Global Correlation between GDP Per Capita and the Level of Sociopolitical Destabilization between 1960 and 2014: A Preliminary Quantitative Analysis*

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Our research suggests that the relation between GDP per capita and sociopolitical destabilization is better described by an inversed U-shaped curve, rather than by a straightforward negative correlation, as is frequently believed. The highest risks are relevant for the countries with medium values of GDP per capita, not the highest or lowest values. Thus, until a certain value of GDP per capita is reached, the economic growth tends to lead to an increase in the risks of sociopolitical destabilization. It is only with higher values of GDP per capita that the economic growth starts to reduce the risks of destabilization. Thus, the higher values of GDP per capita are characterized by a negative correlation with sociopolitical destabilization risks, while its lower values demonstrate a positive correlation with this indicator.

Keywords: *GDP per capita, sociopolitical destabilization, autocracy, democracy, intermediate political regimes, democratization, political development, economic development, anti-government demonstrations, education, middle-income trap.*

The impact of GDP per capita upon the level of sociopolitical instability has already been a subject of considerable research. Most papers are based on a seemingly plausible assumption that the higher the level of a region's economic development, the lower the risks of a civil conflict, and the weaker the support for revolutionary ideas among the population. Thus, MacCulloch (2004) investigates the impact of the level of economic development upon the dissemination of revolutionary ideas in a society using the microdata obtained from the surveys of revolutionary youth. On the basis of changes in the respondents' answers depending on the level of income a conclusion is made that GDP per capita growth by USD 1,600 (in prices of 2001) reduces the risk of the dissemination of revolutionary ideas by 2.4 per cent, while the proportion of people who would like to make a revolution is reduced by 41 per cent (MacCulloch 2004). MacCuloch and Pezzini (2010) use the microdata of the surveys of revolutionary preferences of 130,000 people from 61 countries betwen 1980 and 1997. In their paper they conclude that two indicators, namely, the increasing level of political freedom and economic growth, reduce the support of revolutionary ideas. On the contrary, a decrease in the authors' index of freedom by

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a point increases the support for revolutions by 4 per cent. In order to neutralize this increase, an increase in GDP growth rates shold amount to 14 per cent (MacCuloch and Pezzini 2010).

Parvin (1973) makes similar conclusions on the basis of cross-section data on 26 countries and states that both the level of income per capita and its changes exert negative influence on the level of political violence.

Another paper reveals that assessing the impact of economic conditions on the risk of a civil conflict emergence is hindered due to the endogeneity of variables. Its authors use the change in the level of precipitation as an instrumental variable for economic growth in 41 African countries between 1981 and 1999. This research also shows a strong negative relation between the economic growth and the risk of a civil conflict (Miguel, Satyanath, and Sergenti 2004).

Research by Knutsen (2014) views the impact of economic growth and the level of income on the attempts at revolutions and successful uprisings in a broad prospect from 1919 to 2003 for 150 countries. This research reveals that a moderate and short-term growth enhances the probability of both attempts at revolutions and successful revolutions. There is also some evidence that higher levels of income are capable of mitigating the revolutionary attempts, though this point remains disputable.

Weede (1981) states that high average income is closely associated with less violence and lower death toll resulting from such violence.

The relationship between sociopolitical destabilization and internal economic indicators, such as international loans, credits *etc*., has also received much attention in academic community. Thus, it has been revealed that international capital increases the state's capacity to react to the actions of the internal opposition, as benevolent conditions of crediting expand its capacity to limit and suppress the oppositional forces. Empirical data for 141 countries for the period from 1981 to 2007 are used to confirm that the states with greater access to international credit indeed have lower probability of civil conflict emergence (DiGiuseppe, Barry, and Frank 2012). Another paper covering this question concludes that exogenous growth of the international capital price is closely connected with increasing probability of civil conflicts. Dependency on raw materials, low economic growth, and poverty can also increase the risk of civil conflicts through reducing the access to foreign capital (Chapman and Reinhardt 2013).

However, some research implies that in certain conditions economic development can rather increase sociopolitical instability. Thus, in his analysis of the global revolutionary wave of the first half of 2014, Goldstone (2014a) pays attention to the fact that the highest values of sociopolitical destabilization are observed in countries which are not characterized by either the highest or the lowest values of GDP per capita, namely Thailand, the Ukraine, Bosnia, and Venezuela. Goldstone supposes that this is not a mere coincidence.

