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## The Analysis of Social Wellbeing Indicators in the Context of Russian Economy Structural Changes

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### Abstract

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At present time the issues of Russian economy neo-industrialization are extremely important as well as social wellbeing growth. In major extent Russian economy structural transformation touches its investment, banking, innovation systems and labor market. These structural changes must be directed to restoring industry on a new technological base. But it is impossible to modernize industry without combinatorial innovative development of its key sectors with following development of high-tech productions using convergent technologies. The ultimate public goal of neo-industrial changes of economy is a growth of social wellbeing, so the study of its technological, financial and managerial components must be accompanied by social indicators of neo-industrialization analysis. Commonly used indicators of social wellbeing do not demonstrate connections between life quality and the level of industrial technologies, investments and structural changes caused by scientific and technical progress and globalization. Therefore it is necessary to analyze different factors and indicators of social wellbeing, connected with investment in new technologies and industry upgrading, the influence of these processes on labor market. Such analysis must help to estimate the whole picture of the influence of Russian economic reforms on social wellbeing.

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**Keywords:** Social wellbeing; indicators; technological platforms; structural changes.

### 1. Introduction.

Social wellbeing of nation is a quintessence of all significant economic and political changes. Commonly used (basic) indicators of social wellbeing are widely studied and include economic (personal and household income, value of household property, job availability, quality and availability of municipal and transport services), and non-economic indicators (the availability of education and

healthcare, lifespan, crime rate and others). For proper analysis of social wellbeing relations with the level of technological development of industry, we offered a number of parameters which could be called “neo-industrial social wellbeing indicators”.

## **2. Problem statement**

For Russian economy we calculated neo-industrial social wellbeing indicators using the data of Russian and international official statistics (Rosstat, 2014; World Bank, 2014; OECD, 2014; UNECE, 2014) and scientific reports (Nevima, Melecky, 2014). These indicators witness about objective processes immanent to structural changes - scientific and technical progress, fixed assets renewal, population reproduction. The neo-industrial social wellbeing indicators also reflect the conditions of relations between government and business, the role of the state in national economy. So despite neo-industrial social wellbeing indicators based on market values and market character of Russian economy, they can be used as benchmarks for government support of different sectors and industries – “locomotives” of neo-industrialization.

## **3. Research questions**

During the analysis of social wellbeing indicators in Russian economy in 1996-2013 we distinguished two opposite trends.

The first trend implies positive dynamics of some basic indicators for this period, such as the increase of average life expectancy of Russian people (for 1.5 years), growth of real disposable income (in 2.6 times), increase of proportion between pensions and average wages (by 50%), decrease of the poverty (in 2.5 times). This tendency can be explained by recovery growth of industrial sector and financial market in Russian economy during market-oriented reforms and positive changes in the world raw materials market. So we note the rise of social wellbeing in Russian economy due to the increase of natural resource rent.

The second trend means the fall of those indicators of social wellbeing which reflect possibilities of its rise in long-term period. The fragility of natural resource rent model of Russian economy leads to growing inequality in income distribution (decile ratio increased by 25% in 2000-2010) and to the growth of criminality (amount of imprisoned people rose by 100 thousands for this period). Beside that even increasing indicators of wellbeing in Russia are far from the checkmarks immanent to leading industrialized countries like the USA and Germany. For example the gap between Russia and these countries in life expectancy in 2013 exceeded 10 years, real disposable income in Russia is in 2.7 times less than in Germany; pensions-wages ratio – 2.5 times less and decile ratio is 3 times more.

Mainly it is the result of the phenomenon which we call “structural de-socialization” – the aftermath of Russian industry technological degradation during market reforms. In this regard our proposed indicators of social wellbeing are connected with industrial and technological development of national economy, and reflect the conditions of investments, innovative activity, employment and social groups structuring.

