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## **ASSESSMENT OF SOME THREATS TO POLITICAL STABILITY IN UKRAINE AND RUSSIAN FEDERATION TO 2035 ON THE BASIS OF A SIMULATION MODEL**

The aims of my presentation are:

- 1) to describe the author's model of political instability, based on the structural-demographic synergetic factor,
- 2) to assess some possibilities of forecasting the political instability in the Ukraine and Russian Federation until 2035.

### **The key features of the base structural-demographic approach:**

The most well-known and carefully developed models of political processes that allows to receive prognoses about the periods of instability, are, in my opinion, the models of structurally-demographic dynamics, going back to the works of J. Goldstone, P. Turchin, A. Korotayev, S. Nefedov, D. Halturina, L. Grinin, S. Malkov etc. These models associate socio-political development with a dynamics of a certain parameters of demographic development.

Basic concepts of "structurally-demographic cycles" based on the theses that

1)"the main force that destroys the state is a population growth, which leads to a gradual decline in per capita income until the excess is insufficient to satisfy the ruling class despite a hungry existence" (P. Turchin, 2010).

2) "the collapse of the state caused by fractional struggle among the elite, which opens the way for a popular uprising" (P. Turchin, 2010). I.e., the number of elite grows when per capita income is greater than a certain threshold rate required for the preservation and reproduction of one aristocrat (P. Turchin 2010). Thus, structurally-demographic crises are, according to scientists quoted, are as a result, the resource crises.

Obviously, political and prognostic potential of many modifications of such models is slightly limited in time by societies in which the action of demographic and resource order parameters inherent to traditional societies, associated with a notion of a malthusian trap, is not corrected or is not substantially corrected by other factors such as industrial production or computer social networking. Consequently, these models help to clarify the political past, but require substantial modification for use in prediction of political future.

Neither events of the "Arab spring" nor Euromaidan in Ukraine in 2013-2014 were not predicted by these models.

The abovementioned models tend in fact to the type of synergetic models.

Inspired with models of J. Goldstone and A. Korotayev I developed own model of political stability and verified it on Ukrainian and Russian data. The model reflects the period from 1989 and provides the possibility to give the prognosis of a threat to political stability till 2035.

The rate of annual growth in the number of young people in large and medium cities was taken as the main parameter – synergetic parameter of order, which determines the stability of the political process in states as Ukraine. These people mostly have higher or incomplete higher education. The necessary background is wide coverage of population by means of effective communication not mediated by government (i.e., mobile communications and Internet). On the verbal level this means that the youth of cities are the "firewood" which support the fire of mass street political participation.

The actual index of this order parameter for political process in contemporary unstable states of the first and second decade of the twenty-first century was verified on the base of Ukrainian data. It was determined as an annual growth rate of urban youth age range 21 - 25 years.

Let emphasize the basic differences of the model from predecessors: 1) annual demographic data is taken, rather than the five-year average; 2) the age range of ‘risk groups’ is specified.

So, the structural-demographic synergetic model for forecast of political instability can be described by the following functional relationship:

$$\text{IPS is the function of } (GR_{\text{Ruy}}, \{\Delta JR \rightarrow \text{const}, IpL \in 5 \div 50 \%, MPL > 50 \%\}, \quad (1)$$

where IPS – indicator of political stability;

$\Delta JR$  – the annual change of unemployment rate in a country (by the conditions of the model it has to fluctuate around a constant level)

$IpL$  – the level of Internet penetration in state;

$MPL$  – the mobile penetration level (by the model’s conditions it has to be higher than 50%);

$GR_{\text{Ruy}}$  – the annual growth rate of urban youth aged 21 to 25 years old, which is calculated by the next formula:

$$GR_{\text{Ruy}} = \frac{NUY_t - NUY_{t-1}}{NUY_{t-1}} \cdot 100\%, \quad (2)$$

where  $NUY$  – number of urban youths in the corresponding year (t).

The model was verified for the conditions of Ukraine with the Internet penetration less than 50% (relatively to all population) and mobile penetration of more than 50% (also relatively to the total population). Similar conditions are evidenced in the contemporary Russian Federation.

