European Research Studies,
Volume XIX, Special Issue 3, Part A, 2016 *pp. 94-109*

Innovation and Investment Safety as the Condition for Neo-Industrial Development

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Abstract:

The paper suggests considering neo-industrial development that is represented as alternative to post-industrialism from the perspective of provision of innovation and investment safety of the country. Authors make an effort to determine economic and institutional backgrounds and criteria of safety of innovation and investment activities. Specification of categorical framework used in researched sphere was conducted; in particular, it was suggested to consider innovation and investment safety the key part of national economic safety. On the basis of regression analysis the appraisal of relation between the size of internal expenditures for research and development and living standards in the country was held - it has demonstrated rather weak relation between researched variables during a short period of time. In addition, the work formulates the key problems in the sphere of innovation and investment safety in Russia and suggests proposals on their solution.

Key Words: *Investments, safety, innovation, modernization, neo-industrial development.*

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1. Introduction

1.1 Introduce the Problem

In active scholarly disputes concerning the reasons and consequences of global financial and economic crisis of 2008-2009 the predominant part of researches is focused on its crucial nature. Its scale was stipulated by accumulation of critical changes at global and national levels, industrial and social spheres, developed and developing economies. At global level the crisis became a definite boundary for realization of illiberality of world economy based on subordination of real sector to speculative and financial one (Tatarkin et al., 2014). At national level it provided a search for a new model of growth that in different countries takes place when there is joint realization of significance of real economy in general and industry in particular. In such circumstances the matter of scientific and practical interest is the concept of new industrialization being in its essence high-technology, knowledge-intensive and digital revolution that puts emphasis on increase of competitiveness of economic system and provision of innovative quality of economic growth.

The multiplicate system problematics of new industrialization of Russia has been discussed and is being under all-round discussion of chiefly Russian economic school (Amosov (2014), Gubanov (2014), Neshitoi (2014), Alekseev (2014). Sukharev (2014), etc.). At the same time various aspects of the concept one can find nowadays in foreign economic science as well (Vithayasrichareon et al. (2012), Popovic (2012), Wrobel (2013), Wen (2015), Zaini et al. (2014), Kwak et al. (2015)).

Neo-industrial formula of Russia's development goes hand in hand with growth of innovative accumulation and extended reproduction on the innovational basis. Against such a background the main condition for country's transition to new concept of economic development is the creation of economic and institutional premises and achievement of rational (uttermost) criteria of innovation and investment activities' safety.

1.2 Explore Importance of the Problem

Theoretical importance of the research lies in explanation of innovation and investment safety as the sub-system of national economic safety. Its achievement is the obligatory condition and background for realization of investment policy aimed at forcing of neo-industrial modernization of national public production, provision of innovative quality of economic growth and achievement of high level of population's living.

It should be noted that at the present time the category of "innovation and investment safety" is being quite undeveloped and controversial - there is no coherent idea about its criteria and indicators, dialectic interaction between innovation and investment safety and innovative economic growth and neo-industrial development, ways of determination of risk-contributing factors that

forms threats in the named sphere. The specified theoretical limitations are being constraining factor for development of effective national investment policy as the basis for transition of Russia to innovative path of development.

1.3 Background/Literature Review

Today closer attention of both - Russian and foreign scientists - is paid to the matters linked to the choice of a new model of global economic and national development. The main evidences of this are so-called reshoring strategy (Cameron, 2014) implying "return of productions back home", the phenomenon of "return" of industry to economy, "Industry 4.0" concept in Germany and heated discussion on conditions and methods of neo-industrialization in Russia.

Against such background for Russia and the world economy at the present time there are new global and macroeconomic challenges, primarily - in the sphere of realization of safe investment policy for the purpose of neo-industrial development of economy. In this connection in the system of economic safety the research of innovation and investment safety as its key sub-system becomes feasible. In national economic school definition of the problem was performed by Senchagov (2010).