#### **4. Research methods**

Our analysis of investment indicators of social wellbeing in Russian economy demonstrates multiple lag from the USA and Germany in the growth of investment in processing and mining industries by 5 and 6 times respectively. The fixed assets renewal rate in Russia is two times less than in highly industrialized countries, despite its growth in Russia in 2 times in 1996-2013 (along with negative rate of growth of the population). The share of R&D investments in GDP in Russia is 2 times less than in Germany and 4 times less than in the USA. The share of private stock investments in GDP in Russia is 55 times less than in the USA and 8 times less than in Germany.

Our analysis of innovation indicators of social wellbeing in Russian economy shows us the preservation and deepening of fixed assets renewal and R&D sector development problems, along with depreciation of the private investment factor in economic growth. Despite the fact that patenting of inventions in Russia rose by 20% in 1996-2013, it is still a bit less than in Germany and 5.5 times less than in the USA. In 1996-2013 we observed the growth of share of highly educated people in half up to 33% among the most employable population (25-40 years old that exceeds the level of the USA twice). At the same time the R&D personnel was cut by 25% (in terms of 1000 employed), and today in Russia it makes 60% and 30% of German and American levels respectively. In major extent it is connected with very small budgets of Russian universities, which make 3-7% of the budget of average high school in the USA (Fomchenkov, 2014).

The neo-industrial social group indicator of wellbeing shows a share of highly qualified industrial and R&D employees in aggregated employment. The neo-industrial social group itself includes such categories of employees as high educated modern corporation managers and specialists, scientists and inventors in sectors of immaterial production and IT, biochemistry, nano-materials production and other high-tech industries. Neo-industrial social group also includes private venture investor (“business-angels”), R&D departments and high school staff. We note that the share of neo-industrial social group in aggregated employment in Russia is very small – less than 5%, that is 2 times less than in the USA (its share in aggregated personal income in Russia is 5 times less than in the USA).

#### **5. Findings**

We suppose that mutual adverse effect of declining of investment and innovation indicators of social wellbeing in Russia forms a “vicious circle” of industrial development and wellbeing problems. In this vicious circle technological degradation of Russian industry weakens the wellbeing that subsequently destroys the social basis of industrial development of economy.

On the one hand, long-term ground of social wellbeing growth is rather weak, even with positive rate of GDP growth. The energy consumption of Russian economy is in 2 times more than in Germany and on 80% higher than in the USA (in terms of GDP per capita). But the productivity in Russia is in 3 times less than in the USA and in 2 times less than in Germany (in terms of GDP at purchasing power parity) despite its growth in 1996-2013 in Russia in 2 times. Domestic output in Russia covers only 65% of domestic demand (for the USA this indicator is 80%). All these deprive Russian government the opportunity to stimulate companies to rise up wages in order to improve social wellbeing situation.

On the other hand, we proposed special labor indicators of social wellbeing, the analysis of which showed progressive gap between Russia and the leading industrialized countries, caused by growing problems in investment, innovative and producing sectors. So, if in 2013 in the USA the income of highly educated employees exceeded the income of people without high education in 2.1 times, in Russia – in 1.4 times (except government employees). More than 90% of college and university graduates in the USA and 80% in Germany could find the job according to their specialty, in Russia – less than 60% (Glaziev, 2013). It points to weak correlation between education as a social lift and as a source of social wellbeing growth in Russia. Thus average wage in industry in Russia in 2013 (910 USD) was in 4 times less than in Germany and 5 times less than in the USA.

At that according to experts' estimations, 54% of gross personal income in Russia is generated not in industry but in the sectors of commerce and service, administration and finance. Also the incomes in informal and unofficial sectors of Russian economy reach 20% of its gross value that is in 5 times more than in the USA (Golovachev, 2013). The average household capitalization in Russia is about 18600 USD that is in 6 times less than in Germany and in 18 times less than in the USA. Proportion of material goods and intangible benefits consumption in Russia equals 7 : 1, while in Germany – 3: 1 and in the USA – 4 : 1 (Stilwell, 2013). Average consumer loans interest rates in 2013 in Russia exceeded the rates in Eastern Europe in 2,5 times, Western Europe – in 3,5 times, the USA – in 4 times. In 2014 in Russia these rates exceeded Western Europe in 7 times (Fainzilberg, 2014).

