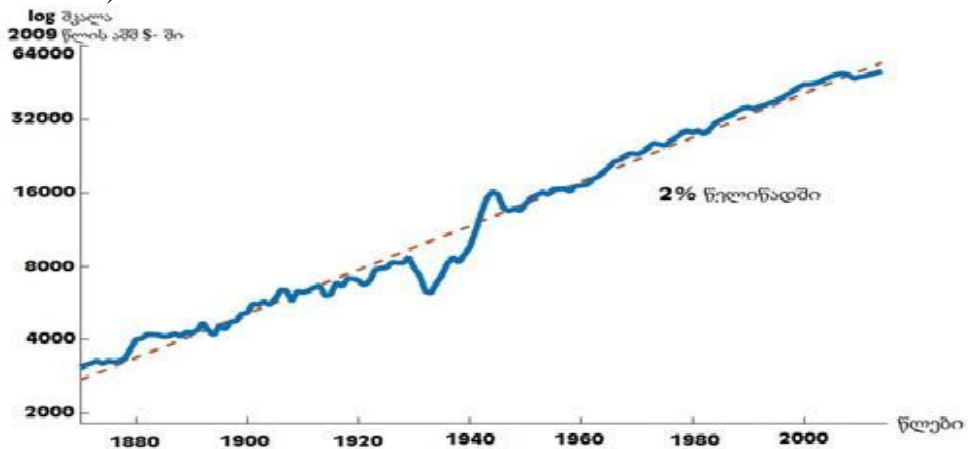
Converting national GDP to dollars at market exchange rates is misleading. The fact is that prices in poor or less developed countries, as a rule, are usually lower. Therefore, for example, in Georgia, costs in dollars are much more expensive than dollars in the USA. Suppose, at the beginning of some  $t$  year, the exchange rate of the Georgian Lari to the US dollar [(GEL/\$)] was equal to 2.45, but during the year it fluctuated, which is a normal phenomenon in Georgia (Anguridze et al., 2015). In Georgia, per capita GDP indicator measured in US dollars (or measured from the viewpoint of the dollar) would be higher if the GEL/\$ exchange rate was, for example, 2.38. But this change does not take into account the mentioned difference in prices. When comparing economic indicators in different economies, in particular, when comparing GDP and income in the same monetary unit (common currency), a conversion is necessary, which is achieved by converting all national currencies into a common currency (Dilanchiev, Taktakishvili, 2021; Tsutskiridze, Charaia, 2023). After performing this

operation, a comparison of individual countries (firms, natural persons, etc.) with each other in terms of International Purchasing Power. Switching to adjusted exchange rates, which will be amended according to Purchasing Power Parity (PPP) represents a better method. As it is said, an amended PPP, ensures consideration of differences in relative prices of various goods between countries. According to this theory, in the long-term perspective, exchange rates will be transformed into rates that equalize the prices of goods and consumers (in an identical basket) between any two countries, which makes it possible to compare monetary units (currencies) of two or more countries in relation to a certain set of production and consumption (Gamsakhurdia et al., 2017). Thus, for the same amount of money, converted into national currencies at the current exchange rate in different countries (in the absence of transport costs and restrictions on supply), purchasing the same amount of goods and consumers is possible. Thus, the use of Purchasing Power Parity provides a more reasonable way to measure the difference in living standards between countries. It is clear that without an amendment to the PPP, the difference in income between countries would be greater and moreover inflation indicator itself could mislead the reader when comparing one from poor and second from the rich country (Charaia, Papava, 2017; 2022). When converting the GDP of poor countries into US dollars at market rates, one of the important consequences of falling prices is a significant reduction in the size of the economy and the level of population.

