DO POOR COUNTRIES BECOME RICH AND HOW?

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Introduction

Prior to answering the question of whether poor countries can become rich one has to define the concept of poor and rich. On international level countries are compared on the ground of the level of GDP per capita which indicates the volume of goods and services produced by each person within the borders of a country for a given time period. The World Bank\(^1\) is using the GDP per capita to divide the countries into four main groups. In this essay I will not use this exact group separation. I will not even try to define the concept of poor or rich countries. I will use the concept of dynamic development. If a country is on a path of development then a country is on the path of becoming rich.

In my further argumentation I will use the observations on the Bulgarian economy to explain possible factors with an influence on this development. On Figure 1 one can easily observe that the Bulgaria’s GDP per capita has considerable changed throughout the period from 1980 to 2012. Despite that fact the country still counts for an upper middle income country\(^2\) since the overall level of this countries has increased too. Thus one can conclude that there seems to be a development of the Bulgarian’s economy during the observed period. This observation is in line with the developments of the world as a whole. Compared to the development of the time series for the whole world the series of Bulgaria are showing a trend change. In the period from 1980 to 1996 the trend seems to be negative. In the period afterwards there seems to be a change in the trend from negative to positive. Structural changes in the economy which are going to be analysed in the next pages are the main driver of these changes.

The next part of the essay will concentrate on the theory of growth which is known in the modern economic literature. The second section will analyse the formalized changes in Bulgaria which take place in the observed period and compare them to the changes in the Romanian economy. The last section draws the conclusions of this essay.

The development of the theory of growth

In the last half of a century there has been a rapid development in the theoretical framework of the growth approaches. The fact that a vast amount of countries has grown after the World War II has led some scholars in the area of macroeconomics to think about the problem in more details. The first who has tried to explain the phenomena of the growth of countries has been (Harrod, 1948). In his work he was the first one to acknowledge the importance of the savings supply in the economy for the level of the income in this society. Furthermore he was one of the main contributors to the dynamic model of saving through postponing consumption and investing in order to extract a higher consumption in a future period.

According to (Solow, Perspectives on Growth , 1994) the second stage of the development in the area of growth theory is associated with the development of the neoclassical model which I will use in my further analysis.

The neoclassical model of economic growth

In this part I will present the Solow growth model. The neoclassical model of economic growth presented in (Solow, A contribution to the Theory of Economic Growth , 1956) tries to explain the development of an economy in the long-run. The long-run in this framework would mean

\(^1\) [http://data.worldbank.org/about/country-classifications](http://data.worldbank.org/about/country-classifications)

\(^2\) According to the definition of the World Bank
the time in the future where the monetary aggregates have no effect on real variables. I have concentrated precisely on the long-run developments because as mentioned in the introduction the development of a country from a relative poor to relative rich is a dynamic process which takes a considerable amount of time. Solow develops his model based on the assumption that the output level in the long-run is a function of the capital, labour and the technology parameter A:

\[ Y = A(t)F(L, K) \]

Since Y represents the amount of goods and services produced within the borders of a country in a given time period, Y is the GDP of country. Since there is an equality sign between the production level in the economy and the income in the economy I will use both terms in as substitutes. Important assumptions are the assumptions about the constant returns to scale and about the decreasing marginal product of capital.

After some calculations Solow derives the following equation with respect to the long-run growth rate of income in the economy:

\[ \frac{r}{r} = \frac{A}{A} + \frac{K}{K} - \frac{L}{L} \]

Thus the time change of the growth rate of the capital-labour ratio in the economy depends positively on the time change of the capital accumulation and technology growth and negatively on the growth of the population. Following the above concept the capital-labour ratio will not change over time only if the capital accumulation and the population grow at the same rate. According to Solow the only way to explain the observed long-run growth in output per capita the some countries after the World War II is through technological change that continually offsets the dampening effect of diminishing returns on capital.

The technological parameter can be intuitively interpreted as the human capital in the country or the research and development expenditures In the Solow model the technology is growing at a constant rate which reflects the progress in science. In this framework the production level is increasing at the same rate as the technology is developing. Thus differences in human capital accumulation or research and development expenses might be the cause of different growth rates over time. However the level of the output per capita depends positively on the savings rate of the society and negatively of the depreciation rate of capital. The higher the savings rate is the higher the long-run equilibrium level of output per capita and thus the equilibrium level of income per capita.