Algorithm for computing the function of political stability depend on the rate of growth of urban youth was built in such a way that as the result a conditional integer indicator of political stability (IPS) is:

$$\begin{aligned}
 GRuy < 0 &\rightarrow IPS = 0 \\
 0 \leq GRuy < 2\% &\rightarrow IPS = 1 \\
 2\% \leq GRuy < 4\% &\rightarrow IPS = 2 \\
 4\% \leq GRuy < 6\% &\rightarrow IPS = 3 \\
 6\% \leq GRuy < 8\% &\rightarrow IPS = 4 \\
 8\% \leq GRuy < 10\% &\rightarrow IPS = 5 \\
 10\% \leq GRuy &\rightarrow IPS = 6
 \end{aligned}$$

The value of indicators of political stability for every year in the model could vary from 0 (minimum level of political instability) to 10 (maximum level of political instability in the country, for example, great social revolution). For contemporary Ukraine and Russian Federation it will not be more than 6 even theoretically.

### **Assessments of synergetic threats to political stability in Ukraine and Russian Federation:**

The Table 1 presents retro-forecasted and forecasted values of the growth rate of urban youth and the corresponding indicator of political stability in Ukraine.

Table 1

Retro-forecasted and prognosed values of the growth rate of urban youth and the corresponding indicator of political stability in Ukraine\*

Year	The value of the growth rate of urban youth, %	Retro-forecast of the value of indicator of political stability
1990	-2.9	0
1991	-2.0	0
<b>1992</b>	<b>1.6</b>	<b>1</b>
1993	2.1	2
1994	1.9	1
1995	0.4	1
1996	0.6	1
1997	-0.5	0
1998	-0.4	0
1999	-1.6	0
<b>2000</b>	<b>0.3</b>	<b>1</b>
<b>2001</b>	<b>0.2</b>	<b>1</b>
2002	0.7	1
2003	0.9	1

<b>2004</b>	<b>2.9</b>	<b>2</b>
<b>2005</b>	<b>4.6</b>	<b>3</b>
2006	3.4	2
2007	1.0	1
2008	1.3	1
2009	-1.2	0
2010	-4.0	0
2011	-4.6	0
2012	-4.6	0
2013	-6.0	0
<b>2014</b>	<b>-4.0</b>	<b>0</b>
2015	-6.8	0
2016	-7.7	0
2017	-7.3	0
2018	-7.3	0
2019	-6.4	0
2020	-6.0	0
	The forecasted value of the growth rate of urban youth, %	Prognosis of the value of indicator of political stability
2021	-6.0	0
2022	-5.5	0
2023	-6.3	0
2024	0.3	1
2025	1.8	1
2026	4.5	3
2027	4.3	3
2028	5.1	3
2029	4.4	3
2030	4.8	3
2031	3.5	2
2032	2.7	2
2033	1.4	1
2034	1.8	1
2035	-0.3	0
2036	0.0	0
2037	-0.5	0
2038	-1.6	0
2039	-3.8	0

\*Data is given as of 1 January of the respective year. Source: [http://database.ukrcensus.gov.ua/MULT/Dialog/statfile\\_c.asp](http://database.ukrcensus.gov.ua/MULT/Dialog/statfile_c.asp)

As we can see, the materials of 1990 – 2013 shows that spurts in growth rate of urban youth of more than 2% per year were related to periods of political instability associated with mass political participation. The model coordinated with already well-known events: growth rate of over 4% accompanied the Orange Revolution and, at the same time, almost zero growth rate in 2001 did not give any chance for winning of the action "Ukraine without Kuchma».

So, making a retro-prognosis we can confidently assert that the actual base of the Orange Revolution, its main performers, were young people in age from 21 - 25 years, which growth rate in the capital was 3.8% in 2003 and 5.5% in 2004, that was significantly faster than previous and, mark in brackets, the following years.

Thus, the data of our model confirm almost thorough certainty of getting modern Ukraine to the phase of political instability in case of increase the growth rate of urban youth of over 3% per year.

First version of this model was built in 2011 and gave prognosis of potential instability in Ukraine to 2030.

**It was forecasted in 2011** that since the growth rate of urban youth is always negative to 2024 inclusive, then ceteris paribus in Ukraine for the period 2011 - 2025 will not occur serious political problems caused by the synergetic internal order parameter. However, a sharp increase in the growth rate of urban youth in 2026 - 2032 will necessarily become the detonator of serious political perturbations associated with mass political participation.