## 2. International comparisons

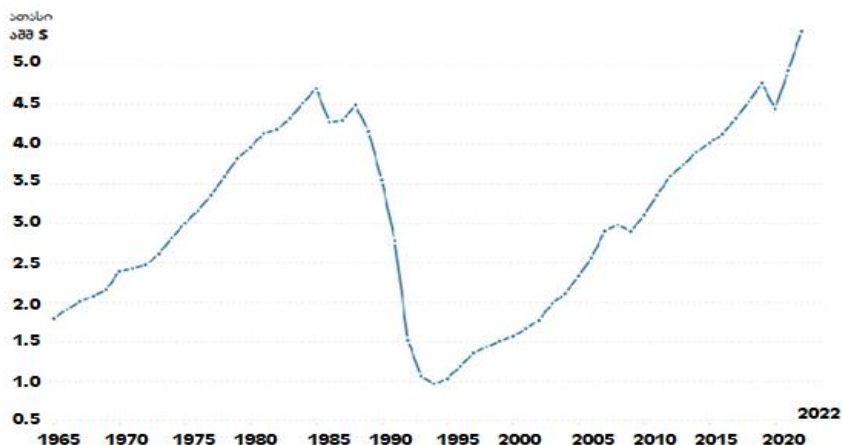
Figures 1 and 2 show some of the most key stylized facts: (a) Dynamics of change in real GDP per capita in the US economy from 1870 to 2015 according to *Charles I. Jones (2016)*). For nearly 150 years, this index has grown at a notably remarkable average steady growth rate: GDP per capita, which was \$3,000 in 1870, exceeded \$50,000 in 2014, an increase of almost 17 times (!), and the annual growth is close to a linear trend model with a slope of 2% per year, i.e. It can be said that per capita income in the US is on a sustainable growth trajectory. As shown in fig.1, the presence of short-term fluctuations in relation to the trend indicates to business cycles, and the study of long-term growth trends belongs to the field of economic growth theory. Deviations from the trend (non-trend real output) - the cyclical part of real output - are quite pronounced and relatively easy to study in the economies of the United States and other highly developed countries. All modern theories of economic growth, starting with Robert Solow (1956), continuing with Robert Lucas (1988), Paul Romer (1990) and Aghion and Howitt (1992) (*for the theories mentioned, see Demur Giorkhelidze (2021), chapter 5, Parts A and B*) have been processed by considering this fact. Tremendous changes in the Georgian economy over the past 23 years, a huge recession and other

extremely negative events caused by the transformational shock, trends that are still not recovered (see Fig. 2 and macroeconomic facts of the Georgian economy), unformed and indefinite cycles, when studying the economy of Georgia require special attention, - automatically, the use of classical growth theories and business cycle models that were created for economies with a completely different reality and well describe the conditions there requires serious caution when used in the conditions of Georgia: specify the models that will be used to study it. The models that will be used to study it should be determined taking into account existing macroeconomic facts (or the current situation).



**Fig. 1.** USA. Real GDP per capita) (logarithmic values,\$. 2009)

Source: . Charles I. Jones. The Facts of Economic Growth. Handbook of Macroeconomics Paper. 2016, Vol. 2A. pp.3. - 69. (see pg. 37)



**Fig. 2.** Real GDP per capita. Georgia.

At constant prices in 2015. in thousands of US dollars  
(1965-2022 )

Source: World Bank national accounts data. GDP per capita (constant 2010 US \$).

*Georgia (1965-2022):*

As shown in Fig. 1, even the Great Depression in the US was not a continuous deviation/fall. During this period, GDP per capita fell by only 20%, in only just four years, peaking in 1939, and a decade later, macroeconomic history is once again a history of steady, almost "inexorable economic growth" (according to Jones's words). Based on these data, Jones makes an interesting conclusion that for the US: "... a good admission for future economic growth will be 2% per year." It is noteworthy that over the past 150 years, sustainable long-term exponential growth has been a key feature of frontier growth. Economic growth is defined as a situation where a country's economy (in this case, the US economy) is at an appropriate point on the production possibilities frontier diagram and, in terms of efficiency, is best at producing goods and services and therefore making the best use of its own resources. *It is difficult to imagine and understand marginal growth in the future, and setting marginal growth stability (Figure 1) as a benchmark for future growth can be very confusing and misleading. Signs of this have already emerged as a result of the shock of the Covid pandemic and the soaring international tensions that have disrupted decades of supply chains and put many developed countries in economic trouble (Lashkhi et al., 2022; Papava, Charaia, 2022; Charaia et al., 2021).*

