Transport system as a factor of national economic security: risk factors, evaluation criteria and forecasting methodologies

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Abstract. The presented below article redefines the economic security criteria taking into account the current conditions of deepening globalization. It also outlines and analyzes the threshold values of economic security criteria on the example of the Russian Federation. Potential measures are put forward to maintain the appropriate level of economic security in this country, taking into account the impacts of various external factors. The comparative analysis carried out within the article explains the necessity to strengthen the presence of the institute of state in the processes of economic restructuring and economic security support.

1. Introduction
Economic security issues have been relevant and highly important throughout the whole history of human civilization. However, they became especially acute when the civilization started shifting from the industrial stage to the post-industrial one [1, 2].

Rapid development of globalization within the world economy and the growing role of liberal values (on the planetary scale actually, not just in separate countries) together have seriously changed the traditional approaches to structuring of measures aimed at achievement and maintenance of national security. Once advanced technologies have turned into the key production factor, corporate strategies became very much subjective in their nature and a significant part of controlling and regulation functions have been shifted from the national level to the transnational level. In such a context, most of the states have been forced to reconsider their vision on economic security as a top priority.

Despite the ongoing universalization and transnationalization in nearly all fields and areas of human activity, national economic security as a separate area of national policy-making remains to be very much country-specific. Thus, criteria and evaluation methodology, when it comes to national economic security, remain to be country-specific too. Since today many countries are changing too quickly, the issues of their national economic security and its evaluation continue to be an open research problem which does not lose its topicality.

The key research goal here is to analyze the theoretical approaches to scientific definition of economic security, taking into account the current practices of a range of countries and international organizations as well. Our second key goal is to offer own methodology for evaluation and comparison of the national economic security criteria taking Russia as our case study. We are convinced the offered below methodology can be further used in national and regional strategizing as applied to other countries as well.
Key research tasks:
- to outline the key aspects that are defining the level of national economic security of a particular state;
- to present, in the most systemic way possible, the risks of national economic security destabilization;
- to analyze the threshold values of the key indicators behind national economic security of contemporary states;
- to suggest the potential ways to minimize the negative influence of the factors which are currently decreasing the level of economic security;
- to develop and offer a comprehensive system of indicators for the national economic security along with the methodology of their calculations on the basis of key macroeconomic indicators.

Research object here is a specific socioeconomic condition of a national state under which we can observe lack of serious threats and the country’s capacity to regulate and manage the factors limiting its further progress.

2. The problem of national economic security in literature

Majority of analysts today think that international economic security is a special state of the world economic and international economic relations which enables stable economic development of separate countries through creation of all conditions for mutually beneficial economic cooperation, thus excluding the illegal use of countries’ economic powers [3, 4].

Thanks to intensive technological revolution, the very understanding of aggression has seriously changed: today the key indicator of a truly strong country and a leader is not its military power but rather a combination of several, most economy-related, factors [5]. More specifically, analysts think that to such vitally important factors of power belong: the level of country’s economic development [6], the current state and the development prospects of its social infrastructure, the volume of national wealth, the volume of country’s external debt and so on [7].

Globalization has led all of us to the situation when the current level of high-tech production guarantees certain technological and financial independence of a country and equips it with all the necessary tools for successful competitive fight [8].

Just as it is with many other definitions in economic sciences, national economic security is formulated and seen in literature in a quite variety of ways. We would like to systematize the views on this phenomenon/notion and provide a holistic concept of what is the economic basis of national security (which actually should not be dependent upon the degree of country’s engagement in international corporate business flows and/or the rate of national economy’s development) [9].

In our view, the key parameters of national economic security are as follows:
- compliance with the best national interests;
- the ability to maintain the needed level of national economic independence, from the risky external markets in the first place;
- availability (or at least development) of an efficient system to prevent and minimize the negative impacts of external factors;
- maintenance of national competitiveness rank at an acceptable level [11];
- development and implementation of complex measures to guarantee the stability of a national economic model and also social stability [12].

Economic stability can be reached only when the degree of dependence upon another, dominating economy is minor and also when internal threats to political, social and economic situations do not go beyond a certain threshold value. In the opposite case - the country is clearly facing the risk of losing its national sovereignty [13, 14].

