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Social Wellbeing as an Imperative of Import Substituting Neo-Industrialization in Pareto Methodology

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Abstract

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Social wellbeing plays a target role in the development of modern economy. For countries that have passed through a period of market reforms and industrial decline, the prospects for growth of wellbeing are connected with neo-industrialization of economy, which allows to enhance domestic production and the growth of medium- and high-tech employment. At present in Russia and the other raw material-producing countries the rental model of the economy makes impossible to increase the wellbeing without causing conflicts of interest of various social groups, including the elite one. Therefore, in Russia it is highly important to restore the domination of the industrial complex, which will lead to a decrease of pre-industrial economy share and will contribute to the formation of post-industrial way of life. Its main feature is continuous wellbeing. The transition from material production to high-tech services should be the consequence of the growth of the level of industry's technological development.

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1. Introduction

Neo-industrial structural transformation of Russian economy rests with the strategic task of improving profitability, investment attractiveness and international competitiveness of its industrial sector. To ensure a positive impact of import-substituting neo-industrialization on social wellbeing the new technological platforms must be emerged, along with high-tech import substitution subcontracting and entrepreneurship, target programming of innovative development.



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2. Problem Statement

Social wellbeing is a complex of conditions of human existence and the development of his personality due to objective and subjective factors. The sum of these factors determines the socio-economic profile of wellbeing, which is being changed accordingly consequent shifting of industrial development stages - in the post-industrial methodology D. Bell, K. Clark, R. Reich (Bell, 1973; Clark, 1991; Reich, 1992).

According to D. Bell, "breakthrough" in the industrial development of the western countries and Japan in the 20th century was connected with mass migration of capital and labor force, lobbying from the secondary sector of economy (processing industries dominating in the first third of the 20th century) to the tertiary sector (transport, travelling, communications - the second third of the 20th century) and then - to the quaternary sector (global trading and financing - the last third of the 20th century). Since the beginning of the 21st century economically developed countries have planned the dominance of a new post-industrial (pentadic) sector (medical, software, design services, education, consulting, global information business).

According to the three-sectors model of national economy of C. Clarke, throughout the 20th century there was a shift in economic activity from the primary sector dominated in the 19th century, (mining industry and agriculture) to the secondary (processing, modern transport, communications and finance). And today we can see the transition to the tertiary sector (high-tech and innovative industries, services). By C. Clark, this processes, in one way or another, affect both technologically advanced and emerging countries, but occurs asynchronously.

In a five-sector model of national economy R. Reich identified material (from the first to the third sectors) and intangible (the fourth and the fifth sectors) productions. During the 20th century, there was an accumulation and accelerated reproduction of knowledge and human capital, which determined the upcoming transfer of most productive forces from material to intangible production.

To evaluate the effect of the change of dominant sectors on social wellbeing, it is necessary to emphasize its objective and subjective factors. Objective factors of wellbeing are associated with innovation, investments, labor productivity, and include technology, innovation, investment structure, governmental support of entrepreneurship, access to funds, labor demand.

3. Research questions

The main subjective wellbeing factors, perceived individually, are the result of the impact of objective factors on society. They form the personal values such as:

- personal wealth (income, housing, provision of health services, education, etc.);
- physical conditions (health, security of a person), socialization (participation in social life, social status and role);
- emotional wellbeing (personal development, esteem, mental health, stress level, beliefs, etc);
- professional wellbeing (competences, productivity, satisfaction from the profession, etc).

Russian economists studying issues of neo-industrialization noted the delay in the formation in Russia tertiary sector industries (by K. Clark) or pentadic sector (by D. Bell and Robert Reich)

(Zhironkin et al., 2016; Alartartseva, & Barysheva, 2016; Baryshev, & Barysheva, 2016; Barysheva, & Novoselova, 2014). On the contrary, since the 1990s the trend of de-industrialization has been strengthening in Russian economy. As a result, the objective factors of wellbeing do not allow bringing it to the modern level of technologically advanced countries. We consider the manifestation of the de-industrialization of Russian economy, on the one hand, in reducing the share of industrial production in GDP (from 48% to 35% for 1996-2013 by the method of gross value of industrial production.). In the industry itself there was a reduction of processing sector (in 2006 - 42%, in 2010 - 38%, according to the method of added value) (Rosstat, 2014).