> All four are 'middle-income' countries, among neither the world's richest nor poorest societies. According to the International Monetary Fund, they range from 73rd in per capita GDP (PPP adjusted) – Venezuela's global ranking – to 106th (Ukraine), with Thailand at 92nd and Bosnia 99th. In other words, of the 187 countries in the world ranked by the IMF, they are almost exactly in the middle. They have just arrived at the point where the vast majority of the population is literate, expects a government to provide a sound economy, jobs, and decent public services. Yet, they are not yet economically comfortable and secure. That security, and a better future for themselves

> and their children, depends very heavily on whether government leaders will work to provide greater opportunities and progress for the nation as a whole, or only to enrich and protect themselves and their cronies. They are at a point where limiting corruption and increasing accountability are crucial to whether their country will continue to catch up to the living standards of richer countries, or fall back to the standards of poorer ones (Goldstone 2014a).

The implication that until a certain limit the correlation between GDP per capita and sociopolitical destabilization should be not negative, but rather positive, stems from the classic theory of modernization. Let us remember that as early as in 1959, Lipset put forward a hypothesis that in the course of economic development citizens are increasingly less ready to tolerate repressive regimes, while in the course of per capita income growth the probability of a transition from authoritarian to democratic regimes goes up. Lipset's empirical tests supported this hypothesis (Lipset 1959). Later on, this hypothesis was tested and supported by a number of other researchers (Cutright 1963; Moore 1966; Dahl 1971; Brunk, Caldeira, and Lewis-Beck 1987; Rueschemeyer, Stephens, and Stephens 1992; Burkhart and Lewis-Beck 1994; Londregan and Poole 1996; Epstein *et al.* 2006; Boix 2011).

Lipset's hypothesis itself suggests that one should observe not a linear but an inverted U-shaped relationship between GDP per capita and at least some types of sociopolitical destabilization. Indeed, as we will show below, a very high percentage of states with low GDP per capita have authoritarian regimes. Consequently, the growth of instability of authoritarian regimes with the growth of GDP per capita must generate a positive correlation between the GDP per capita and sociopolitical instability within a certain interval. Meanwhile (as we will demonstrate below), the higher values of GDP per capita demonstrate a negative correlation with sociopolitical instability. This gives us grounds to expect that high levels of at least some forms of sociopolitical destabilization should be particularly typical for countries with medium values of GDP per capita.

Let us note that our own empirical test of this hypothesis on the basis of data on 2013 and 2014 destabilization wave has generally supported it. During these years a state's belonging to the medium quintile in GDP per capita proved to be a statistically significant predictor of sociopolitical destabilization of the 'central collapse' pattern (Korotayev, Issaev, and Zinkina 2015).

In this paper we test this hypothesis on a much wider empirical basis.

Data and Methods

In order to test the hypothesis of GDP being a statistically significant factor of sociopolitical destabilization (within a certain interval) we choose GDP per capita PPP[1] for the period from 1960 to 2016 as our independent variable and the system of indicators of sociopolitical destabilization from CNTS database as our dependent variables.

Description and Methodology of Cross National Time Series (*CNTS*)

The Cross National Time Series (CNTS) database is a result of data compilation and systematization started by Arthur Banks (Banks and Wilson 2015) in 1968 in the State Uni-

[1] In constant 2011 dollars.

versity of New York – Binghamton. The work was based on generalizing the archive of data from The Statesman's Yearbooks, published since 1864. The database contains approximately 200 indicators for more than 200 countries. The database contains yearly values of indicators starting from 1815 excluding the periods of World Wars I and II (1914–1918 and 1939–1945).

CNTS database is structured by sections, such as territory and population, technology, economic and electoral data, internal conflicts, energy use, industry, military expenditures, international trade, urbanization, education, employment, legislative activity, *etc*.

In our paper we consider in detail the data describing internal conflicts (*domestic*). This section includes data starting from 1919 based on the analysis of events in 8 various subcategories, which are used for building the general *Index of Sociopolitical Destabilization* (domestic9). In this process the compilers of CNTS database give each category a certain weight (see Table 1).