Another matter of discussion is the category of "investments" itself. Various approaches to its definition are presented in works of Russian and foreign scientists as well. Within the process of shift of paradigm of economic development of Russia more and more national scientists raise an issue about necessity of formation of new quality of investment process that would adequately reflect objectives, tasks and driving forces of neo-industrial modernization and provide innovative economic growth on the basis of technology intensive accumulation and extended reproduction on investment basis (for example, Gubanov (2014), Senchagov (2010), etc.). For definition of such investments one suggests the term of "investment demand of innovative type" that means market demand of economic entities for investments, which provide opportunity not only for renewal of retired fixed capital and its increase, but also for accumulation and effective realization of human capital for the purpose of intensification of public production (labour-, energy-, fund-saving with predominance of the first one) and increase of its competitiveness (Kormishkina et al., 2008).

There is also no shared vision for definition of the category of "innovation". Thus, Schumpeter (1983) treats innovation as new scientific and organizational combination of production factors motivated by business sense. Twiss (1989) defines innovation as the process, in which an invention or idea acquires economic content. Nixon (1971) considers innovation an aggregate of technical, production and commercial affairs leading to appearance at the market of new and improved industrial processes and equipment. In opinion of Godin (2008) innovations should be considered a factor of social progress, personal recognition and prestige. Szanto (1990) supposes that innovation is a kind of social-and-technical-and-economic process that through practice application of ideas and inventions leads to creation of

the best in their properties products, technologies, and in case if innovation is oriented to economic profit, its appearance at the market can bring extra revenue. In the circumstances of unbalanced real sector of Russian economy more and more national researchers (Senchagov et al, 2013) make a conclusion about necessity of increase of the innovation safety level and improvement of the role of investment policy to provide the safety.

Separate scientists consider innovation safety the scientific and technical safety viewed as aggregate of conditions in scientific and technical spheres providing carrying-out of requirements of national and economic safety (Tatarkin et al., 2000). Another group of researchers treat innovation safety in a loose sense as safety of country in industry, scientific and technical and innovative spheres of economy, i.e. as state, process and system. In vertical projection innovation safety can be presented as macro-innovative, regional, associative-corporate and micro-innovative safety (Olejnikov, 2004). Followers of the third approach put in the forefront the investment safety as sub-system of economic safety that provides proper level of reliability and safety of innovative processes, especially - at regional level (Sizov, 2004). And it should be said that in such a case scientists do not deny the necessity of provision of safety in innovative sphere, but on the contrary - under the conditions of stable growth of economy they just emphasize it. (Senchagov, 2010). However, there is no clear understanding of significance of these problems in official documents as well. In the Strategy of national safety of the Russian Federation up to 2020 (of 2009) there are mentions of technological safety that can be considered in different ways: either as national innovative and industrial policy, fundamental and applied science, or as development of public-private partnership in the sphere of science and technology, creation of conditions for integration of science, education and industry.

Summarizing the above-said, we consider it necessary to note the following. Taking into account interrelation and interdependence of investments and innovations, it will be more reasonable to tell about innovation and investment safety that should be understood as such a condition of innovation and investment sphere of national economy (including institutions) that is characterized by stable extended reproduction on innovative basis in general branches of national economy and the opportunities for saving and development of economic potential of economic system by means of multiplicative and accelerative effects of investments of neo-industrial type even in unfavourable cases of development of external and internal factors.

1.4 State Hypotheses and Their Correspondence to Research Design

Considering innovation and investment safety as the separate component of national economic safety is stipulated by external and internal factors.

The external factors are briefly characterized by the idea of “global influence” on national economy. In its turn, development of processes of globalization in all the spheres of life activity of modern civilization is stipulated by modification of

existing and formation of new centers of political and economic influence, as well as by transformation of influence on economic activity of all economic subjects, primarily - states. In such circumstances the central object of economic safety is the sovereign state that in economic system plays role not only of arbiter (regulator) possessing opportunities of invasive change of economic relationships, but also of entrepreneur, owner and consumer of economic goods and services.

In such a way, there is a hypothesis, which implies that innovation and investment safety is the category that undoubtedly has the right to exist and reflects the state of innovation and investment system providing stable development of national economy and helping it to stand up to modern threats and challenges. In our point of view, the category of "innovation and investment safety" is being wider than such categories as "investment safety", "scientific and technical safety" and "technological safety". All these terms reflect in essence the component parts of researched problem. Thus, scientific and technological segment of innovation safety provides emergence of some novelty. Educational and technological segments make diffusion of the novelty and its production use possible. Investment sector turns the novelty into innovation at last.