On the other hand, de-industrialization of Russian economy in the period of market reforms was caused by the degradation of industrial sector which deprived it not only international but also domestic competitiveness. In particular, since 1992 and for twenty years of market reforms in Russia the share of branches of the 5th technological layer decreased from 20% to 10% of GDP (in the United States - increased from 50 to 60%), for the 4th technological layer - decreased from 60 to 50%, for the 6th technological layer - did not exceed 0.5% (in the USA - reached 6%). The share of the third technological layer (representative for the second half of the 19th century) in Russia increased from 20 to 30% of GDP (in the USA - almost disappeared) (World Bank, 2014).

As a result, the subjective factors of social wellbeing in Russian economy act insufficiently. There is a significant gap in incomes of Russians compared not only to advanced countries, but also to those who have demonstrated a rapid industrial development in the 2000s (Czech Republic, Korea Republic, Ireland, etc.). The average salary in Russian industry in 2015 (US \$ 460) is in 4.8 times lower than in Korea Republic, in 8.8 times less than in Germany and in 11 times less than in the USA. The lowest wage rate in Russia is about \$ 120, in France - \$ 1,200, in Ireland - \$ 1,300. The amount of pension in Russia is about 25% of the average wage, at the same time in Europe - more than 45%, in Japan - 65% in Czech Republic - 37% (World Bank, 2014).

The Russians have personal property in much smaller amounts than citizens of other industrialized countries. The volume of capitalization in Russian household income at an average do not exceed 18 thousand dollars, which is almost in 2 times less than in the industrialized European country - Czech Republic, in 6 times less than in Germany and in 18 times less than in the USA. Current expenditures of Russians exceed purchasing of investment goods in 2.4 times, whereas in Germany they are in 1.3 times smaller, and in the US – in 1.8 times smaller. The ratio of tangible and intangible goods consumption in Russia is at an average 1 to 7, in Germany and the USA - 1 to 4. Interest rates on consumer loans in Russia exceed the level of the countries in Eastern Europe in 2-2.5 times, in Western Europe - in 4-4.5 times, the USA - 5 times. Because of this, Russians consume durable goods up to four times lower than in Western Europe and the United States (World Bank, 2014).

The problem of de-industrialization of Russian economy has led to a decrease in social mobility, slowing down the most important social lifts, in particular, higher education, scientific research and obtaining academic degrees. It couldn't but worsen the structure of personal income distribution. Thus, the decile coefficient (the ratio of income gap of the richest and the poorest 10% of households) in Russia in 2010-2013 was estimated as 20-60 times (in Sweden - 4, Germany - 6, in the USA – 9 times). The high level of vertical, including intergenerational, social mobility, which factors include

professional career, small and medium entrepreneurship, innovation activity, expansion of services, is observed today in the USA, Western Europe, Japan and other advanced countries. If in the USA the incomes of professionals with higher education exceed the incomes of employees without it in 2.1 times, than in Russia - in 1.4 times (except public servants). In Eastern Europe, more than 70% of graduates have a job in their degree field, in Western Europe - 90%, in Russia - less than 60% (British Petroleum, 2011). This indicates a weak link between the education as a social lift and a source of prosperity growth among Russian population.

In many respects it was a consequence of the lack of public policy of neo-industrialization designed to fill externalities of emerging market. As a result, the development of processing and high-tech industries has no proper market incentives, and do not show a significant demand for labor force. In turn, the Russian government investments in raw-material producing industries are concentrated in the primary and secondary sectors, and have low efficiency. In turn, the concentration of income from the extracting and export of raw materials is extremely high in Russia, and corresponds to the autocratic and oligarchic regimes in Latin America and the Middle East.

4. Research methods

It can be assumed that the technological backwardness of Russian economy determines the particular case of the extremely inequitable distribution of income and wellbeing gap between raw-material and corrupt bureaucratic elite, on the one hand, and society as a whole, on the other hand. According to the modern interpretation of Vilfredo Pareto methodology (Pareto, 1984; Pareto, 1991; Carden, 2014), in an industrialized economy since the end of the first quarter of the 20th century there has been an inverse relationship between income and the number of people (households): 80% of GDP is distributed among 20% of citizens, while the remaining 20% of GDP are allocated among the 80% of the population (the Pareto's ratio of "80/20") (Pareto, & Kelley, 1971; Pareto, & Parsons, 1961). According to some economists, in Russian economy since the early 1990s this ratio has been in the range of 90/10. This corresponds with the provisions of the theory of political capitalism by Max Weber (Weber, 1925; Mommsen, 1992), in full accordance with which the vast majority of federal and regional elites in Russia has been created either by the state - through the contacts with its representatives, - or as a result of protection of their interests.