In other words, lowering of national economic security automatically leads to weaker military power, lower level of life quality for country’s population [15] and even cancelation of all strategic objectives in the course of country’s development [16].
In our view, in determination of national economic security the emphasis must be put on minimization of negative external factors, especially those that can quickly destabilize the national real sector.

Therefore, we suggest the following definition of national economic security: “economic security of a national state is a complex combination of protective measures, the implementation of which is expected to seriously decrease the negative influence of various external factors, both current and potential, and also minimize the internal risks, the emergence of which can be partially predetermined by the specificity of national economy”.

In this context, the threshold values of key indicators of the national economic security become of vital importance: if any of these key indicators goes beyond the threshold value - this automatically means real threats of national security destabilization. And vice versa - gradual decrease below the threshold value means strengthening of the overall level of national economic security [17].

3. Analysis of the key factors behind national economic security

Table 1. Key factors behind national economic security (author’s suggestion and compilation)

| #  | Key factors                                                                 | Elements of the key factors                                                                                                                                                                                                 |
|----|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | The capacity of national economy to perform under the extended reproduction mode | Core sectors of the national economy are supposed to guarantee stable development and provide all necessary resources for progressive and long-term development Low dependence on imports Developmental priority must be assigned to the sectors of highest internal demand Thorough governmental control over the volumes of export of the most strategically important resources |
| 2  | Stability of the national financial system[19]                              | Reasonable size of the external debt of the state and well grounded ways how it will be paid off in the future Resource base of the national bank; structure of the capital in the country; concentration of banks and their branches across country’s regions Balance between accumulation and spending within the banks’ resource base Bank’s capitalization Low/zero deficit of the national budget; stability of prices; balanced financial flows’ stable currency exchange rate; stability of the national currency |
| 3  | Rational structure of the external trade                                    | Balance between the volumes of export and import which takes into account the actual supply and demand and also their forecasts for the near future Preferential treatment for the producers that are exporting commodities which are in high demand at the world markets Reasonable protectionist measures to minimize the negative influence on the representatives of national business Support for national producers, taking into account the foreign practices of “hidden protectionism” Measures taken to prevent/minimize the damaging consequences of various emergency situations, world economy destabilization risks, ongoing globalization, aggressive corporate policies and the like |
| 4  | Maintaining real production at the level appropriate to national research potential | Support and promotion for the national research potential as such Prioritized financing for the most innovative projects which could contribute to the development of national economy Minimization of country’s technological dependence upon the world tech leaders |
| 5  | Maintaining the integrity of the national economic space and of the national market | Deeper integration between the regional markets of the same country Various support measures for regional/local producers Further improvements of the already established integration model |
| 6  | Creation of economic and legal conditions which would prevent criminalization of the society | Minimization of opportunities for “binding” between public authorities and criminal groups; active fight against corruption; prevention and fight against the misuse of public office Strict control to prevent distribution and further retail sales of counterfeit commodities Measures taken to control and prevent the development of illegal migration processes |
The situation at Russian labor market is getting gradually worse, third year in a row. In 2019 this index grew to the level of 6.1, however, back in 2018 and 2017 it was 6.0 sharp respectively. This index reveals the situation at a labor market, assessing it on a scale from 1 to 10. The interpretation is as follows: when the index is below 5 - the labor market is healthy and stable, and when this index goes above 5 - it means the labor market is under the influence of at least several negative factors, such as demographic problems in a country, lack of vitally important specialists and so on.