What is for the matter about correlation between such categories as "innovation and investment safety" and "economic safety", here we suppose we should note the following. It is accepted to consider economic safety such a state of economy and institutions of authority, in which the guaranteed protection of interests, social-directed development of country as a whole, sufficient defense potential even under the most unfavourable conditions of development of internal and external processes are provided (Senchagov, 2010). Taking into account the fact that innovation cycle in a general sense reflects the state of science, enginery and technology, production and market, while the very innovations are being the mean for achievement of high competitiveness of economy, we should treat the innovation and investment safety as not just component part, but as the key part of national economic safety.

The recognition of innovation and investment safety as the most important condition for provision of state's economic safety and realization of neo-industrial modernization of Russian economy allows us to build the following structure of research: definition of the system of indicators of innovation and investment safety and their threshold values; conduct of indicative analysis of modern state of innovation and investment; identification on its basis of risk-contributing factors and the most severe threats in the present sphere; development of complex of measures aimed at increase of innovation and investment safety level.

2. Method

The significant matter in research of problem of safety is the issue of methodology of evaluation of safety level. The methods of research are made on the basis of reproduction approach that unites the theory of public reproduction, theories of

economic growth and general theory of safety. In addition, we suggest use of special methods of general theory of safety, particularly, the methods of indicative analysis (examination of main macro-economic indicators and their comparison with threshold values of innovation and investment safety), which at the present time are considered the most effective. In total the specified methods provides authenticity of economic analysis and feasibility of conclusions.

Indicators of innovation and investment safety at macro-level can simultaneously be the criteria for achievement of strategic objectives of social and economic development of country and transition to neo-industrial development of country's economy (Table 1) (Senchagov, 2010).

Table 1. Criteria and indicators of innovation and investment safety

Criteria	Indicators
Dynamics and growth of economic growth - transition to innovative economy	1) share of accumulated gross investments in GDP and Gross regional product 2) correlation between rates of investment increase and GDP in branches and regions 3) level of renewal and modernization of fixed capital
Strategic priorities of economic development and balanced market relations	1) branch priorities of investment in knowledge-intensive production 2) regional priorities and investments in economic entities and development of social sphere 3) interregional and interdisciplinary priorities of market relations' development
Priorities of growth of incomes (profitability) and effectiveness of production	1) recoupment and profitability of investment projects with account of discounting 2) contribution to increase of GDP and budget effectiveness 3) increase of competitiveness and research intensity of production

Innovation and investment safety is provided by means of achievement of the following indicators:

- share of GDP of Russia in world GDP (volume of GDP of Russia is no less than 75 % of average GDP of countries of G7);
- investments in fixed capital, in % to GDP (the threshold value - no less than 25 %);
- level of gross accumulation (the threshold value - no less than 25 %);
- share in GDP of expenditures for civil science (the threshold value - no less than 2 %);
- share of innovative products in total volume of shipped industrial product (the threshold value - no less than 15 %);
- share of engineering types of activity in the volume of all shipped industrial goods (the threshold value - no less than 25 %).

Within the frameworks of the present research authors also suggest conduct of quantitative estimation of influence of expenditures for scientific researches on living standard in country. The empirical determination of the degree of relation between expenditures for science and size of GDP is very interesting itself, as thesis about presence of strong correlation between them is quite widespread. As indicators of analysis it is suggested to use data about GDP as per capita and the size of internal expenditures for research and development (in percentage of GDP). Taking into consideration the fact that investments in innovations can not lead to immediate increase of living standard (i.e. there is a definite lag between these events), we suggest the following: to compare the value of GDP per capita as of the end of period with averaged values of internal expenditures for research and development, as such an action will allow smoothing the impact on aggregate results not only of economic, but also of political cycle. It is known that prior to new electoral cycle expenses usually increase, what can distort the picture countrywide, if in our research we will limit ourselves only with annual value of the indicator. So, in this research we will take periods of 7 years (2005-2007) and 3 years (2010-2012) - those frameworks we will use when conducting empiric appraisal of interrelation between expenditures for scientific researches and level of production.