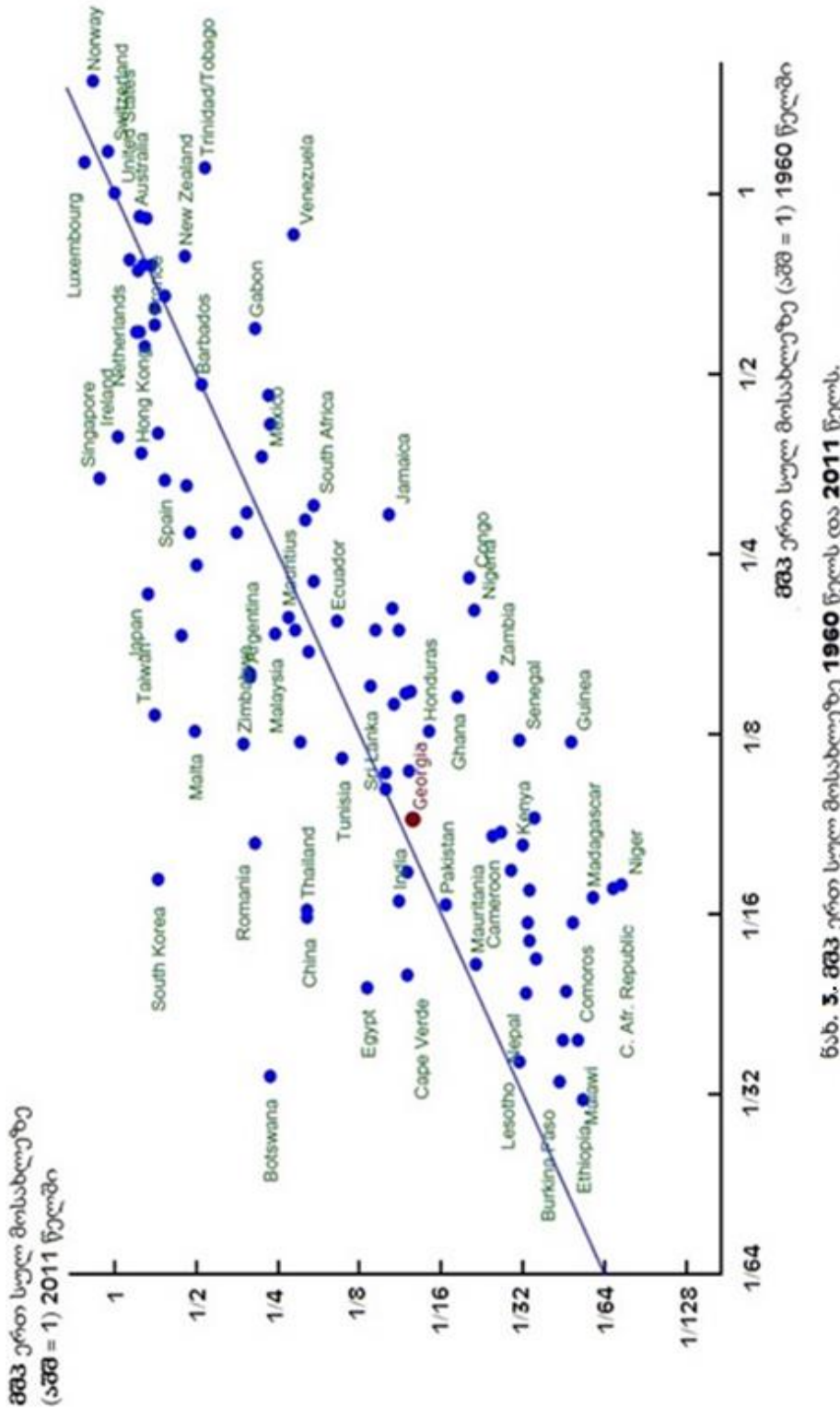
Another important thing to be taken into account when analyzing the Georgian economy is the so-called "Stratification Phenomenon" – A phenomenon in which some rich countries experience an increase in wealth and population density, while many countries remain poor. *In Georgia as well, the problem of poverty has not been overcome and is quite acute*, therefore this event must be taken into account. It is noteworthy that "Economic Stratification" in its content and essence differs from "Economic inequality". The phenomenon of stratification takes into account the range of wealth and not the existence of individual levels.

*Obviously, economic Inequality and Economic Stratification can coincide with each other.* When considering this issue, attention is drawn to the phenomenon of how this or that economy changes and improves its performance, and how all this affects the well-being of the population. In particular, by 1960, from the viewpoint of income, a number of middle-income countries moved into the ranks of high-income countries, while others retained the status of middle-income countries or received the status of countries on the path to relative impoverishment. Georgia was attributed to the latter. The point is that the most surprising examples of the biggest changes in relative incomes are "growth miracles and growth disasters." As far as it is known, a growth miracle is a fairly long period during which the growth rate in the country

significantly exceeds the world average growth rates, resulting in a rapid movement to the top of the world income distribution.

The best-known examples of economic growth miracles are Japan and the recently industrialized *East Asian nations of South Korea, Taiwan, Singapore, and Hong Kong*. For example, from 1960 to 1990, average incomes in the newly industrialized countries grew at rates in excess of 5% per year, resulting in approximately three times the income of those in the United States. Growth did not stop after 1990, despite certain problems associated with some slowdown in economic growth. Figure 3 clearly shows the dynamics and stability of these countries in 2011 (in Figure 3, the corresponding data for Georgia were calculated by the author of the presented article). What conclusion can be drawn?

