

Assessment of the Paradox of the Formation of Economic Systems in Different Types of Countries

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Abstract: The modern economic system demonstrates the inconsistency of the redistribution of gross value added (GVA) and gross domestic product (GDP) in the direction of developed consumer countries. On the basis of the system of indicators that characterize the effective socio-economic development of countries and the optimal combination of statistical methods that allow us to classify and model the factors that form such a performance of the economies of countries, the authors have established the reasons for their leading positions. The article examines the systems of models of countries with different levels of socio-economic development, their social utility and different degrees of development of institutions in each group of countries: developed and developing. The evaluation and modeling showed that the Gini coefficient, which shows the degree of social differentiation, has a high correlation with 4 indicators that characterize the efficiency of economic development (consumer confidence index, human development index, inflation index, and the share of high-tech industries in the GDP of countries). The authors proved that it is social utility that should ensure the multilateral development of human potential, which, in turn, contributes to economic growth. The paper also reveals the intensity of structural changes that may occur in the structures of gross value added and the employed population in order to determine the trends of their further distribution by industry.


1 INTRODUCTION


After the end of the Second World War and collapse of the colonial system there appeared a group of countries in the world map that were named as the third world countries.


At that time USSR and the United States were the major political rivals, with USSR heading the so-called socialist block countries, while the United States heading the capitalist countries. There was an unreconciled conflict between the rival systems for the future of developing countries in all the domains from industrial espionage and infamous "brain wash" to political sabotage and expansive military intrusions aimed at overthrowing the undesired regimes.

Until the end of the 80-ies, each of the antagonistic parties made attempts to spread their influence, including in Europe, in order to maximize their power in the third world countries. This led to the emergence of countries with socialist orientation, that fell into the zone of interest of the USSR.

However, in the very beginning of the 90-s, after the USSR disintegration and the socialist camp collapse, the situation changed dramatically. The unipolar economic world, headed by the United States, evolved into a bi-polar one, with the second pole being divided between the European countries and Japan. Other countries were considered to be satellites equally distant from the center and depending on the functions, which they performed in a newly formed system of coordinates. Russia found

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itself among second-tier countries with relatively low level of economic development, shrinking population, and lack of own development strategy. At the same time the country had a vast territory and, most importantly, contrary to China, India, and Brazil, military and nuclear potential that was comparable to that of the United States.

The transition to market economy meant in fact a complete rejection of the previous ideology of development that was based on the public property. This transition resulted in privatization of the public property in 1991 when the enormous Soviet empire disintegrated.

The cutoff of the existing economic structure and the sharp decline in revenues from exports of mineral resources due the structural changes in the world markets, did not allow Russia to change the model of economic development and occupy a deserved place in the international division of labor.

At the same time, in the 90s, Russia began to form a socio-economic structure, which developed into a structure with fundamental features that distinguish the transition economy from developed countries. The authors attempt to identify the factors of development of a particular socio-economic model of the state, the place that Russia occupies in the international division of labor, and the role of public utility.

2 METHODOLOGY

Our research methodology encompasses the following three key components:

1. design of the system of indicators, which characterize the processes of social and economic development of models of state (both developed and developing);

2. high-level overview of the process of collecting and processing of data and selection of analysis methods;

3. calculation and interpretation of research results.

As the first step of the study, we evaluated the trends in structural factors and indicators of labor productivity in domestic economies.

As the second step, we built a factor model based on the data from 42 countries: 27 EU countries (main developed countries); 5 BRICS countries (the semi-developed countries); 10 Asian and Latin American countries (where the model of social and economic development for the last decades permitted to take leading positions in their respective regions).

As the third step of the study, we identified the main basic factors that form social utility of an economic model, determining the basis for selection of an effective feature of economic structure.

One of the aspects of comparative analysis is the classification of OKONKH and OKVED. To characterize the identification of gross value added, the structural differences indices of Salai and Ryabtsev were used.

3 RESULTS

Let us attempt to answer the complex question about the development of a social and economic model of the country.

The first aspect that distinguishes a country with transitional or, as it is often said, developing economy, from a developed country is the dualism of its social-economic structure. What is its essence? First of all, in such a country, the structure of the economy as well as its social and cultural life are divided into two parts, while the interpenetration and interaction between them are rather limited.

This statement is proved in the first place by comparison of structure of economic sectors of GDP with the corresponding distribution of the working population.

For example, from the distribution of gross value added by sector and the number of workers employed in respective sectors in Russia, we can see the duality of the system in the distribution of production surplus (Table 1).

Table 1: The structure of gross value added (GVA) and the average annual number of people employed in the economic line of business (OKVED) for 2002 and 2018 in Russia.

Type of economic activity	2002			2018			The rate of labor efficiency growth in 2016 to 2002, %
	structure, %		Economic sector labor efficiency	structure		Economic sector labor efficiency	
	GVA	employed		GVA	employed		
Agriculture, hunt and forestry	5,99	12,552	0,477	4,5	6,5	0,692	145,073
Fishing and fishery sector	0,3	0,183	1,639	0,2	0,2	1,000	61,013
Excavation of mineral resources	6,7	1,774	3,777	9,4	2,2	4,273	113,132
Process plants	17,2	18,430	0,933	13,6	14,4	0,944	101,179
Production and distribution of energy, gas and water	3,6	2,883	1,249	3,4	3,2	1,063	85,108
Construction	5,4	6,800	0,794	6,2	7,2	0,861	108,438
Wholesale and retail trade; repair of vehicles, motorbikes, household goods and personal demand items	22,9	15,091	1,517	15,9	16,6	0,958	63,151
Hotels and restaurants	0,9	1,641	0,548	0,8	1,9	0,421	76,825
Transport and communication	10,2	7,802	1,307	8,8	9,5	0,926	70,849
Financial activity	2,9	1,091	2,658	4,5	2,0	2,250	84,650
Operations with real estate, rent and rendering services	10,6	7,494	1,414	11,8	7,2	1,639	115,912
Public administration and providing military security, obligatory social insurance	5,1	4,790	1,065	7,8	7,4	1,054	98,967
Education	2,9	9,209	0,315	7,3	9,4	0,777	246,667
Health care and rendering social services	3,3	6,707	0,492	3,7	8,0	0,463	94,106
Rendering other community facilities and personal services	1,9	3,553	0,535	2,1	4,3	0,488	91,215