To provide obviousness of the data we have decided to fall back upon graphical method and regression analysis. They will allow us to demonstrate obtained results, in particular, with help of the value of R^2 determination coefficient. As it is known - R^2 is the indicator that expresses the share of dispersion of analyzed variable in the frameworks of researched model. The value of the coefficient close to 1 characterizes strong dependence between analyzed variables - the lower the value of indicator, the weaker the dependence. Determination coefficient can be calculated with help of the following formula (1):

$$R^2 = 1 - \frac{\sum_i (y_i - f_i)^2}{\sum_i (y_i - \bar{y})^2} \quad (1)$$

where y_i – the observed value of dependent variable; f_i – the value of dependent variable predicted by regression equation; $\bar{y}$ – arithmetic average of dependent variable.

3. Results

As a result of financial crisis of 2008-2010 in terms of GDP rates of growth Russia remains significantly short of the world in general that had led to decrease of share of Russia in world economy. In 2013 it made 2,95 % against 2,99 % in 2012 with account of GDP at parity of purchasing power (table 2).

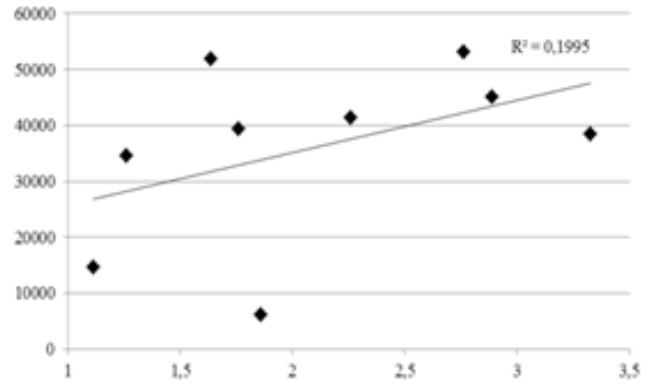
Table 2. Russia in a long-term vision of world economy (Aleksashenko, 2012)

Indicators	2012	2013	2014	2030	2060
GDP (PPP), at 2005 values, trn. USD	2,2	2,29	2,4	3,82	5,57

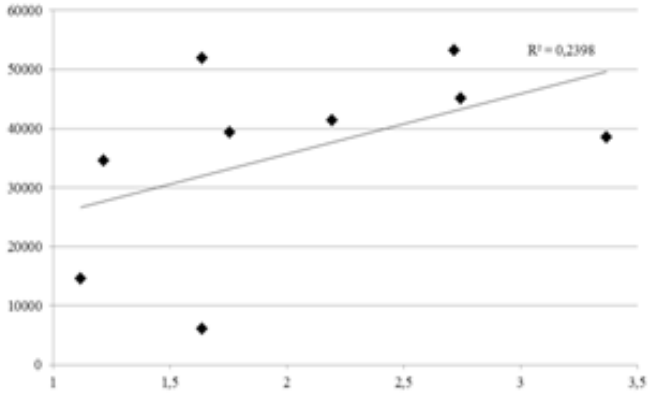
Population, share in world value, %	3,6	3,6	3,6	3,2	2,3
GDP (PPP) per capita, at 2005 values, th. USD	15,4	16	16,8	28	46,2
Population, Russia at average of the world, %	116,2	117,2	118,4	118,6	99,5
Population, mln. people	142,7	142,6	142,4	136,4	120,8
Population, % of world value	3,1	3,1	3,1	2,7	2,4
Gross national savings, % of GDP	29,5	28,9	27,3	13,4	0,6
Gross savings, % of GDP	23,2	24,5	23,3	17,5	14
Difference of national accumulation and savings, GDP	6,3	4,4	4,1	-4,1	-13,4

Russia, as before, holds the sixth position in the world in regard of total volume of economy remaining short of leader - the USA - by 6,5 times, and of Germany keeping the fifth place - by 26%. Upon that the volume of Russian economy exceeds the volume of economy of Brazil holding the seventh position only by 6%, the very fact of which escalates the competition between countries of BRICS. In such circumstances relatively high positions, which are held by Russia as per "gross" volume of economy (the sixth place as per GDP (PPP) and the eighth place as per GDP in nominal dollars), blur over the fact that in terms of GDP (PPP) per capita Russia takes quite average position - the 57th place in 2013, that, to be honest, is 11 positions higher than in 2000; however, as per volume of GDP - 5,7 times lower than of world leader - Qatar, and almost 3 times lower than of the USA.