Applying the phenomenon of Pareto optimum (any change that does not cause damage to anyone and brings some subjectively estimated benefit is an improvement) to the current situation in Russian economy in the area of income distribution, we came to the following conclusion.

The reason of the gap in the technological level of industry between Russia and the countries with advanced market economy can be determined by provisions of post-industrial theory of D. Bell, C. Clark, R. Reich as a weakness or absence of certain sectors of national economy with up-to-date technologies. Accordingly the theory of technological layers (Glazyev, 2012; Krasilnikov, 2003) the technological lag of Russia is the result of completion of raw materials processing at the level of the intermediate products in most sectors of the economy.

Consequently the effect of objective (technological or reproductive) factors of wellbeing in Russia allows to form such a level at which the current system of wealth distribution among members of

society (through the market of factors of production and the state budget) works as efficiently as possible. Control of raw materials and the bureaucratic elite over the formation of national wealth in the primary and the secondary (by D. Bell and R. Reich) sectors and industries of the 3rd and the 4th technological layers (by S. Glaziev) can balance the interests of different social groups, similar to Pareto equilibrium, when a massive technological modernization of the industry will shorten the benefits of all parties.

In other words, in Russia the effect of objective factors of wellbeing is constrained by typical for resource-rent economy low level of used technologies and weak institutional norms. As a result, the subjective factors of wellbeing are repeatedly underestimated in comparison with the technologically advanced countries. In this case the situation is stable enough, as significant technological changes may lead to such structural transformation of the economy in which the wellbeing of the most powerful social groups will fall. Therefore, the state, by intervening in Russian economy with an attempt to raise wellbeing of elite, contributes to the preservation of the technological backwardness instead of neo-industrial development accelerating.

At the same time, according to the first and second Pareto theorem of welfare (about the optimum and possible equilibrium with unsaturated utility function of all consumers), significant growth of wellbeing in Russia will take place only if changes in the allocation of factors of production occur so that the wellbeing of the ones would not reduce the welfare of the others. And this is possible on condition of significant increase in productivity and in added value caused by technological modernization, during which there would start inter-sector redistribution of technologies. This means, above all, the increase of technological level of raw-material production, and then, on the basis of its resource, further development of processing and high-tech industries - what we call neo-industrialization. And if in the natural resource rent model of Russian economy the level of wellbeing of different social groups depends on their participation in the rent redistribution, then during accelerating of neo-industrial development the wellbeing will be determined by the employment in the industries with increasing productivity and level of technology.

Here there is a paradox, because, despite the validity of Pareto welfare theorems for Russian economy lagging behind in technological development, an important condition for the achievement of its Pareto optimum is limitation of state intervention in the economy. We believe that the solution of this paradox is connected with the separation of two problems: equitable distribution of rents and increase the efficiency of the economy, which is formulated by R. Dahrendorf (1969), V. Pavot, & E. Diener (1993) as the main conclusion of the Pareto theorems in the formation of theoretical bases of neo-industrialization. For Russia, this means the need to focus government's regulatory efforts on overcoming the institutional traps of neo-industrial transformations (related to «path dependence», distrust of government and low efficiency of its investment, insufficient educational level, etc.). A special attention of the government should be given to funding the tertiary and pentadic sectors of economy, to accelerated technological upgrading of raw-material production and training people with the post-industrial competences, instead of strengthening the fiscal redistribution.

