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## Neo-Industrial Technological Convergence and Social Wellbeing

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### Abstract

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The article reveals the relationship between industrial development and the level of social wellbeing of the population. It is noted that the market transformation of Russian economy caused technological degradation and industry stagnation, which resulted in the drop of the social wellbeing of citizens who retired. The authors determined that technological industrial degradation is having a particularly negative impact on the life quality. This makes the social wellbeing of the population in the country, passing through the painful market reforms, not life-time, with marginalization of the majority of senior citizens. For the formation of a truly life-time social wellbeing in countries with transitive economy such as Russia, it is necessary to restore its industry on a new technological basis - neo-industrialization. Its implementation in Russian economy requires a number of phases during which natural resources should be used to restore the competitive manufacturing industry, form the basis of an innovative economy and modern high-tech industries. Long time required for neo-industrialization of transitive economies, allows to create a social group with the life-time wellbeing, which will be determined not by the high social state benefits, but by the possibility of long-term usage of gained professional experience. Convergent technologies are being formed in innovative clusters of network type, and help to establish the life-time wellbeing for specialists who used them for their whole life. Primarily forming of life-time wellbeing in the segment of convergent technologies requires the integration of social and innovation governmental policy, support of the developing network information clusters.

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**Keywords:** Life-time social wellbeing, neo-industrialization of economy, industrial development, convergence technologies, network clusters.



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## **1. Introduction**

Life-time social wellbeing is becoming an important independent direction of sociological and economic research. Maintaining at the high level of wellbeing throughout whole life as the target of social policy was studied by many economists (Putnam, 1995; Diener, 2005; Joe, 2011; Harter, & Gurley, 2008; Alartartseva, & Barysheva, 2016; Baryshev, & Barysheva, 2016). Also social, psychological and economic problems caused by the decline in social wellbeing connected with the end of professional activity and retirement are investigated in detail (Gallup, & Hill, 1960; Berkman et al., 2000; Melchior et al., 2003; Schulte et al., 2012; Harrison, Pope et al., 2012). The life-time wellbeing was analyzed as a factor of economic growth (Heckman, 1985; Mincer, 1993; Max-Neef, 1995; Loeppke et al., 2009).

In our study a special attention is given to the analysis of the links between industrial development and social wellbeing, its level and life-time period (Becker, 1962; Bartel, & Lichtenberg, 1991, Fukuyama, 1995; Deaton, 2008; Acemoglu et al., 2015). Today for Russian economy, the BRICS and the post-socialist countries the problem of restoring and development of industrial potential on a new technological basis is highly important. The success of its solutions will directly determine the level of social wellbeing and its life-time period in these countries. However, the non-industrial nature of the life-time wellbeing, formed in the newly industrialized countries (South Korea, Singapore, and Malaysia) and the BRICS countries, is poorly represented in the works of economists. The main emphasis is made on the post-industrial research (Clement, & Myles, 1994; Bell, 1973; Clark, 1991). Neo-industrial social wellbeing is being also studied by some Russian economists (Inozemtzev, 2000; Zhironkin, & Gasanov, 2016; Gasanov et al., 2016).

## **2. Problem Statement**

The progressive aging of the population sets an objective for the society to ensure a good living standard for senior citizens, to maintain the acceptable way of their life. According to the forecasts, by 2025 the world population will increase in three times compared to 1970, the number of senior citizens in 6 times. The number of people over 80 years will increase in 10 times (Global Age Watch Index, 2013).

By 2025, the share of Russian citizens over 60 years old will reach 20%, while the number of people aged more than 75 years will exceed 25%. Along with this, in Russia the number of senior citizens living alone has already exceeded 10 million people. This makes the problem of the life-time social wellbeing important for nearly half of Russia's population in the near future.

Consequently, the share of population, for which professional activity and associated with it wellbeing will increase. For the economy, it will result in growth of «unmade» profit, «unsold» goods and services, missed opportunity to create new jobs.

Ageing of modern society has not only demographic and macroeconomic consequences. The changes will affect social relationships and, thanks to the "more experienced" members of society, competition in labor market, demand for the quality and volume of health services will increase.

Inevitably it will be necessary to develop those branches of medicine that are closely connected with the health of old people, which will lead to additional public expenditure.

With the aging of the nation the problem of maintaining an acceptable level of wellbeing of the growing population becomes more important. For Russia and other post-socialist countries, the problem of a significant income reduction when the professional activity is over is relevant. As a result, the level of the wealth status of the majority among the senior citizens is significantly reduced; the life problems get stronger. (News Effector, 2014).

As a result, Russian senior citizens are passing through the transformation of values, changes in the way of life, deterioration of conditions of satisfaction their intellectual and cultural needs. The difficulties of psychological adaptation to new life conditions, loneliness, and lack of communication are appearing, the main social connection with the external environment is gradually losing. In recent years social and economic problems in Russia has considerably worsened the social wellbeing of the majority of the senior citizens, who actually took a marginal position in society. The social status of the senior citizens and the elderly people has significantly changed for the worse.