Table 1. Weights of subcategories used at compiling the Index of Sociopolitical Destabilization

Subcategory	Variable name	Weight in the Index of Sociopolitical Destabilization (domestic9)
A*ssassinations*	domestic1	25
General Strikes	domestic2	20
Guerrilla Warfare	domestic3	100
Government Crises	domestic4	20
Purges	domestic5	20
Riots	domestic6	25
'Revolution'[2]	domestic7	150
Anti-Government Demonstrations)	domestic8	10

For calculating the Index of Sociopolitical Destabilization (*Weighted Conflict Measure*, domestic9) the numerical values of each subcategory are multiplied by the corresponding weights, the results of the multiplications are summed up, the sum is multiplied by 100 and divided by 8 – see formula (1).

$$domestic9 = \frac{25\ domestic1 + 20\ domestic2 + 100\ domestic3 + 20\ domestic4 + 20\ domestic5 + 25\ domestic6 + 150\ domestic7 + 10\ domestic8}{8} * 100 \quad (1)$$

Description and Methodology of Calculation of the Independent Factor

Annual values of GDP per capita (PPP, constant 2011 dollars) are used according to the World Bank database (World Bank 2016 n.d.a). In order to reconstruct the data series for the period between 1960 and 1990 we use the GDP per capita growth indicator (World Bank 2016 n.d.b). On the whole, data from 1960 to 2014 are used to test the hypotheses.

[2] Note that the name of this variable ('Revolutions') is rather misleading since in reality in most cases the respective columns of the CNTS database register coups and coup attempts rather than revolutions proper as they understood in Political Science (see, *e.g.,* Goldstone 2014*b*). Thus, below we will denote this variable as 'Coups and Coup Attempts' rather than 'Revolutions'.

Tests

A direct test generally confirmed the hypothesis on the presence of an inverted U-shaped curve between the GDP per capita and the level of sociopolitical destabilization. The proportion of the average value of sociopolitical destabilization index according to three tertiles of GDP per capita looks as follows (see Fig. 1).

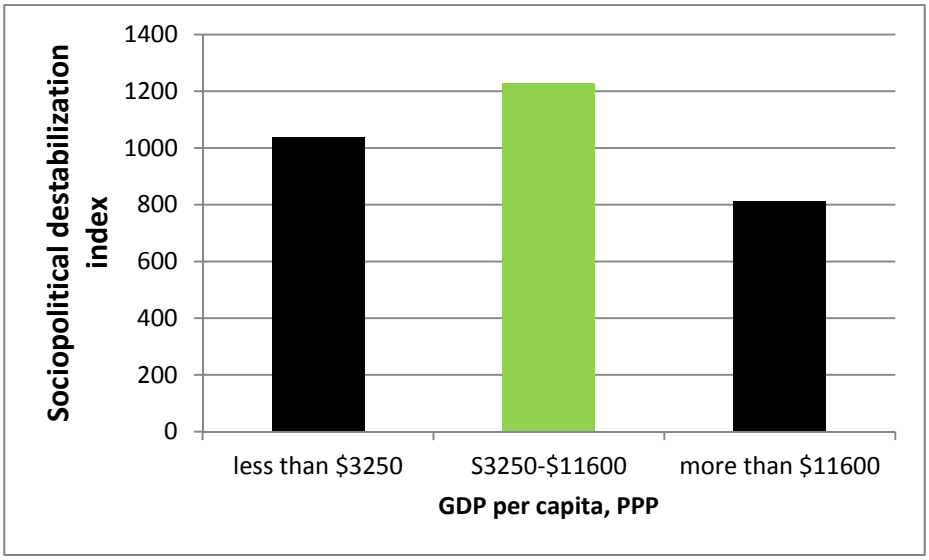

Fig. 1. The average value of sociopolitical destabilization index according to three tertiles of GDP per capita in USD, PPP, 1960–2014[3] [4]

The U-shaped curve looks rather asymmetrical here. Indeed, the negative correlation between GDP per capita and sociopolitical destabilization index is much more pronounced for the second and third tertiles ($t = 2.617$, $p = 0.0045$[5]) than for the first and second tertiles ($t = –1.775$, $p = 0.038$[6]). Similar results are obtained through ANOVA analysis.

Conclusion

Our research suggests that the relation between GDP per capita and sociopolitical destabilization is better described by an inversed U-shaped curve, rather than by a straightforward negative correlation, as is frequently believed. The highest risks are relevant for the countries with medium values of GDP per capita, not the highest or lowest values. Thus, until a certain value of GDP per capita is reached, the economic growth tends to lead to an increase in the risks of sociopolitical destabilization. It is only with higher values of GDP per capita that the economic growth starts to reduce the risks of destabilization. So, higher values of GDP per capita are characterized by a negative correlation with sociopolitical destabilization risks, while its lower values demonstrate a positive correlation with this indicator.

[3] *Note*: F=5.109, p = 0.006.
[4] Statistical significance of the differences between categories (shown by different colors in the figure) is further defined by a Tamhane's criterion ($p < .05$), and the procedure ANOVA.
[5] 1-tailed.
[6] 1-tailed.

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