The approach constructed by Solow has been tested by different scholars. One of the most influential works is the one of Mankiw, Romer and Weil (N. Georgy Mankiw, 1992). The authors use an augmented Solow model. They add the human capital to the framework of the general model. A main conclusion of the authors is that the human capital seems to be a function of the income per capita. The main model predicts that countries with higher level of savings will have higher level of income per capita. The authors find that this subsequently leads to higher level of human capital which thus will lead to further increase in the income per capita. Thus there is a second indirect effect of savings on income per capita.
Political institutions and economic institutions

The models described above are related to the pure economic performance of countries. The conclusions of the model seems to not be true for Bulgaria for the period 1980-1990(Figure 2). This period is described through very high levels of the savings rate as a percentage of the GDP compared to the other years displayed on the graph. Despite that the GDP per capita in the same period is relatively low. Thus there must be other factors with an influence on the income per capita which are present in the period from 1990-2012 and are missing in the previous years.

In the period prior to 1990 the political system in Bulgaria is dominated by only one party. The country’s profile in this period can be described as relatively closed small economy. After the fall of the Berlin Wall in 1989 and the destruction of the Communist system a democratic country is presented in Bulgaria. There is a vast amount of research on the transition effects on growth in the post-communist countries. All of the scholars in this area acknowledge the importance of the political and economic systems. Abdiweli and Ali (Abdiweli M. Ali, 2002) emphasize the relationship between economic growth and freedom by distinguishing between the growth effects of political freedom versus economic freedom. The authors conclude that the enhancing of economic freedom in terms of property rights, contract rights and enforcement of contracts will reduce relative price distortions and improve resource allocation. In his research (Barro, 1996) Barro confirms the existence of favourable effects for the country from maintenance of the rule of law, free markets, small government consumption, and high human capital. A research of the World Bank (Stephen Knack, 1995) on the relevant topic concludes that the protection of property rights is crucial to economic growth and to investment. The analysis uses indicators such as International country risk guide as proxies for security of property and contract rights.

The case of Bulgaria and Romania

In this part I will compare the development of Romania and Bulgaria in the period of 1980-2012. I will take into account the variables which are derived in the theoretical part. The indicators for the investment level in each country are the domestic savings rate and the net FDI. The percentage of the labour force with a secondary and tertiary education are used to determine the human capital in each country. For the technology stock in each country I have taken the labour productivity. The indicators mentioned above are the same used by Mankiw, Romer and Weil in their research on the topic.

For comparison of the political and the institutional surroundings in both countries I have used common indicators of International country risk guide. The indicators evaluate the degree of political stability and government intervention in the economy.

In my analysis I chose to concentrate on Bulgaria and Romania and to show that countries can grow and will grow if the factors described in the previous section are present. The two countries can easily be described since both of them survived a hard transition from a communism to a democracy and implemented reforms in the direction of economic liberalization. Furthermore both countries jointed the European Union in 2007 and experienced a structural change in the pattern of growth from the year 2000. Additionally there seems to be

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some structural difference in the development in both economies which took place in the period 2002-2004, since the level of the GDP per capita in both countries seems to diverge in this period (Figure 3).

**Factors with effect on the level of GDP per capita**

As described in the theoretical framework in the first section the factors which have an effect on the level of the income per capita are: savings rate, capital accumulation and the rate of population growth. Figure 4 describes the development in the population growth for Romania and Bulgaria for the period 1980-2012. The change in the series follows the same path for both countries with the levels for Romania always higher in absolute terms than the once for Bulgaria. Directly after the fall of the Berlin Wall 1989 the population growth in Bulgaria turns negative with similar pattern for Romania two years later. The model of Solow will predict that with the shrinking population the marginal product of capital will decrease for any given level of capital. This will further lead to a lower GDP per capita in Bulgaria relatively to Romania for the observed period if all other factors remained unchanged.

Figure 5 displays the pattern of the gross capital formation and the savings rate as a percentage of the GDP and the GDP per capita. The data shows a drastic decrease of the gross capital formation and the savings rate from the period 1988 to 1994. For the same period the population growth in Bulgaria is negative. Both factors put a pressure on the level of GDP for the period from 1990 through 1996. The increase in the capital accumulation from the year 2000 is associated with an increase of the GDP per capita. The casual relationship is described by the Solow growth model.