In Russia, the government declared a steady rise in living standards and life quality of the senior citizens on the basis of solidarity and social justice, maintaining the balance of the interests of all socio-demographic groups and rational use of financial and other resources. Social care for the senior citizens is a provision of cash or any other kind of help in the form of services or benefits provided by the social guarantees legally set by the government.

However, the majority of Russian senior citizens living in the cities are the first generation of outcasts. In fact, they have become marginalized, having retired in modern Russia after the Soviet Union collapsed. In 1990-ies the average pension rate in Russia did not exceed \$ 100 per month; in the 2000s this figure raised up to \$ 350, and in 2014 dropped to \$ 200. However, there is a high proportion of people with higher education (35% aged 60-75 years) among Russian senior citizens. At the same time the level of material values of the senior citizens in Russia is not affected by the wealth accumulated by their parents and grandparents. They simply have been lost as a result of migratory movements, market transformation of economy. More than half of Russian senior citizens do not have links with any of the relatives. In Russia about 1.5 million of senior citizens are in need of constant assistance and social services (News Effector, 2014).

As a result of a significant drop in social wellbeing while the aging and retirement in Russia, the senior citizens feel a negative attitude from the others. In Russian society the perception standards of the senior citizens are changing from positive to negative.

### **3. Research questions**

We believe the reason of the problem of wellbeing decreasing for the majority of Russians as they age to be degradation of technological industry and institutions' failure in innovative development having occurred during the market reforms of 1990-2000. As a result, on the one hand, state budget revenues have been insufficient for providing full social security pensions and health services for the senior citizens up to the level that was available for them during the period of their professional activity. On the other hand, high dependence of government revenue and the economy of Russia on the

world oil prices have seriously destructed its stability. It made investments of private pension funds risky and created obstacles for their development.

Technological degradation of Russian industry was the result of de-industrialization of economy - the negative structural changes in economy (mainly due to the concentration of investments in primary industries), and the collapse of Research and Development sector. De-industrialization of Russian economy can be considered as, on the one hand, the decline of the share of industrial production in GDP (for 1996-2013 years from 48% to 35%, by the method of the gross value of industrial production), and in the industry itself the decrease of the processing sector (in 2006 - 42%, in 2010 - 38%, according to the method of value added). On the other hand, de-industrialization of Russian economy in the period of market reforms is caused by the technological degradation of industry, having deprived it not only international but also domestic competitiveness. In the part of sectoral structure of Russian economy, which is directly connected with the innovative development (service sector), trade and finance dominate (in 2011 - 78%, while in the US - 35%). The share of the most advanced service sector (by D. Bell – the fifth) - an innovative consulting, health care, education and so on - in Russia is less than 10%, while in the US is 33% (OECD, 2014).

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

The social wellbeing growth in Russian economy and the formation of its life-time character we associate with neo-industrial transformation. Neo-industrialization of economy is primarily connected with substantial changes of its technological and industrial structure together with the development of high-tech industries, the integration of science and production. Along with this, neo-industrialization implies adopting a systematic state industrial policy in several consequent stages.

The first stage is the development of innovative raw material industry in order to provide fully domestic engineering and construction industry with the latest materials. The technological platform of the first stage should become the existing technological platforms and major investors should be bank holding companies. The economic conditions of the first stage of neo-industrialization of economy are encouraging a balanced investment in Research and Development and resource production. The institutions of the first stage have to absorb successfully the natural rent of the raw material extraction and invest them into innovation. To these institutions we refer the high-tech bank holding companies with the state control, industrial innovation and investment banks (Zhironkin, 2002). The social group of the social wellbeing growth on the first stage of neo-industrialization is employees of processing enterprises, employees of innovative companies involved in the commercialization of newly produced products.

The second stage is modernization of Russian manufacturing and processing companies: engineering, energetics, organic chemistry, metallurgy of unique alloys. These industries must be fully provided with domestic production of raw materials deep processing for the purpose of import substitution of their products and increase international competitiveness. The technological platform of the second stage of neo-industrialization is innovation clusters and public-private partnerships as a form of innovation investment. Economic conditions are encouraging the import of technologies and their adaptation in existing industrial clusters, creating the demand for innovations in industry forming

the high-tech holdings. The institutional ground of the second stage is the rejection of "forced modernization" of Russian economy and move away from its "episode", local character, the transition to the target programming and strategic planning of interaction between government and business concerning the investment in Research and Development, providing legal base for this process. The social group, in which at the second stage of neo-industrialization the wellbeing growth should take place, includes employees of scientific research institutes, universities, and venture companies, companies that are developing innovative technologies and designing their implementation in industry.

The third stage of Russian economy's neo-industrialization is the establishment of new industries generated in which innovations can find the demand in raw materials and manufacturing industries. To these sectors we refer the production of bio-energy and clean fuel, distributed computing programming, nano-materials-production. The technological platform of the third stage should be based on the principle of technological integration, network clusters and converged technologies. The economic conditions of the third stage are the state support of "breakthrough" research and development, and the most preferential conditions for the creation and commercialization of "breakthrough" innovation. Institutional ground is target programs of advanced innovation development, high-tech lobby, innovative subcontracting of small innovative companies by large industrial enterprises. Target social group of social wellbeing growth on the third stage should include scientists, experts and consultants, employees of modern high-tech industries, private investors in innovations - "business angels".