### Table 2. Threshold values of the key indicators

| Indicators                                      | Threshold values | Indicators as of 2018 (+ future trend) |
|------------------------------------------------|------------------|----------------------------------------|
| Investments' volumes, as % of GDP               | 25               | Ratio of capital investment to GDP decreased and by the end of 2018 was at the level of 20.6% |
| Expenditures of R&D, as % of GDP                | 2                | Russia spent almost 2.4 bln RUB on research and development (2018 to 2020). Nearly 40% of this amount covered military research. Federal budget expenditures on R&D in the current three years have been planned in the amount of 2.38 trln RUB: 764.6 bln RUB for the year 2019, 781.2 bln RUB for 2020 and 836.2 bln RUB for the next year (data from: https://www.rbc.ru/economics/21092018/5ba3bc40a7947172541a5ff). |
| The share of population living below the poverty level | 7                | The share of Russian citizens with the income below the subsistence rate in the 1st quarter of 2019 grew up to the level of 14.3% of the total country’s population (this is 20.9 mln people) as opposed to 13.9% (and 20.4 mln people) back in 2018. This growth can be partially explained by the fact that the official subsistence rate was growing faster than the consumer prices index (7.2% and 5.2% a year accordingly). |
| Life expectancy rate                            | 70               | According to the official statistics, at the end of 2018 this rate was 72.3 years. This is actually a historic record for the country. |
| R/P 10% (or Gini index)                         | 8                | As of 2018 results, Gini index in Russia grew significantly (as compared to 2017): it went up from 0.400 to 0.402. Growing inequality is explained by the fact that incomes of the top 20% rich population are growing much faster as opposed to the incomes of the lower 40% of the total population (the rates are 4.84 and 3.08% accordingly). |
| Criminality rate (as per 100ths people)         | 5000             | According to the official data provided by the Ministry of Internal Affairs, during 2018 3,965 thousand crime acts were registered. This is 3.3% less than back in 2017. Also, this is the lowest indicator since 1991. |
| Inflation rate (per 1000ths people)              | 20               | According to the forecasts by the Bank of Russia, the annual inflation as of 2019 is 5.5% (at peak it may reach the level of 6% though). The plan for 2020 has been to return back to the level around 4% (which has been formulated by the regulator as their key goal) (data from: https://rg.ru/2019/01/10/rosstat-nazval-uroven-infliaciyi-v-2018-godu.html). |
| External debt, as % of GDP                      | 25               | Total volume of Russia’s external debt back in 2018 reduced to the level of 33% of its GDP (from 40% in 2017). At this, the largest share of RF’s external liabilities were in the private sector; the total volume of external private debt as of January 1st, this year, was 448.6 bln USD, or 86.5% of the total debt. The volume of external liabilities belonging to various public bodies and the Central Bank was around 70 bln USD. At this, the debt affiliated to the Central Bank was at 14.5 bln (data from: https://ria.ru/20257304/1519934143.html). Generally speaking, the total indicator of debt increased by 16.7 bln USD - up to the level of 55.6 bln. And liabilities which Russia took up as the legal successor state of the USSR decreased by 0.3 bln USD (Data from: https://ria.ru/20180986/1992932587.html). |
| Budget deficit, as % of GDP                     | 5                | For the first time in many years, the Russian Federation finished the year 2018 with a budget surplus: the difference between expenditures and incomes was 2.7% of the GDP, which was higher than all forecasts and expectations. To compare: budget deficit in 2017 was 1.4% of GDP; in 2016 it was 3.5%; in 2015 — 2.6%; in both 2014 and 2013 it was at the level of 0.3%, and finally back in 2012 it was 0.02% of GDP (data from: https://www.vestifinance.ru/articles/113479). |
| Money supply M2, as % of GDP                    | 50               | As of January 1st, 2019, M2 indicator of the Russian Federation was at the level of 47.108.1 bln RUB; the growth since 2018 was 11%. |
| The share of import in internal consumption, total and separately for food products | 30 (25)          | Starting from August 2014 import of numerous product categories from the EU, USA, Canada, Australia and many other countries, supporting sanctions against Russia, was banned. Some of Russian-based analysts have interpreted this as an opportunity to promote the development of import substitution. Still, the total volume of imported to Russia commodities as of 2018 was 238 151 bln USD. As compared to the 2017 numbers, this is an increase by 4.93%. |
| The level of unemployment (as per the ILO methodology) | 7                | |
Achieving and then maintaining a certain level of national economic security always means there is a certain system of key indicators to be tracked and followed. For the convenience of structuring, threshold values of such key indicators can be used as some sort of “control points” [18]. Combination of such indicators is relatively universal, which means it can be used in the context of any contemporary country, despite the presence of national specific features. Table 1 below presents the system of indicators which we see as the key factors behind national economic security (once again, of nearly any state these days).

4. Indicators of national economic security under the conditions of globalization (Russian Federation case study)

In the course of our analysis we have determined the following threshold values which are applicable to the state of national economic security in Russia. Key trends behind these threshold values are also explained.

As we can see from data presented in Table 2, generally speaking, Russia’s vital indicators are quite far from their threshold values for the time being. However, we can also observe a slightly negative trend in the development of many of them. Most of these negative trends have been observed due to the heavy influence of the external factors, such as globalization, foreign policies of the subjective nature etc. [20].