If we take into account that according to the new classification, countries with a per capita income of \$3,956.0 to \$12,235.0 belong to upper-middle income countries, then Georgia, according to 2022 data (\$5,424.6 per capita), satisfies this level, however, it is in the lower range of the level, ranked 123rd in the world according to the World Bank (2021) ranking. This indicator is this-like only because we are dealing with a sharp decline in the population. If it were not for the decline in population, the peak of 1985 in both GDP and per capita GDP (\$4,704.1 per capita (with 4,734,000 people)) would not have been reached: and with the same population, we would have only \$4,254.3 per person).



საშპ = 1) 2011 წელს და 1960 წელს მოსახლეობის მდგრადი ზრდის კორელაცია (საშპ = 1) 1960 წელს

წყარო: Charles I. Jones. *The Facts of Economic Growth*. *Handbook of Macroeconomics Paper*. 2016. Vol. 2A. pp. 3-69. (იხ. გვ. 35)

Thus, over the past three decades, the state of the Georgian economy (in terms of integral assessment) has not undergone significant changes: Georgia has not been able to move beyond the low levels of the Average Global Income distribution and has not undergone any noticeable improvement. We may not be in a growth tragedy (“growth disaster”). Maybe we are not in a state of growth disaster; or we do not have economic growth rates that are much lower than the average global, but the growth rate of the Georgian economy does not show any clear trend (see "Fact 2" below), nor does a superficial perception of growth data give us a real idea of the real causes of growth (when we do have it) and the influence of random external facts on this growth.

Throughout their history, there have been poor countries, and even today they remain poor and unable to achieve any sustainable growth in average incomes. As a result, they remain at the subsistence level when world incomes are steadily rising (Giorkhelidze, 2021). It can be said that throughout the modern era, the income gap between countries (on average) has increased. The fact that average incomes in the richest countries at the turn of the Industrial Revolution were slightly above the subsistence level suggests that the dispersion of average incomes between different parts of the world must be lower than today's differences (Pritchett, 1997), but there has not been a strong trend towards divergence or convergence over the past two decades.

Even the small comparative analysis presented shows that it is necessary and required to have a clear understanding of what is the driving force of economic growth, and for this, it is necessary to identify the key stylized facts of economic growth throughout history. The attempt to analyze the data of Georgia and study the channels through which technical progress (innovations) or other facts affect long-term growth stimulation in this direction, was implemented in the authors's book (*Giorkhelidze, 2021; Lashkhi, 2022*). Understanding how growth-enhancing innovations are generated and how they spread within and between countries leads to a discussion of how these building blocks are influenced by the implications of knowledge transfer. Below, in relation to Georgia, the consequences of deep political or economic crises are discussed, which are considered necessary facts for the future development of growth prospects.

### **3. Georgia. Macroeconomic facts**

What is the situation in Georgia in this regard and what are the main macroeconomic facts that need to be taken into account when developing a model for Georgia's economic growth and economic policy in general, so that it (the model) shall fully take into account the current situation, and not just copy the models that are based on completely different macroeconomic facts, that based on totally other macroeconomic facts, quite well reflect economic



growth of developed economics ecosystems of the developed economies of the West over a long period of time.

Finding out the real facts in their essence is of fundamental importance in order to clearly present the existing situation and outline the best ways out of this situation. In order to be able to draw parallels, I will analyze Georgia precisely within the framework of the considerations that were used in the previous paragraph.

### Fact 1.

The share of GDP per capita, as well as GDP, fell 4.68 times (i.e., by 468%) as a result of the transformational shock in less than 10 years, which is equivalent to the complete collapse of one type of economy and a jump-like transformation into a new economy (see Figure 2).

Table 1. Shows numeric data at constant prices in 2015 expressing values of GDP per capita in 1965-2022, in thousand US dollars, and Table N 2 shows GDP values calculated under the same terms. In this case, it is not necessary to represent the GDP diagram apart, as it practically repeats the GDP diagram per capita.