5. Findings

Neo-industrialization of Russian economy may have import substitution character in condition of achievement the parity in competitiveness of goods produced for the domestic market and for export, which requires the state to promote accelerated import of technologies in industries oriented to consumer demand. Initiating role of technology import must be multiplexed in the development of domestic high-tech segment, channeled to those processing industries in which there is a reserve of international competitiveness in Russia (space exploration, military-civilian dual-use technologies, digital media, metallurgy, power industry, etc.) (Zhironkin, 2002). The promising forms of accelerated neo-industrialization for Russian economy we consider the following:

1. Genesis of the network information technology clusters, not "tied" to the head companies (Gasanov et al., 2016). These clusters can become developers creating technologies of information processing and redistribution. The complex of modern network technologies is quite diverse; the most diffusive of them include website design, distributed ("cloud") software making - the creation of the complex computer programs which individual experts are able to make, professional Internet consulting, remote private online training, online marketing.
2. The development of production facilities for deep processing of hydrocarbon and metals in modern raw materials - carbon fiber, reinforced plastics, pulverized and water-coal fuel, nano-lubricants and adsorption materials, organometallic compounds, semiconductors and silicon-organic compounds, ultra-light alloys, heavy-duty plastics and power sources. Their market prices exceed the cost of raw materials in some hundreds and even thousands times, so their production can create jobs with the most advanced level of salary. These industries embed converging technologies, combining similar processes of various industries and initiating inter-branch cooperation. They include the synthesis of technology and production of metals and polymers processing, production of industrial robots, space crafts, merging biochemistry and power industry, etc.
3. Improving the energy efficiency of traditional for Russian economy industries - power engineering, housing construction, design and manufacture of new power generators and engines, construction materials.
4. Genesis of "green energy" - the transition to renewable energy sources. This means the development of solar cells production, high-capacity batteries, small hydro and wind-power at existing power engineering enterprises.

The most expected results of the transition to a policy of accelerated neo-industrialization are import substitution of final consumption and high-tech products, as well as the growth of medium and high-tech employment.

The main subject of the development of neo-industrial import substitution should become a state. Major funds are needed for modernization of the processing enterprises but they are concentrated in public corporations and state-controlled banks. However, low effectiveness of public investments in Russia is recognized not only by auditors, but also by the government. In contrast, 80 of 110 largest Russian companies producing final consumption goods (RBC's rating of 500) are the private ones

(RBC, 2016). Therefore, the fund basis of import substitution should make public-and-private partnerships, banks of industrial development. Another promising driver of import substitution is the Russian military-industrial complex which can become a provider of technology and know-how in such areas as engineering and metalworking, electronics, production of synthetic materials and plastics.

At the same time, neo-industrial import substitution must not aim strengthening the isolation of Russian economy in the world market. To restore processing industry on the new technological basis for the saturation of the domestic market needs, it is necessary to start importing technologies, on the one hand. On the other hand, neo-industrial import substitution requires major funds. Slowing investment growth in 2013 to zero, the introduction of international sanctions and start of economy recession in Russia in 2014-2015 (with GDP decline by 3.7%) resulted in a reduction of foreign direct investment from \$69 billion to \$21 billion (Rosstat, 2016)

Therefore, along with the need for public investment and technology transfer from MIC to the civilian sector, it is necessary to expand the technological cooperation between Russian and foreign companies. Saving the potential of applied science accumulated in Russia requires vertical integration of resources and finished product manufacturers, research organizations, financial companies and banks.

The starting point of neo-industrial import substitution should be forming the relevant institutions - the rules, regulations, ethics, lobbying and development of business activity among finished product manufacturers on the domestic market. The main tasks assigned to the institutions of neo-industrial import substitution - the formation of a new model of interaction between the state, business and science to expand the production of competitive products for the domestic market. These institutions should be implemented in a technological platform of import substitution, in the mechanisms of innovation transfer from defense to civilian industry, in clusters of converged technologies and network services.

Another important and expected result of the acceleration of economy neo-industrialization is the growth of medium and high-tech employment. For traditional Russian industries - mining, metallurgy, chemical, oil and gas, power producing (secondary and tertiary sectors), this means the creation of a large number of innovative enterprises, which are aimed to the introduction of resource-saving and high-performance technologies, increasing the degree of raw materials processing. For medium and high-tech industries - engineering, electronics, aerospace, communications (quaternary and pentadic sectors) new vacancies can be created at the new enterprises producing competitive products for the domestic market and for export.