Thus, the current values of these key indicators along with their development trends require a more thorough analysis which would contribute to the development of a system of appropriate measures aimed at minimization of the external negative influences.

5. Conclusions: directions for minimization of risks to national economic security of the Russian Federation

For more logical presentation and also higher clarity, we would like to present our conclusions and recommendations as a table. In it, we group the most determining factors of national economic security along with the suggestions how to improve the status of each particular factor and minimize the related risks.

Below we present Table 3, in which we have collected the most vitally important [in our view] factors of influence upon the system of national economic security in the case of the Russian Federation specifically.

| Factor of risk | Examples on the 2018-2019 data | Opportunities for minimization |
|----------------|--------------------------------|-----------------------------|
| Socioeconomic relations with the neighbouring countries | Ongoing conflict with Ukraine with its socioeconomic and political consequences for both sides. Disagreements with Belarus on a range of economic and political issues. Expanding inflow of labor migrants from several Asian countries. | Constructive dialogues with the closest neighbours must be achieved. A system of measures must be developed for the case of potential aggravation of the current situation. |
| Russia’s participation and membership in various international organizations; influence of such organizations on decision-making | Since 2014 (Crimea’s inclusion into the Russian Federation) the country is subject to permanent pressure imposed by international organizations (UN and PACE in the first place). Thus, there is a constant risk of political isolation. | Russia’s participation in the sessions of international organizations still allows the country to influence the international decision-making process and thus solve the problems which are, directly or indirectly, of interest to Russia. |
| Country’s positioning within the system of international security | Russia has already left several agreements directly related to the international system of security due to heavy contradictions with the USA. | Tensions in the relations with the US might be reduced in case of political changes on both sides. Modernization of the military sector should not mean escalation of threats. |
Economy&trade

| Structure of export | Dominating share of oil, gas and the related categories in the total volume of export | Shares of other commodities categories, preferably those with high added value, should be expanded, however, taking into account the current situation with international sanctions |
|---------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Structure of import | Russia imports primarily the commodities with high added values and also research-intensive and capital-intensive commodities. Half of such exports (valued 110.2 bln USD of 240.5 bln USD) falls on various equipment and machines. | Financing of national R&D must be significantly expanded. Special financial measures must be developed and introduced to support Russian producers who are oriented on external markets. |

| The level of industrial development | Generally speaking, the volumes of industrial production and the rate of demand for such products in Russia are developing in a quite synchronous way | Both demand and actual production are growing only in low-tech and mid-tech categories, mostly those directly related to oil, gas and coal. Absolutely all high-tech categories are demonstrating significant drop in vitally important economic indicators. Thus, priorities and policies must be reconsidered to reverse these trends |

| Degree of dependence upon products and raw materials of strategic importance | The country mostly imports the products with high added value | Decreasing of such dependence would be possible once financing of own research is increased, and significantly |

| Efficiency of customs control in the field of external trade | Customs strategies in relation to the countries actively participating in sanctions should be reconsidered | Special attention should be paid to such situation when separate categories of import still get into the country through various sanctions’ evasive ways |

| Direct and indirect limitations in the field of external trade | The list of countries supporting sanctions against Russia is getting only longer. Sanctions as such are also getting expanded, now covering trade, economic and financial fields | The policy of import substitution requires a more thorough and complex approach. The country must quickly reorient its production on new markets. Of special interest could be growing Asian markets. Support to national/local producers must be more visible. However, it should be kept under the so-called “hidden protectionism”, thus not violating the WTO regulations |

Financial & currency-related

| Development of financial market and securities’ market | The share of purely speculative operations is constantly growing (and not only in Russia but worldwide). Under the conditions of ongoing globalization, this may promise super incomes, however, there are also significant risks | National finance & crediting system should be optimized taking into account the financial components of the international sanctions against Russia |

| Major flows of financial resources and investments | Portfolio investments are obviously dominating in this international field of activities | The country has a lot to offer to potential international investors. However, much more attention should be paid to in-advance and thorough economic grounding and forecasting of the potential foreign investment projects |

| National external debt | State debt and corporate debts must be considered separately | Most of Russia’s external liabilities fall on the private sector. As of the beginning of this year, the size of private debt was 448.6 bln USD, or 86.5% of the total external debt of the Russian Federation |

| Convertibility of the national currency | Due to the current sanctions and a range of affiliated political risks, using US dollar as the basis does not seem to be meaningful any longer | Taking into account solid political relations and intensifying economic relations with PRC, yuan seems to be an interesting alternative |

| Volume of national gold reserves | According to the public data of the RF, the national gold reserves are growing each year | According to the forecasts by state experts, there are no reasons to expect slowing down in this growth, at least not in the short or mid term |

| Probability of another global economic & financial crisis | Considering the currently enormous degree of the world financial market monopolization and highly |