One can conclude that the decrease in the population after the fall of the Berlin Wall and the decrease of the capital accumulation and the country’s gross savings in the period 1989-1996 led to almost unchanged GDP per capita for the period 1990 to 2000. Afterwards the increase in the gross capital formation led to an increase in the level of the GDP per capita. Interesting observation related to the economic liberalization is that the relationship between the gross capital formation and the savings rate is decoupled after the year 2000 which signals for a high levels of FDI after the year 2000.

As shown on Figure 6 the savings rate in Romania never fell below 10% and the capital accumulation never was below 15%. Big difference between Bulgaria and Romania lies in the FDI dependence. It seems that the capital accumulation in Romania relies primarily on domestic savings since there is not such a big difference between the savings rate and the capital accumulation in the country. However the Bulgarian economy relied very heavily on foreign capital in the period 2002-2008 with a peak in 2008 where the difference between the two reached almost 30%. In the same year the difference for Romania was not more than 10%. The decrease in the capital formation in Bulgaria in the two years after 2010 from 37.54% to 21.97% is related to the decrease in the foreign capital in the country. The decrease in the capital accumulation in Romania was lower in both absolute and relative terms which again led to higher level of income per capita in the country. This fact underlines one of the main conclusions of the Solow growth model that countries with higher savings rates will have higher levels of income per capita.
Factors with effects on the growth rate of the GDP per capita
The neoclassical growth model with technological growth derives that the growth rate of the GDP per capita will be related to the growth rate of the technological parameter A and the productivity of labour. I will further use the labour productivity as a proxy for technological growth and the percentage of the population in secondary and tertiary education as a proxy for the human capital accumulation.

The available data for Bulgaria (Figure 7) shows a permanent increase in the percentage of the labour force with secondary and tertiary education which is a single for an increase in the human capital accumulation in the country. The same fact is true also for Romania (Figure 8). There seems to be a significant difference between the percentage of the labour force with tertiary education in Romania and Bulgaria. However the conclusion of the Solow growth model that the growth rate of the GDP per capita will be equal to the growth rate of the technology seems to be true for both Bulgaria and Romania. The higher labour productivity growth (as a proxy for technological progress) in Romania contributes to a higher growth rate of GDP per capita for the period 2000-2008. The higher productivity growth might be directly related to the higher domestic savings rate in the country for the same time period.

The political and institutional changes
The first section presented the importance of the stability and the efficiency of the political and economic framework for the economic development of a country. In the table below I have presented the indicators describing the political and institutional conditions according to the International country risk guide (ICRG). Table 1 represents the mean and standard deviation of each indicator for Bulgaria and Romania for the period 1996-2012. According to the control of corruption indicator and the rule of law the conditions in Romania are slightly better. This might be also contributing to the higher level of GDP per capita in the country. Bulgaria has a better performance according to the indicator for government efficiency. The same indicators have been used in the analysis of the World Bank on the relationship between the efficiency level of the institutions and the economic performance.

Conclusions
The extensive research in the area of economic growth in the past 60 years provides the reader with a good theoretical framework for answering the question “How can poor countries become rich?” The savings rate in a closed economy determines the level of the income per capita in the long-run. In an open economy the capital accumulation is a result of both domestic savings and foreign direct investments. Investments in human capital will accumulate knowledge which will have an effect on the growth rate of the economy. Consequently, the level of capital accumulation is essential for both the level and the growth rate of the income per capita. Furthermore an increase in the savings rate of the economy will increase the level of output per capita directly and indirectly through the increase in the human capital accumulation.

The research on the topic of institutional effects on economic growth underlines the importance of political and institutional stability for the economic growth. The predictability of the political and institutional surrounding tends to have a crucial effect on the growth and level of income per capita. Thus one can conclude that a country with a stable democracy which provides the necessary conditions for the existence of economic freedom will have a higher probability to grow rich than other countries with the same characteristics.
It seems that poor countries can grow richer. Furthermore there are objective factors which influence both the growth rate and the level of the income per capita.
Bibliography


Appendix

The data used in the figures below is taken from the World Bank and Eurostat. Where gaps on the figure data is missing.

Figure 1

GDP per capita

Figure 2

GDP per capita and gross savings - Bulgaria
Figure 3

GDP per capita in current US dollars

- Blue line: Romania
- Orange line: Bulgaria

Figure 4

Annual population growth, % change to previous year

- Gray line: Bulgaria_population
- Yellow line: Romania_population
### Table 1

<table>
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<tr>
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<th>Bulgaria</th>
<th>Romania</th>
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<td>Standart deviation</td>
<td>Mean</td>
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<td>0.25</td>
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<td>Voice and accountability</td>
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