**Table 1.** Georgia. GDP per capita (1965-2022.)  
(at constant prices in 2015, in thousands of US dollars)

1965	<b>1796,1</b>	1980	<b>3965,3</b>	1995	<b>1033,0</b>	2010	<b>3100,7</b>
1966	<b>1909,1</b>	1981	<b>4137,0</b>	1996	<b>1191,2</b>	2011	<b>3356,9</b>
1967	<b>2009,1</b>	1982	<b>4184,2</b>	1997	<b>1359,4</b>	2012	<b>3597,1</b>
1968	<b>2079,7</b>	1983	<b>4326,0</b>	1998	<b>1436,7</b>	2013	<b>3738,6</b>
1969	<b>2158,7</b>	1984	<b>4522,0</b>	1999	<b>1508,6</b>	2014	<b>3902,5</b>
1970	<b>2395,6</b>	1985	<b>4704,1</b>	2000	<b>1566,5</b>	2015	<b>4014,1</b>
1971	<b>2429,4</b>	1986	<b>4181,3</b>	2001	<b>1667,5</b>	2016	<b>4128,3</b>
1972	<b>2473,2</b>	1987	<b>4300,5</b>	2002	<b>1774,6</b>	2017	<b>4327,6</b>
1973	<b>2610,5</b>	1988	<b>4494,7</b>	2003	<b>1984,2</b>	2018	<b>4539,0</b>
1974	<b>2815,8</b>	1989	<b>4160,4</b>	2004	<b>2112,2</b>	2019	<b>4773,3</b>
1975	<b>3001,4</b>	1990	<b>3546,1</b>	2005	<b>2329,5</b>	2020	<b>4447,6</b>
1976	<b>3161,6</b>	1991	<b>2778,3</b>	2006	<b>2563,5</b>	2021	<b>4931,7</b>
1977	<b>3356,7</b>	1992	<b>1519,0</b>	2007	<b>2901,1</b>	2022	<b>5424,6</b>
1978	<b>3585,0</b>	1993	<b>1065,7</b>	2008	<b>2980,3</b>		–
1979	<b>3821,0</b>	1994	<b>969,7</b>	2009	<b>2837,1</b>		–

*Source:* World Bank national accounts data. GDP per capita (constant 2015 US \$).  
Georgia. (1965-2022).

Relevant numerical data of GDP in Georgia in 1965-2022 are shown in Table №2, reflected at constant prices in 2015:

**Table 2.** Georgia. GDP (at constant prices in 2015, million US dollars) (1965-2022)

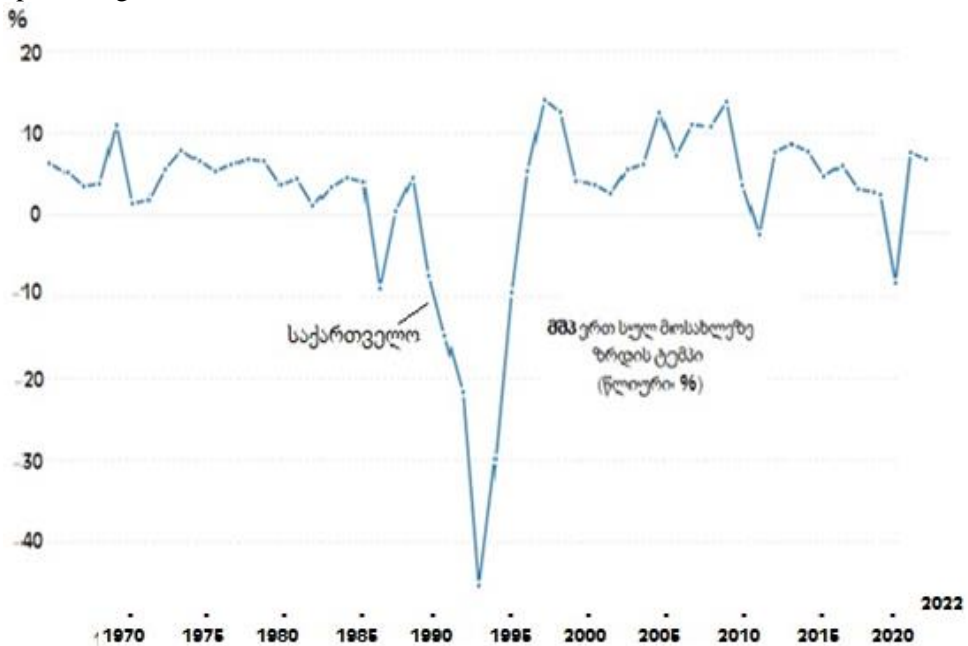
1965	7,044	1980	17,70	1995	4,812	2010	11,741
1966	7,575	1981	18,635	1996	5,350	2011	12,61
1967	8,,808	1982	19,01	1997	5,913	2012	13,414
1968	8,407	1983	19,83	1998	6,097	2013	13,899
1969	8,808	1984	20,90	1999	6,272	2014	14,515
1970	9,870	1985	21,935	2000	6,387	2015	14,954
1971	10,11	1986	20,14	2001	6,694	2016	15,389
1972	10,40	1987	20,40	2002	7,060	2017	16,134
1973	11,075	1988	21,533	2003	7,841	2018	16,915
1974	12,05	1989	19,984	2004	8,296	2019	17,758
1975	12,94	1990	17,029	2005	9,091	2020	16,557
1976	13,73	1991	13,44	2006	9,947	2021	18,290
1977	14,68	1992	7,403	2007	11,20	2022	20,140
1978	15,77	1993	5,234	2008	11,47		-
1979	16,93	1994	4,690	2009	11,051		-

Source: World Bank national accounts data. GDP per capita (constant 2015 US \$). Georgia (1965-2022):

<https://data.worldbank.org/indicator/NY.GDP.MKTP.KD?locations=GE>

**Fact 2. Economic growth rates are not characterized by any pronounced trends. (table 4)**

Table 3. Shows numerical data corresponding to the diagram presented in fig. 4: in 1966-2022 annual growth rate of GDP per capita in Georgia, was expressed as a percentage.