In view of pointed above it remained only to observe sadly the complete "cleaning" of public political field in 2011-2013 by team of V.Yanukovych which only confirmed the conclusions of the model.

Therefore, I seemed almost impossible emergence and moreover, the victory of Maidan in 2013-2014, because, on the assumption of the model, I assumed that without an objective structural-demografic condition, which was the number of young people in cities during the last 20 years, the attempts to change the course of the political process radically through a mass movement is doomed to failure.

At that days I really thought that EuroMaidan will die out.

But I am far from the idea that the unpredictability of the appearance and victory of EuroMaidan is evidence of its artificiality or instrumentality – of its American (as many people believed in Russia) or, on the contrary, Russian origins (as some people believed in Ukraine). I propose to explain an uprising and further victory of the EuroMaidan mainly with tactical wrong steps of the team of V. Yanukovych.

So, events of EuroMaidan showed high inaccuracy of the structurally-demographic dynamics methods in the construction of forecasts for occurrence of periods of political instability.

I believe that even the failure of the model's forecast in the case of a Euromaidan does not negate the likelihood of forecasted increased instability in Ukraine in 2026-2034.

I insist that the long-term structural and demographic factor should be considered when forecasting political instability in modern political processes.

However, the case of EuroMaidan showed, that the methods of structurally-demographic dynamics could not be totally reliable in construction of forecasts of political unrest.

The case of EuroMaidan requires for additional accounting of non-demographic, more variable factors to build more accurate predictions of threats to political stability.

So, to comparison let's get a look at the dynamics of the growth rate of urban youth in Russian Federation at all, in Moscow and Saint-Petersburg along with the Ukraine's data (fig. 1).