Summing up the aforesaid, we can say that neo-industrial indicators of social wellbeing in Russian economy show the long-term negative influence of worsening conditions of industry investments, innovation activity on life quality. We named this process as “structural de-socialization” which means destruction of social groups able to provide innovative development and neo-industrialization of economy, to initiate structural changes in Russia.

To define the terms of social wellbeing growth during Russian economy neo-industrialization we analyzed relation between indicators of social wellbeing and technological determinants of industrial development, at its certain stages.

At the traditional stage of social wellbeing growth (until the early 20th century) its technological determinants were different ways of natural sources development (in agriculture, mineral mining and construction) in pre-industrial economies. Technological basis of the first stage was the early machinery, thermal power engineering, and construction of cities. Quintessence of social wellbeing was decreasing of poverty for a half of population and providing reproduction of labor force. We notice its timeliness for some countries of Asia and Africa, and also for some regions of Russian Federation – like Dagestan, the Republic of Tyva (Zhironkin, 2001).

At the early industrial stage (the first half of 20th century) the growth of social wellbeing was inspired by technological determinants of industrial sector - conveyor and automated production in key segments of industry (power, railroad transport, deep processing of minerals). Today the social wellbeing of the early industrial stage is immanent to some countries of Eastern Europe and South America, and to industrialized regions of Russian Federation. The indicators of social wellbeing on this stage show decreasing of poverty and growth of aggregate consumption on more than 50% during the first 20 years of industrialization (Toffler, 1990).

At the late industrial stage of social wellbeing (the second half of the 20th century), its technological determinants connected with industrial manufacturing nearly came to the end. At the same time the role of such determinants as servization, forming of processing clusters, global logistic, vertical integration had risen. We associate the late industrial social wellbeing with widespread of modern technologies implementing robotics, micro-processing, massive data processing. Today this is true for China, South Korea, Singapore and Netherlands. For the late industrial stage of social wellbeing, low level of poverty (less than 10%), high income of highly educated employees and especially those employed in R&D, wide range of intangible benefits were typical. The income in R&D and fundamental science sectors exceeds the income of individuals without high education in 2.5 times and more. We estimate good perspectives for genesis of late industrial stage of social wellbeing in Russia in condition of forming of neo-industrial social group in innovative clusters of Moscow, St. Peterburg, Tomsk and Novosibirsk.

The innovation and digital (modern) stage of social wellbeing is based on such technological determinants as people's massive involvement in information business and innovation entrepreneurship, globally diffusing network technologies, bio- and nanotechnologies. Today this stage is typical for the USA, Japan, Germany and UK. The standards of social wellbeing in these countries are defined by exceeding the expenditures for intangible assets over material goods consumption at least on 15%, thanks to rapid growth of R&D sector of economy.

We suppose that the conditions of social wellbeing growth in Russian economy mean the transition from its early industrial to late industrial stage and simultaneous genesis of innovation and digital stage. The key point of these conditions is neo-industrializing of economy which is connected with restoring processing industries of Russian economy on new technological basis and the development of high-tech production using existing resources – minerals, scientific and R&D organizations and qualified industrial staff.

The main technological platform of transition to the late industrial stage of social wellbeing in Russian economy includes producing immaterial benefits in global information, scientific and education, travelling services sectors, professional career in multinational corporations, R&D.

For transition to the late industrial stage of social wellbeing, we defined the target values of neo-industrial indicators of social wellbeing in Russia: exceed of investments in processing industries over mineral resource extraction at least by 30%, growth of R&D investments up to 5% of GDP and private investments in shares – up to 10% of GDP. These targets must be embedded to government programs of structural changes, and that means shifting the social policy from transfer distribution to guaranteeing employment in processing and high-tech sector, providing the access to modern high education.