**Table 4.** GDP per capita \_ growth rate (annual %). (1965-2022)

Starting from 1989, the decline in growth rates from (-7.439%) reached its peak in 1992, when the decline was (-45.325%). The negative decline continued for another two years, and since 1995 this indicator began to gradually increase (see Table No. 3). In general, in the world, the amplitude of fluctuations of this indicator (annual growth rate of GDP per capita) from a maximum of +4.476% in 1973, in 2009, i.e. at the moment of the world's biggest economic crisis (beginning with the financial crisis of 2008) has clearly fallen to only (-2.932%), and it was only for short period, while in 2020, under the conditions of the Covid pandemic, the global economy decreased by -4, 3%, which is 2.5 times the rate of decline in the global economy during the global economic crisis (2009).

**Table 3.** Georgia Growth rate of GDP per capita (annual %) (1966-2015)

1965	-	1980	<b>3,698</b>	1995	<b>5,365</b>	2010	<b>7,657</b>
1966	<b>6,313</b>	1981	<b>4,407</b>	1996	<b>14,040</b>	2011	<b>8,633</b>
1967	<b>5,213</b>	1982	<b>1,142</b>	1997	<b>12,580</b>	2012	<b>7,741</b>
1968	<b>3,513</b>	1983	<b>3,389</b>	1998	<b>4,123</b>	2013	<b>4,729</b>
1969	<b>3,802</b>	1984	<b>4,531</b>	1999	<b>3,673</b>	2014	<b>5,999</b>
1970	<b>10,975</b>	1985	<b>4,026</b>	2000	<b>2,627</b>	2015	<b>3,154</b>
1971	<b>1,410</b>	1986	<b>-8,987</b>	2001	<b>5,568</b>	2016	<b>2,788</b>
1972	<b>1,802</b>	1987	<b>0,449</b>	2002	<b>6,186</b>	2017	<b>4,800</b>
1973	<b>5,549</b>	1988	<b>4,516</b>	2003	<b>12,504</b>	2018	<b>4,900</b>
1974	<b>7,868</b>	1989	<b>-7,439</b>	2004	<b>7,254</b>	2019	<b>5,200</b>
1975	<b>6,591</b>	1990	<b>-14,765</b>	2005	<b>11,038</b>	2020	<b>-6,200</b>
1976	<b>5,335</b>	1991	<b>-21,653</b>	2006	<b>10,811</b>	2021	<b>10,900</b>
1977	<b>6,170</b>	1992	<b>-45,325</b>	2007	<b>13,830</b>	2022	<b>10,000</b>
1978	<b>6,804</b>	1993	<b>-29,841</b>	2008	<b>3,634</b>		
1979	<b>6,583</b>	1994	<b>-9,488</b>	2009	<b>-2,391</b>		

source: World Bank national accounts data. GDP per capita growth (annual %).

Georgia (1966-2022):

[https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?end=2022&locations=GE&most\\_recent\\_year\\_desc=false&start=1966&view=chart](https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?end=2022&locations=GE&most_recent_year_desc=false&start=1966&view=chart)

### **Fact 3. The Cyclical Unemployment Calculator and the GDP gap change in different directions**

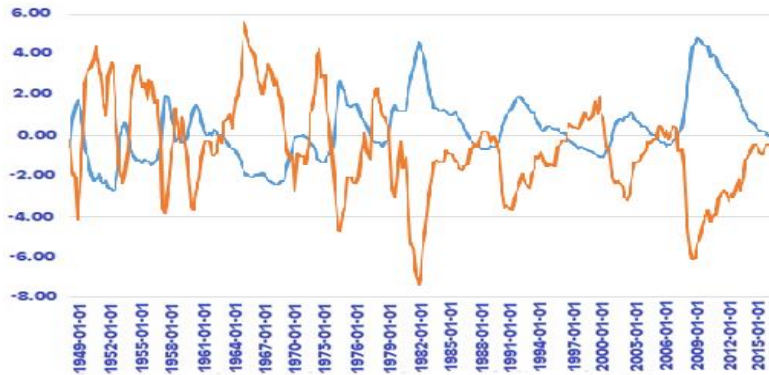
As shown in fig. Figure 5, the difference between the actual unemployment rate (u) and the NAIRU (or cyclic coefficient of the actual unemployment rate)  $u_{cycle}$  and the GDP gap is negatively correlated with each other. The correlation coefficient is (-0.89342), that is, close to (-1), which means that the correlation between these two values is inverse but very tight, and the slope is (-1.33077) (that is, the amount of increase (change)), - is negative and fast enough (steep).