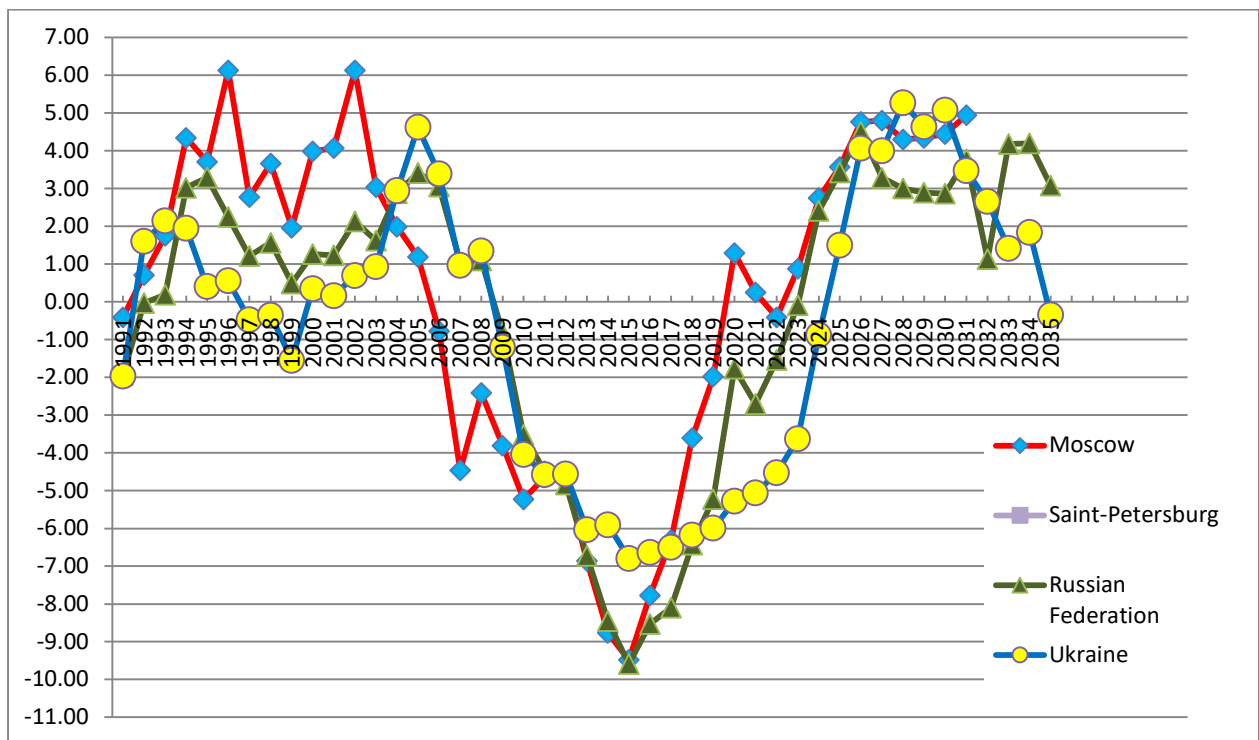


Fig. 1. Retro and prognosed values of the growth rate of urban youth in Russian Federation, Moscow, Saint-Petersburg and Ukraine, %.

(Data is given as of 1 January of the respective year. Source: [http://database.ukrcensus.gov.ua/MULT/Dialog/statfile\\_c.asp](http://database.ukrcensus.gov.ua/MULT/Dialog/statfile_c.asp))

As we can see, there was huge structural-demographic potential for protests in 2000-2003 in Russia.

Why there was nothing?

Why there was nothing even in Moscow?

Moreover, from the beginning of 2014 we can look at Russia as at the most appropriate example of repressive state, which causes hatred of the population a priori. In these circumstances we see at the fig.1 ground for prognosis of instability in Russian Federation in the nearly same period as in Ukraine (2024-2035). But, unfortunately, there is a high probability that in this case the direct forecast will turn out to be inaccurate also.

Why? Let's explain:

It was noticed by the authors of the first models, J.Goldstone and A.Korotaev, that sometimes random circumstances interfere with the action of our long-acting synergistic factors. Their impact smoothes out the predicted manifestations of instability and aggravation of political struggles.

Most often, these random factors are not specially planned actions.

Let's get a look at the fig.1: what is happening in Moscow in 2000-2003? Nothing special besides the average offer of work in Moscow in these years was about 106%! That is there is so much work (moreover, it is highly paid in comparison with the rest of Russia) that the labour market easily absorbs all possible carriers of discontent and protest.

In subsequent years, the rate of growth of youth in Moscow falls, but the same youth mound across Russia (2004-2006) was also leveled by an excess of job offers in both capitals (Moscow and St. Petersburg).

The second factor begins to manifest itself in these years this is an increase in quantity of state militants. This factor smoothes out the excess of youth growth.

I am inclined to believe that exactly this factor will spoil the encouraging forecast of political "instability" in Russia for 2025-2035.

Just now we are witnessing an ever-increasing supply of work in different military services in Russia, which covers youth at first.

According to official statistics, in 2018, the total number of military services personnel amounted to 8.5 million people. This is the 11% of the working population in Russia. About 29% of the budget was spent on their maintenance in 2018 (<https://zen.yandex.ru/media/lscycheva/skolko-silovikov-v-rossii-5d811776c05c7100aeb60f37>). In 2005, their number was about 5 million people only. (<https://www.e-vid.ru/index-m-192-p-63-article-40788.htm>)

The annual growth of militarized organizations was on average 270 thousand people per year. In fact, until 2012 there was a slow growth, and in recent years it has been much faster. And we understand that this increase in staffing replenishes by youth.

- How many "extra" youths were in 2000-2004?

- An annual increase of 3.4% in 2005 throughout Russia gave 300 thousand "extra" people aged 21-25 years. And the expected youth growth of 4.51% in 2026 will amount to only 200 thousand people.

Against this background, an annual increase in the number of militias of 270 thousand will help erode the possible core of protest.

Just for reference: the annual number of school graduates in Russia in 2005 was 1.7 million and only 1 million in 2018. It means that every fourth school graduate will become a militant.

Interestingly, in the Caucasus region of Russian Federation for the past 10 years, service in such militarized services has been recorded as the only choice for young people if ones want to stay living in their old place. Otherwise they must consider internal or external migration.

So, I am inclined to believe that exactly the factor of increase in quantity of state militants will spoil the encouraging forecast of political "instability" in Russia for 2025-2035.

And migration gives us the next danger for the synergetic forecast of instability in Russia. Looking for an analogy let's look at the cases of East European countries (fig.2).