According to data of table 3, the expenditures for R&D in Russia makes 8,3% of analogous indicator in the USA and 12,9% of expenditures in China. We should also note that in Russia these expenditures should actually be considered economically inefficient, as they practically have no impact on competitiveness of Russian goods.
On the basis of data of table 3 and above-presented method we have conducted the appraisal of influence of expenditures for research and development on living standard in country. The sampling includes 7 large economies, for which we have used national values of GDP per capita in 2013, calculated by World Bank (World Bank, 2014). Let us remark that GDP per capita - is the indicator that is most often used in inter-country comparisons for determination of living standards. So, we had a task - to define the degree of influence of investments in research and development in previous period on current living standard. The results show (fig. 1) that relation between indicators is quite weak, however, the share of dispersion of values averaged for 7 years (fig. 1-b) is higher (R^2=0.24) than of the indicators covering period of three years (R^2=0.2).



(a)



(b)

Figure 1. Internal expenditures for research and development averaged for 3 years (a) 7 years (B), % to GDP (horizontal scale) and GDP per capita (vertical scale).

This, on the one hand, says for the presence of lag and, on the other hand, demonstrates relatively weak relation between researched variables in short period. Such a result creates a basis for wider examination of countries either in the terms of territory (inclusion of additional countries to sample set, for example, all the participants of G20) or in terms of time (use of wider data range - 10 and more years).

Table 3. Internal expenditures for research and development (millions USD) (Russian Federal State Statistics Service, 2014)

Country	UM	2005	2007	2008	2009	2010	2011	2012
Russia	mln. $	18115,0	26543,7	30060,9	34628,2	33062,4	35183,1	37851,3
	% to GDP	1,07	1,12	1,04	1,25	1,13	1,09	1,12

Germany	mln. $	64298,8	73956,6	81970,7	83133,7	87831,8	96971,5	102238,4
	% to GDP	2,51	2,53	2,69	2,82	2,80	2,89	2,98
Italy	mln. $	17999,0	22297,2	24076,1	24741,5	25154,4	25780,8	26320,5
	% to GDP	1,09	1,17	1,21	1,26	1,26	1,25	1,27
Great Britain	mln. $	34080,7	38700,2	39396,9	39581,2	38143,5	39217,4	39109,8
	% к GDP	1,70	1,75	1,75	1,82	1,77	1,78	1,73
France	mln. $	39235,7	43976,3	46547,8	49944,2	50735,6	53310,7	55351,9
	% to GDP	2,11	2,08	2,12	2,27	2,24	2,25	2,29
Canada	mln. $	23090,0	24778,3	24916,8	25051,8	24703,4	24756,8	24801,1
	% to GDP	1,32	1,40	1,47	1,70	1,76	1,84	1,98
Japan	mln. $	128694,6	147604,1	148719,2	137016,8	140656,9	148389,2	151727,9
	% to GDP	3,31	3,46	3,47	3,36	3,25	3,38	3,35
USA	mln. $	328128,0	380316,0	407238,0	406000,0	409599,0	429143,0	453544,0
	% к GDP	2,51	2,63	2,77	2,82	2,74	2,76	2,79
Chine	mln. $	85742,8	123028,6	144765,1	184457,4	213009,7	247808,3	293549,5
	% to GDP	1,32	1,40	1,47	1,70	1,76	1,84	1,98

The data concerning the structure of investments in innovations (table 4) is also quite demonstrative. In Russia “Funds of state” item also includes budget funds, financial appropriations for support of institutions of higher education, funds of public sector organizations (including proprietary funds). According to the data of the table it follows that innovations are almost fully financed by state, while in all the developed countries the prevailing trend is the attraction of financial resources of public sector. Another one demonstrative example is China - the country with rather big share of public sector in economy, where almost ¾ of all investments of innovative type originate from business sector. The data of table 3 show that share of expenditures for scientific researches in Russia is much lower than in any other analyzed countries (in terms of percentage of GDP). To our mind, this witness not significant state financing of scientific sphere, but just small interest of business sector for investments in research and development.