The terms of medium and high-tech employment growth include the following:

1. The formation of cross-platform innovational activity. The advanced subjects of national innovation system, first launched in the European Union, are technological platforms, consolidating business, science and government representatives. The European Commission recognizes technological platforms as directions of universities, innovative companies and major manufacturers' cooperation. Just in these areas government expenditures on fundamental and applied research are allocated. The main feature of technological platforms in the EU is the joining not only scientific organizations and industrial companies, but also

banks, investment companies, European concerns. Government participation in technological platforms is not limited by direct finding but includes government guarantees, government capital expenditures, leasing and credit subsidies.

The initiators of the creation of the European technological platforms were the alliances of industrial corporations from "High Level Groups". Since the beginning of the 2000s, there had been created more than 40 technological platforms in the EU (including 26 - in producing operations of the 6th technological layer), such as «Future Manufacturing Technologies», «Embedded Computing Systems», «European Nano-electronics Initiative Advisory Council», working for over 10 years). In the EU there were created National Support Groups for technological platforms, bringing together leading scientists and officials, who help to solve the problem of technological breakthrough in modern industries, to develop new chains of raw materials processing, to form the new sectors of economy by overcoming the fragmentation of scientific research results and structuring business interests.

In Russian economy the formation of technological platforms began only in 2011 upon the initiative of the Russian Government Commission on High Technology and Innovation when it approved 30 platforms. Their founders and coordinators became industrial companies, state research institutes and public corporations "Rosnano" and "Russian Technologies".

Russian technological platforms do not accomplish the main goals of their participation in neo-industrialization of economy - providing technological breakthroughs (the newest technology of pentadic sector), necessary for entering the path of innovative development. On the contrary, they involve basic sectors, such as power engineering, transport, mining, metallurgy, machine-building, chemistry, construction. And in the industries that can widely deploy high technology (biochemistry, photonics, nano-materials with special characteristics and supercomputers) only a few platforms were formed. Funding of innovative enterprises in these sectors, which are mainly public is carried out directly by the state, without encouraging business to participate in the innovative projects.

Therefore it is essentially to provide further development of new cooperative relations between producers and processors of raw materials on the one hand, and high-tech firms on the other on the basis of already established technological platforms. The development of high-tech industries specific for neo-industrial economy - bio-technology, digital services, laser constructing, etc. (pentadic sector) requires massive public and private investment in the creation of new technological platforms.

2. Start-up of innovative intrapreneurship, which allows involving highly skilled workers and scientists in technological differentiation of goods. That is, the individual employees within intrapreneur form of innovation activity begin to act as innovative entrepreneurs. The customer of innovative projects performed by intrapreneurs is the employing company. In this form of interaction between company owners and the staff the incentives for innovation activity are high that radically distinguishes intrapreneurship from the employment relationship. As a result, transfer of innovation among developers and investors (the owners of the enterprise) occurs by gathering intrapreneurs in independent team, working under the brand name of a company. This makes it possible to smooth the difficulties arising from intellectual property rights. The objects of this property appear as the result of innovation process (patents on certain technical and technological innovations, business processes, research information and

know-how, etc.). The company, by signing a contract with the intrapreneurs, purchases the intellectual property rights at a fair price, thereby encouraging its employees to carry out innovation projects.

3. Generating of innovative subcontracting, which means the separation of independent entities from large companies and conducting related research and development. These independent small innovation firms can sign contracts with research institutes, universities by themselves to set the transfer of innovations in exchange for investments and current funding of basic research. In the USA Federal contract system covers 92% of the production of innovative goods and services in the national economy. The US government contracts business firms through various military and civilian departments - subcontractors, which number is more than 60. It should be noted that these contractors constitute up to 90% of the demand for R & D in the United States. More than 25 thousand public, private and hybrid business organizations cooperate with these departments as the subcontractors – manufacturers of innovative products for public consumption.

6. Conclusion

To make import substitution a vital part of Russian economy neo-industrialization the state must expand inspiration of establishing small innovative firms, providing them with contracts for the development of basic innovations in the areas of national defense, health care, aerospace technologies, digital communications. The incentives of neo-industrial development should include tax exemptions, government financing of R&D made by research institutes and universities cooperating with private innovative firms, subsidized or rent-free access to necessary scientific equipment, training employees with post-industrial competences, intellectual property transfer from state to private companies. All this will help to realize the main imperative of neo-industrial development of national economy - the growth of social wellbeing as the result of transition from natural resource rent to the processing and high-tech model.

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