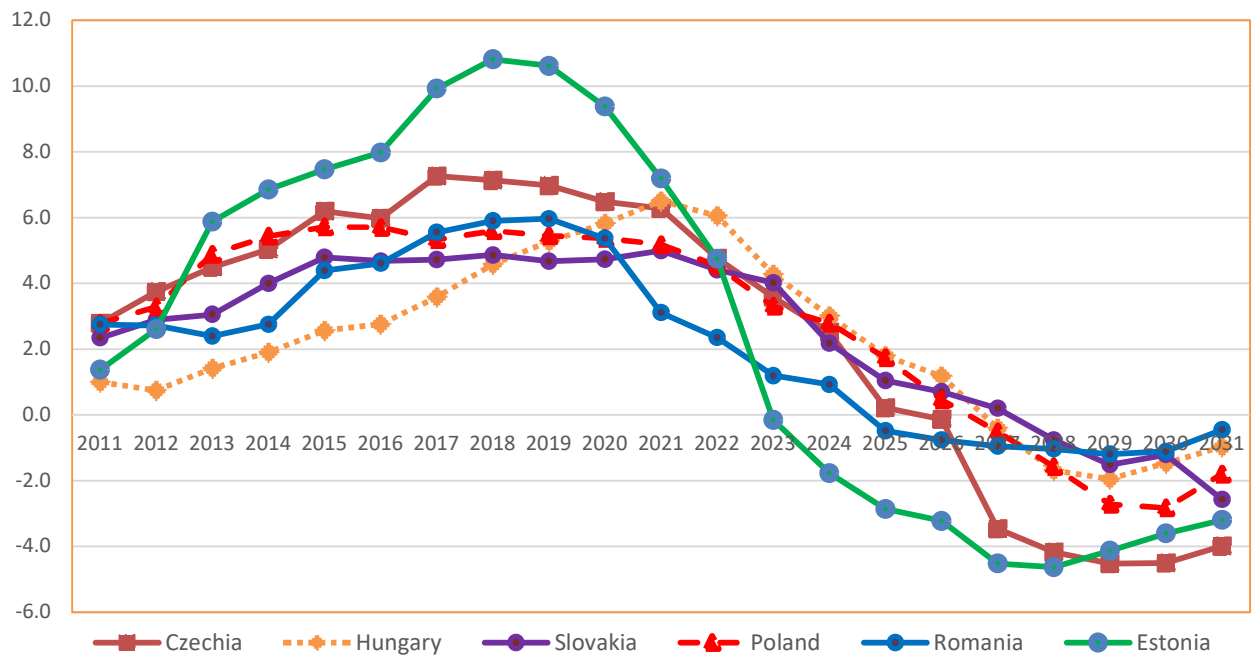


Fig.2. Retro-forecasted and prognosed values of the growth rate of urban youth in East European countries, %.

Applying this model to demographic data of East European countries I corrected content of the main parameter. An annual growth rate of urban people age range 21 - 30 years was taken as the main parameter for East European countries. More wide age range was taken due to the well-known prolongation of the beginning of separate life in European countries compared to Ukraine and Russia. Inhabitants of the cities with more than 50 thousand people were taken into account.



As we can see at the fig.2, the rates of growth of urban youth show the dangerous prognosed situation in every East European states that was taken in 2012 – 2024 in comparison to Ukraine.

Moreover, we can see the huge growth rate of urban people age 21-30 from 2011-2012 in all East European countries. Especially compared to Ukraine and Russia!

For example, in Estonia we must see (according to the model) much more instability, than in France in time of yellow vests.

But why we didn't see in East European countries such social and political instability as in Ukraine? Why didn't we see anything dangerous in social behaviour?

I think that the main factor which mitigate the effect of the high growth rate of urban youth is an open border in EU: so called “extra people” (especially extra youth, but it doesn't mean an age obviously) have possibility to leave native country and so give up to any internal instability.

So, synergetic forecast of political instability the more inaccurate, the more open the borders of a state are, and the more opportunities it has for internal “employment” of extra people.

Let's hope that Russia will gradually close its borders, but so far it just successfully squeezing potential protesters out of the country.

Thus, the forecast of political instability in a repressive states and transitive states, based on the long-term demographic synergetic factor is gradually lost its adequacy according to the grade of open borders and the propose of internal employment. But in the cases of closed borders and restricted labour market the factor retains its effect.