Table 4. Structure of expenditures for research and development according to sources of financing in 2012 (in percentage terms) (Rosstat, 2014)

Country	Internal expenditures for research and development	Funds of state	Funds of business sector	Other national sources	Foreign sources

Russia	100	67,8	27,2	1,0	4,0
Germany	100	29,8	65,6	0,3	4,2
Italy	100	41,9	45,1	3,9	9,1
Great Britain	100	28,9	45,6	5,7	19,7
France	100	35,4	55,0	1,9	7,7
Canada	100	34,5	48,4	11,3	5,8
Japan	100	16,8	76,1	6,6	0,4
USA	100	30,8	59,1	6,3	3,8
China	100	21,6	74,0	…	1,0

The share of Russia in total amount of publications in learned periodicals indexed by Web of Science made 1,64% in 2013 and it should be noted that it had reduced 0,1% in comparison to 2012. Here we'd like to remark that for provision of innovation and investment safety the threshold value in regard of the indicator should make 3%. As a comparison: in the USA in 2013 the indicator made 26,77%.
The share of organizations, which perform technological innovations, in total amount of organizations of extracting and processing production, dealing with generation and distribution of electric energy, gas and water, and engaged into of service industry in Russia makes 10,1% (2013). For comparison: in the USA, countries of EU, Japan and China this indicator is close to 60%. We should note that in 1980s the share of innovatively active enterprises in USSR industry was 60-70%, however, in the beginning of 1990s it had reduced more than three times. So, the specified negative trends existing in innovation sector had led to decline in reproduction in Russian economy and clearly determine the necessity of accelerated neo-industrial modernization of the country.

The destructive factor of competitiveness of Russian economy is the low labour productivity that, in turn, continues to remain the result of unsatisfactory state of general production facilities. The level of implementation of new facilities and liquidation of outdated ones are extremely insufficient. Despite the fact that starting from 2001 the coefficient of renewal of capital assets had been constantly increasing and in 2013 had reached 4,7%, its values significantly differ from the rate of 1980s - from 7% to 11%. As a result the depreciation of capital assets in Russia has reached 48,2% by the end of 2013. In the context of economic safety it far exceeds the threshold value of the indicator that makes 30%. However, we should note that the situation of capital assets depreciation in industry is being worse than in economy on average. Thus, in the branches that deal with extraction of minerals the depreciation of capital assets has reached 53,2%, in processing industry - 46,8%, in construction - 50,0%.

The problem of renewal of capital assets directly depends on solution of another economic problem - the low level of investment activity. The minimum permissible volume of investments in fixed capital as to the volume of GDP is equal to 25%. In Russia the value of this indicator, despite its in general positive dynamics, makes only 20,6% (2013), while the main source of investments in fixed capital of Russian

enterprises is their own funds. In recent years their share in total volume of investments remains at the level of 40-50%. In the meantime, in economically developed countries the main source of investments is the national saving (table 5). This witnesses the absence of effective mechanism of mobilization of population's savings and their transformation into investments in Russian economy (Fedoraev, 2009).

Table 5. Comparable level of gross accumulation and investments in fixed capital in Russia in 2005-2013 (Russian Federal State Statistics Service, 2014)

Indicator	2005	2007	2008	2009	2010	2011	2012	2013
Investments in fixed capital, %	17,4	20,8	21,4	20,9	20,6	20,3	20,8	20,6
Standard of gross accumulation, % to volume of GDP	20,1	24,2	25,5	18,9	22,6	24,9	24,9	22,9

We should also mention significant disproportions in the dynamics of structure of national investments. The growth of capital investments can be observed mainly in raw material industry and the branches engaged in production of consumer goods, and also at property market, i.e. what we have is the deformation of investment demand. Investments in higher technology industries and development of so untraditional for Russia export, i.e. - the branches with higher risks, remain insufficient. However, the investment demand of innovative type implies, firstly, development of science-intensive sector of economy. The data of table 6 quite vividly demonstrate the situation with investment expenditures having place in Russia. Thus, China that in fact plays the role of Russia's competitor at world market invests almost a half of GDP, while the share of gross accumulation in Russian economy does not exceed the level of Canada with the assumption that the capital endowment of Canada is at much higher level than in Russia.