## **5. Findings**

Thus, the achievement of technological results of Russian economy neo-industrialization must be closely connected with the formation of the life-time nature of social wellbeing. We believe that the restoration of the industrial potential of Russian economy based on new technology will take from six to ten years. It will depend on different scenarios in which the government counteracts the capital outflow and encourages innovation activity. During this period, the conditions of maintaining the life-time wellbeing we should be created. They will be based on the use of network information technologies throughout the whole life of Russians employed - from the start of professional activity up to old age.

Modern network technologies, such as web design, distributed programming, internet consulting, remote private online language training, design, internet marketing, are able to engage in modern forms of employment and small businesses millions of Russians. This makes it possible to talk about the network wellbeing - its special form, achievable only by using the latest network information technologies. The main feature of the network social wellbeing is its convergence, thanks to which it becomes the result of drawing together different industries as common technologies and common economic incentives penetrate into them. In this case, we are talking about such sectors as programming, data processing, education, social, legal, financial services, global marketing, and production of computers.

Digitalization of the most processes of material and non-material goods production should be the basis of the sectoral convergence. It means the transfer of technical, managerial and financial processes

into a single digital format, clear for modern computers, elimination of the distinctions between different types of information.

Neo-industrialization of Russian economy should give an impetus to the development of convergent technologies. The latter, in turn, are able to ensure the continuity of social groups, formed at different stages of neo-industrialization. In other words, today's workers of manufacturing enterprise specializing in the production of innovative products should be given the opportunity to research and teach, participate in the design of new technologies. Subsequently, at the end of their professional career it is necessary to use their experience offering them to be consultants and researchers, as well as private venture capital investors.

Only such gradual development of the key social groups for neo-industrialization is the way to establish in Russia the life-time social wellbeing. It must have a network character that is associated with the deep penetration of information Internet technologies in professional activity and personal lives of the population.

Convergence of network wellbeing is the integration of information, educational, social, industrial technologies in new technologies of distance learning and online consulting, design at a distance, remote scientific research and unmanned industrial technologies of remote processes administration.

In order to form a convergent network social wellbeing in Russia it is necessary to develop the network innovation clusters, in which information technologies are created and diffusely distributed all over the world via the Internet. In contrast to the industrial clusters information clusters are "linked" to the definite territory only by their "core" - the headquarters of companies' data centers, universities and training centers, scientific laboratories. The other subjects of information clusters are diffusely distributed throughout the world and connected with the "core" via the Internet, and by contracts for participation in the production of information products.

A special feature of network convergence technologies is that they are involved in the formation of a stable social group, capable to support the wellbeing during the life-time not due to social benefits but due to selling the knowledge and skills all around the world. Distribution of this social group among the population requires from the government to support the centers of creation and distribution of convergent technologies - innovation clusters. An example of such clusters can be named "Synergy" (Tomsk, Russia), in which information, ultra-high frequencies, medical and fluoride technologies are developed.

Unfortunately, today the Russian government carefully monitors that tax advantages to innovative firms were within clusters and were obtained only by their residents. Pro-fiscal nature of economic policy constrains, first of all, the development of the most advanced information technologies, and excludes them from the drivers of the social wellbeing.

Therefore, in order to develop the life-time social wellbeing in Russian economy it is necessary to exempt from tax investors' income of innovative clusters, payroll of employees - their residents, as well as income of related with them freelancers - not less than 150% of their volume. This will create an additional incentive to increase the network wellbeing in Russia.

Formation of the life-time social wellbeing requires that the social group formed during neo-industrialization of economy was stable enough to expel from the "elite" group civil servants and

managers of natural resource companies. The most important role in the formation of the life-time network wellbeing should play an innovative and educational policy of the government, which should be naturally combined with income tax exemption of employees in innovative clusters, as well as senior citizens who use network technologies to continue their professional activity.

Formation of the life-time social wellbeing means the creation of new social situations, ensuring the profitability of intellectual property, elimination of administrative barriers to innovation investment and using know-how, lobbying the interests of innovative firms. This requires the institutionalization of information technologies, the development of formal and informal institutions of reproduction of intellectual capital, information and technological ideas.

## 6. Conclusion

Thus, the formation of the life-time social wellbeing in Russia is inseparable from the technological development of industry, the transition of the economy from the raw material to the manufacturing type of economy, the depth of penetration of the network information technologies in public and private life. Providing the Russians with the possibility to use their knowledge and skills throughout life requires the enhancing of prestige and motivation of intellectual work, research and innovation activities, changes of the social role of scientists and innovators, specialists in the sphere of information technologies. They have to pass from meeting the needs of raw material production, trade and financial sector to the mass production of information as contemporary factor of production, based on which the convergence technologies should be developed and non-material goods of global demand should be created. This requires the activation of social mobility connected with the development of information technology, with modern higher education and scientific research activity. The convergence of technologies will not become a base of the life-time social wellbeing without the formation of a "critical mass" of national intellectual capital and its media.

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