**Table 4.** Cyclical Unemployment Calculator and GDP gap

<i>observation</i>	<i>u</i>	<b>NAIRU</b>	<i>mSp</i> <i>seas.ammend.</i>	<i>mSp</i> <i>pot.</i>	<i>u cycle</i>	<i>mSp gap</i>
1949-01-01	4.7	5.26	2007.5	2011.1	-0.56	-0.18
1952-01-01	3.1	5.36	2423.5	2355.5	-2.26	2.89
1955-01-01	4.7	5.37	2683.8	2638.8	-0.67	1.71
1958-01-01	6.3	5.40	2772.7	2876.5	0.90	-3.61
1961-01-01	6.8	5.51	3102.3	3219.8	1.29	-3.65
1964-01-01	5.5	5.57	3672.7	3648.4	-0.07	0.67
1967-01-01	3.8	5.78	4324.9	4162.8	-1.98	3.89
1970-01-01	4.2	5.88	4707.1	4734.2	-1.68	-0.57
1973-01-01	4.9	6.10	5380.5	5177.2	-1.20	3.93
1976-01-01	7.7	6.19	5618.5	5735.7	1.51	-2.04
1979-01-01	5.9	6.26	6433.0	6327.7	-0.36	1.66
1982-01-01	8.8	6.13	6475.0	6838.4	2.67	-5.31
1985-01-01	7.2	6.03	7469.5	7568.6	1.17	-1.31
1988-01-01	5.7	5.95	8339.3	8415.8	-0.25	-0.91
1991-01-01	6.6	5.82	8865.6	9193.0	0.78	-3.56
1994-04-01	7.1	5.54	9480.1	9717.6	1.56	-2.44
1997-01-01	5.2	5.15	10820.9	10855.7	0.05	-0.32
2000-01-01	4.0	5.01	12359.1	12231.1	-1.01	1.05
2003-01-01	5.9	5.00	13031.2	13459.6	0.90	-3.18
2006-01-01	4.7	4.97	14546.1	14473.7	-0.27	0.50
2009-01-01	8.3	4.92	14375.0	15244.8	3.38	-5.71
2012-01-01	8.3	5.13	15291.0	15734.5	3.17	-2.82
2015-01-01	5.5	4.83	16350.0	16473.1	0.67	-0.75
2016-01-01	4.9	4.75	16571.6	16738.0	0.15	-0.99
2017-01-01	4.7	4.74	16903.2	16992.2	-0.04	-0.52

Source: Ministry of Finance of Georgia

The data needed to calculate the graphs are shown in Figure 5, and the correlation and slope data are given in Table 3.6. I would like to note that the table is abbreviated and the data only corresponds to the observation dates indicated in the picture. The complete table includes annual data with a quarterly breakdown.



**Fig.5.** Cyclical Unemployment Calculator and GDP gap

Obviously, this situation is pushing macroeconomic policymakers and researchers to a clearer presentation of the problems and a deeper understanding of the causes of unemployment. In these studies, the fact that a significant part of the Georgian economy operates in the “shadow economy” mode requires caution, and the study of the mentioned issue is based only on official statistics.

#### **Fact 4.**

The growth rate of real GDP is determined mainly by the growth of physical capital and total factor productivity (productivity, or birth rate). The contribution of an increase in the number of people employed (that is, the labor force) to real GDP growth is mostly negative, but the trend is not clear.

Fig.6 shows the contribution of individual facts of production to economic growth (i.e. in real GDP), which is built on the basis of the data given in Table 4. The following designations are used here:  $g$  -is the growth rate of real GDP (total);  $g_K = g_{Kp} + g_{KG}$  is the contribution of the growth rate of physical capital, which is presented as the sum of the growth rates of private capital and public (public) capital.