Table 6. Structure of use of gross domestic product (on current basis; as percentage of total) (Russian Federal State Statistics Service, 2014)

Country	Year	GDP, total	including				
			expenditures for final consumption	of which		gross accumula-tion	net export of goods and services
				households and non-commercial organizations servicing home economics	bodies of state administration		
Russia	2013	100	71,5	51,9	19,6	22,6	5,9
Germany	2012	100	77,1	57,6	19,5	17,2	5,7
Italy	2012	100	81,2	61,1	20,1	17,6	1,2
Great	2012	100	87,9	65,8	22,1	14,5	-2,3

Britain							
France	2012	100	82,4	57,7	24,7	19,8	-2,2
Canada	2011	100	78,5	57,1	21,4	22,8	-1,2
Japan	2011	100	81,0	60,5	20,4	20,0	-0,9
USA	2011	100	88,9	71,6	17,3	14,9	-3,8
China	2011	100	49,1	35,7	13,4	48,3	2,6

In such a situation there is the necessity for fundamental institutional changes, development of corresponding approaches, methods and mechanisms of provision of innovation and investment safety of economy.

4. Discussion

As a result of conducted research we can formulate a number of conclusions and recommendations aimed at formation of effective investment policy in Russia that would be taken in conjunction with realization of economic modernization concept, in particular:

1. Formation of favorable economic climate for increase of investment activity of innovative type in Russia. Formation of favorable conditions for capital investments in business sector stipulated largely by meeting (or deviating) threshold indicators of financial and economic safety. The favorable economic climate, in our opinion, implies: optimal level of enterprises taxation; effective credit policy, protectionistic foreign economic policy, insurance of investment and innovation risks.

2. In the paper there is an analysis of the character of interrelation between such indicators as the share of internal expenditures for research and development in terms of percentage of GDP averaged for 3 and 7 years and the value of GDP per capita for a number of large economies. The results of regression analysis give evidence of presence of weak positive relation between variables in a short period. Increase of the set of sample countries, inclusion of all the participants of G20 or 100 largest world's economies to it, as well as extension of the rate of analysis of expenditures for science to more than 10 years - all these is the direction for further development of the present research, which will allow empirically illustrating the interrelation between investments in researches and GDP in a long period.

3. Extension and effective use of clustering technologies being practical implementation of "triple helix" model. The specified model implies the strengthening of the role of institutions that form new knowledge and unite their efforts with state and business. The synergistic effect of inclusion of mechanism of "triple helix" is aimed at formation of stable economic growth of innovative type. However, at the present time in Russia the dominant role is played by "double helix", in which there is no scientific component (or it's just weakly represented). In Russian circumstances this promotes only monopolization of technologies and creates no backgrounds for innovation breakthrough.

4. Necessity for formation and development of national innovation system comprised of competitive business environment, research environment and peculiar mechanism of their interrelation. The state can actively participate in this process by means of creation of favourable institutional conditions for science development and generation of new knowledge.

5. Conclusion

In conclusion we'd like to note that at the present time in Russia there is no uniform state policy of formation of innovative clusters and corresponding state and social institutions stimulating relations between major and minor innovation enterprises, scientific and educational organizations, financial structures and investment companies remain underdeveloped, while Russian science to a greater degree is focused at fundamental researches. As the analysis shows - the financing of scientific researches is not a panacea for low living standards, i.e. the solution of the problem lays not so much in financial context, as in context of organization, in institutional terms. In this connection the specific attention should be paid to such measures, as improvement of regulatory framework, development of organizational and scientific and methodological support of activity of innovative clusters, organization of staff training in terms of functioning of cluster networks of high technologies, provision of informational support for innovative clusters.

Acknowledgments

The publication was performed with the financial support of the Ogarev Mordovia State University, Saransk, Russia, in-house grant No. 53/84-14, as well as from the Russian Foundation for Humanities (No. 15-02-00174).

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