In its turn, accelerating of transition to innovation and digital stage of social wellbeing in Russia requires to set the platforms of convergent technologies (web-distributed programming, laser informatics, network programming, nano-material producing) with private investments to the world-level high education, network information technologies patenting, network clusters employment. All this helps to reach such target indicators of social wellbeing which can be recognized as network-based

wellbeing. Indicators of this kind can be the following: double exceed of intangible benefits over material goods consumption, the ratio of R&D staff in aggregated employment as 1 to 650.

Network-based wellbeing represents its special form, achieved only with the help of the latest network information technologies. The main feature of network-based wellbeing is its convergence, due to which it becomes the result of different industries integration as penetration of common technologies occurs and common economic incentives are being established. In this case we are talking about such industries as programming and information processing, education, and social-and-life, legal, financial services, global marketing, production of computing machinery.

The analysis of network-based wellbeing indicators in Russian economy (based on the data of Russian Venture Investments Association, 2013) let us make the following conclusions. Incomes of employees in the IT clusters and IT "freelancers" in Russia are close to the level of India, but they lag behind the level of Netherlands in 1.6 -2 times and in 6-8 times - the USA level. At the same time, the number of employees in the IT cluster in Russia lags behind the United States in 11 times, and behind India in 3 times. In Russia the activity of private venture-investors is poorly developed and almost not covered by statistics, whereas in the USA it has reached 1 million people and in Netherlands - more than 60 thousand people. All this, together with the social consequences of Russian economy de-industrialization, resulted in income fall of those employed in technologically new productions relatively to technologically old ones. In Russia, these figures are almost equal, whereas in India people employed in high-tech and information industries earn more than two times higher than in traditional ones, in Netherlands in 1.8 times and in the USA in 1.6 times.

We have identified economic form of network-based wellbeing as the development of innovative clusters in which information technologies are created and distributed diffusely all over the world via Internet. In contrast to the industrial clusters, the information clusters are "fixed" to the definite territory only by their "core" - data centers of corporative headquarters, universities and training centers, research laboratories. The other subjects of information clusters are diffusely distributed all over the world and are connected with the "core" via Internet and by the contracts for participation in the production of information products.

A bright example of social wellbeing rising in the network cluster of IT technologies is, in our opinion, technological cluster of Bangalore located in one of the poorest countries - India. It employs more than 140 thousand people and more than 1 million people are connected with it by software developer's contracts. Every year more than 2 thousand professionals, previously left India to work in IT companies in the USA and Europe, return to this cluster. The average salary in India is 190 USD per month and in industry it is more than 400 USD. At the same time, the average income of people employed in IT companies of Bangalore cluster reaches 1200 USD, and adjusted to residence benefits – 1670 USD per month (Bondarenko, 2014).

The Indian experience is a good example of how the establishment of network technologies cluster contributes to personal income raising of those working in it and helps to create a large neo-industrial social group. The proof of this is a significant repatriation of professionals to Bangalore cluster from abroad.

Generalization of the Indian experience has enabled us to confirm the prospect of shift from industrial production to network information technology in the state encouragement of innovation activity. According to the data of the Indian Ministry of Science and Technology (2013), if the country's industry showed the growth of 15% for 2010-2013., then the volume of commercialization of innovative network technologies in the country increased by 390% for the given period and exceeded 10 billion dollars.

The establishment of network-based wellbeing requires neo-industrial social group to be stable enough and with the highest priority for the displacement of the officials "elite" group, entrepreneurs - speculative promoters and managers of resource companies. A critical role in their formation we assign to the state policy in the field of education and employment, which should be organically combined with tax exemptions of income for those employed in innovative clusters provided them with information and investment support.

This requires an encouragement of social mobility associated with the development of information technologies, obtaining a modern higher education and research activities. Without the formation of a "critical mass" of national intellectual capital the structural convergence connected with the development of new super-modern, digital industries is impossible.

## 6. Conclusion

So the existing system of social wellbeing indicators does not take into account the peculiarities of technological development and, therefore, must be supplemented with indicators reflecting the labor productivity growth, improvement of its intellectual level. The economic basis of social wellbeing growth in Russia should become new platforms of convergence technologies and network clusters.

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