**Table 5.** Contribution of production factors to economic growth (real GDP growth)

	$g$	$g_K$	$g_{Kp}$	$g_{Kg}$	$g_L$	$g_{TFP}$	$g_{pot}$
1997 QTR. 1	8.3%	1.6%	1.4%	0.2%	-0.2%	7.0%	3.8%
1997 QTR. 4	6.5%	1.8%	1.6%	0.1%	-0.1%	4.9%	3.8%
1998 QTR. 3	5.3%	3.4%	3.2%	0.3%	3.7%	-1.9%	5.0%
1999 QTR. 2	3.5%	3.5%	3.4%	0.1%	1.1%	-1.1%	4.8%
2000 QTR. 1	7.1%	3.2%	3.2%	-0.1%	4.9%	-1.0%	4.5%
2000 QTR. 4	7.7%	2.7%	2.7%	0.0%	7.8%	-2.8%	4.4%
2001 QTR. 3	1.5%	3.0%	3.0%	0.0%	0.9%	-2.4%	5.4%
2002 QTR. 2	0.2%	2.5%	2.5%	0.0%	-2.0%	-0.3%	5.7%
2003 QTR. 1	6.2%	2.6%	2.5%	0.1%	-3.6%	7.2%	6.6%
2003 QTR. 4	15.2%	3.4%	3.1%	0.3%	1.4%	10.4%	8.1%
2004 QTR. 3	8.1%	3.7%	3.2%	0.5%	-2.3%	6.6%	8.7%

2005 QTR. 2	10.0%	4.2%	3.2%	1.1%	-1.4%	7.2%	9.1%
2006 QTR. 1	9.8%	4.9%	3.6%	1.2%	0.3%	4.6%	9.4%
2006 QTR. 4	11.0%	4.5%	2.8%	1.7%	-1.3%	7.9%	8.4%
2007 QTR. 3	13.7%	4.9%	3.4%	1.4%	-1.6%	10.4%	7.9%
2008 QTR. 2	8.0%	4.2%	2.7%	1.5%	-2.6%	6.4%	6.4%
2009 QTR. 1	-4.7%	2.5%	1.2%	1.4%	2.6%	-9.9%	4.1%
2009 QTR. 4	-0.4%	1.1%	-0.1%	1.2%	2.8%	-4.3%	2,6%
2010 QTR. 3	7.0%	1.7%	0.5%	1.1%	-1.3%	6.6%	3.3%
2011 QTR. 2	5.8%	2.6%	1.4%	1.3%	1.0%	2.1%	4.5%
2012 QTR. 1	6.7%	3.1%	2.1%	1.0%	2.8%	0.8%	5.1%
2012 QTR. 4	3.6%	3.3%	2.3%	1.0%	-0.4%	0.7%	5.2%
2013 QTR. 3	1.3%	1.9%	1.6%	0.3%	-1.6%	1.0%	3.6%
2014 QTR. 2	5.1%	2.3%	1.9%	0.4%	1.5%	1.3%	3.7%
2015 QTR. 1	3.0%	3.0%	2.6%	0.5%	1.6%	-1.6%	4.0%
2015 QTR. 4	3.0%	3.2%	2.7%	0.5%	0.6%	-0.8%	3.8%
2016 QTR. 1	3.1%	3.1%	2.7%	0.5%	-0.3%	0.2%	3.7%
2016 QTR. 4	2.7%	3.1%	2.8%	0.4%	-0.9%	0.5%	3.5%

There has been a sharp decline in population over the past 30 years (in 1993, the population amounted to 4,911,100 (the maximum population for Georgia, See United Nations Population Division. World Population Prospects: 2022 Revision. Population, total, Georgia) decreased to 3,718,668 people at the end of 2013 (the lowest population in the last 30 years), the decrease was 1,192,432 people), it remains close to this level with slight excess. By 2022, the population of Georgia amounted to 3,712,502. Over the next 20 years, *the trend of population decline will continue*. The main reason for this, along with the demographic factor, is the rather high migration of the population, which, of course, is caused by the stagnation that has developed in the economy. Thus, the opinion that the higher the quality of life of the population, the more people will be employed in the economy and in the field of research and development (R&D), will not work and cannot work in Georgia due to a decrease in human resources. The importance of human capital in Georgia as an important factor capable of ensuring long-term economic growth and development, was recognized quite early (see Demur Giorkhelidze (2003), (see p. 136)):

"For the development of a modern economy, it is necessary not to increase the means of production, but long-term investments in science, education, and human health."

## Conclusion

The macroeconomic facts of economic growth in Georgia over the past few decades have been dynamic. The Georgian economy has experienced tremendous changes, including a huge recession and other negative events. They also note that the trends in the Georgian economy have not yet recovered.

The use of classical growth theories and business cycle models in Georgia requires caution. They argue that the models should be determined taking into account the existing macroeconomic facts.

The importance of the "stratification phenomenon" in Georgia is significant. This phenomenon refers to the fact that some countries experience an increase in wealth and population density, while many countries remain poor. The phenomenon must be taken into account when analyzing the Georgian economy.

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