Taking into account the negative consequences of the previous global financial crisis, permanent monitoring of the situation at the world currency.
risky speculative strategies implemented by the key players at this market, the probability of another global crisis is very high.

- **Production & Technologies**
  - The degree of national production dependence on the supply of imported components
    - Key commodity categories of Russia’s export are raw materials and natural resources. Their demand is highly dynamic and is often subject to abrupt changes. Potential fluctuations in prices should be better forecasted and also be considered in long-term strategic planning.
    - Active use of imported components is beneficial for international corporations as it has direct positive influence on their end profit. Besides, through imported supply of components corporations are able to indirectly control their current and potential competitors.

- **Society & Demographics**
  - The ratio between birth rate and morbidity rate
    - Many years of the morbidity rate being much higher than the national birth rate.
    - National healthcare requires urgent changes and much more efficient support, especially in part of its financing. Without significant support provided, all healthcare-related problems would be only aggravating.
  - Volumes and directions of both immigration and emigration
    - Russian Federation is experiencing the outflow of the most qualified human resources and the same massive inflow of low-qualified labor migrants.
    - State migration service requires reforms and revision of its key policies, especially in part of control and regulation. A long list of risks is accumulating in this sector.
  - Actual situation at the labor market in its dynamics
    - Flows of labor migrants are often rather abrupt, the market is not prepared for them.
    - There are serious problems with the so-called ethnical criminality. Official unemployment rates are not realistic due to the popularity of shadow employment.
    - There are also social tensions at the labor markets of some Russia’s regions due to gradual decrease of wage rates.
    - According to the official statistics of the Ministry for Internal Affairs, in January-July there have been 1 183 400 crime acts. Of them, 21 400 crime acts were carried out by the citizens of other countries.

Under the conditions of ongoing globalization, one of the key features of the world economy development is the growing degree of influence of a wide range of external factors. Many of such factors are directly threatening the stability of national economic models.

In the case of the Russian Federation specifically, external problems of national economic security are directly related to the existence of trade and financial sanctions against the country. The sanctions-related external factors today are adding their impact to the negative influence of other, more traditional external factors. Thus, their cumulative impact gets even more threatening.

In such a context, Russia state has the tasks of not only maintaining the acceptable level of national economic security, but also restructuring the very model of national economy, since requirements to such models have been gradually changing in the recent decades.

One of the most appropriate scenarios for such a restructuring would be moving to the next level in the economic system development - the one based on innovations. According to the forecasts carried out by Russian analysts, such a strategy would enable solving a whole range of the current problems.
and thus restructure the whole national economy keeping its current positioning within the global architecture.

Positive foreign experience in such restructuring should not be disregarded. Some of other countries have already tested quite efficient solutions which make national economies more mobile, more resistant to various risks and destabilization overall etc. However, international experience in this field should be surely adapted taking into account the specificity of Russian reality.

Taking into account the current trends in the world economy, when transiting to the postindustrial level of development, restructuring of both national economic model and national security system would be possible only provided there is a solid innovative basis.

Under such an approach to restructuring, national economic security system should be following the threefold principle as follows:

- relative independence of the national economic model (since achieving absolute independence under globalization is unrealistic as such);
- maintaining stability in the development of national production. This includes the maximum possible prevention of various risks, social and technological ones in the first place;
- managing stable growth rate of the approved national economic model. Such stable growth would be possible only under permanent modernization and gradual reforms in both agriculture and the industrial sector;
- National economic security of the Russian Federation as such depends, first and foremost, on how quickly the country would be able to pass through this radical restructuring. In a longer term, this would also predetermine further development of Russia’s national competitiveness (that of the production sector in the first place), social stability across Russian regions and global ranking of the country within the complex architecture of today’s world.

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