Source: Authors' calculations based on the data from the site http://www.aero.garant.ru/?utm_source=ivo&utm_medium=text&utm_content=demo-regional&utm_campaign=lead-from-dri#form_title;

Authors' calculations based on the data from the site <http://www.gks.ru>

*highlighted the sectors with labor efficiency growth in 2018 compared to 2002.

We can see from the table above that the main part of added value was created in extractive industries during the previous two decades, whereas approximately 2,2% of all labor power was engaged in it by 2018.

It is evident that the correlation of a sector added product and the employment gives, as a result, a sector level of output or a sector labor efficiency.

The considerable superiority of the extracting sector of economy is also evident here. It also confirms a superior rate of a labor efficiency growth which in extracting industries is equal to 13.2%. What are the consequences of such state of things?

The most evident part of this phenomenon lies in the fact that extracting industries generate both the

largest part of profit in the economy, the lion's share of which is actually a natural resource rent; these industries also create more than 50% of all payroll fund (without accounting undisclosed earnings) (Okediji, 2011; Luca Ferrini, 2012; Petrov, 2015).

As far as the most important element of an added value is concerned, only about 22% of the total sum of depreciation expenses fall into the share of an extracting industry, based on capital consumption, which is one of the key priorities of economic growth.

Besides, it is natural to assume that as far as these sectors are mainly consumers of innovations created in the economy, their role in a scientific and technological progress, compared with the processing industry, is, mildly speaking, meager

(Kapelyushnikov, 2014; Marinov, 2014; Goreeva et al, 2013).

Economies, that exist at the expense of exploitation of natural resources and as a result position the international division of labor for long-term inactivity, can be characterized by the common feature: underdevelopment of social and economic structure.

Besides, it should be noted that the year 2002 was chosen for a comparative evaluation due to the transition of the Russian statistics from the Russian Classification of Sectors of the Economy (OKONH) to application of Russian National Classification of Economic Activity (OKVED) (Chernyaev et al., 2014).

The GVA (Gross Value Added) indicators broken down by Russian Classifier of Economy Branches (OKONH) were calculated for the period from 1997 to 2004 and by OKVED sectors – from 2002 to 2012. The structures of industry sectors related to Russian Classification of Economy Branches and OKVED differ rather considerably; that is why the year 2002 was taken as a reference period to eliminate the lack of the results comparability. All evaluations were calculated in both Russian Classification of Economy Branches and OKVED versions for 2002 year.

The comparative evaluation of sectors included into classifiers shows that the transition from Russian Classification of Economy Sectors (OKONH) to OKVED lead to the increase of a labor remuneration share in GVA industry by approximately 4 percentage points just as the GVA share of this sector started to reduce considerably faster.

Thus, the labor force becomes cheaper. Notably, in Kapelyushnikov's opinion, the range of a relative reduction in price of labor force in extracting industries was rather impressive: the share of labor remuneration in GVA of this sector reduced by more than two and a half times – from 37,5% in 2002 to almost 15% by 2013. Therefore, the growth of labor productivity was mainly achieved in the country at the expense of reduction in direct labor costs (Chaykovsky, 2011; . Druzhinin and Prokopiev, 2015).

An important aspect of the study was the identification of the intensity of structural changes that may occur in the structures of gross value added and employed population in order to determine the trends of their future distribution by industry. We used data from 2016 and 2002 to calculate the coefficients. The main indicators characterizing the materiality essentiality of structural changes are:

A. Salai index

$$I = \sqrt{\frac{\sum \frac{(V_1 - V_2)^2}{V_1 + V_2}}{n}} \quad (1)$$

where:

V1-the share of the industry in gross value added (the structure of the employed population by industry) in 2016;

V2-share of industry in gross value added (employment by industry) in 2002;

n-the number of specific weights in the structure of industries.

This indicator takes its values in the range from 0 to 1. The closer the index value of A. Salai to one, the more significant are the structural differences. Already at index values above 0.2, structural differences are considered significant. However, it should be taken into account that the value of the index will depend heavily on the number of elements to which the whole set is divided. The more of them, the more the index will be leveled.

Ryabtsev index does not take into account the number of specific weights of the structure and does not depend on the number of parts of the population:

index V. M. Ryabtseva

$$I = \sqrt{\frac{\sum (V_1 - V_2)^2}{\sum (V_1 + V_2)^2}} \quad (2)$$

Rating scale measures of importance of distinctions of structures according to the criterion of V. M. Ryabtseva presented below in table 2.

Table 2: Border force structural differences on the criterion of V. M. Ryabtseva.

The range of values of the criterion	Characteristics of the structural differences
0,000 – 0,030	identity of the structures
0,031 – 0,070	very low level of differences
0,071 – 0,150	low difference
0,151 – 0,300	significant level differences
0,301 – 0,500	significant difference
0,501 – 0,700	rather significant level differences
0,701 – 0,900	opposite type of structures
0,901 and above	total opposite of structures

Source: (Shakhnovich, 2014).

Calculations of the index A. Salai showed that this coefficient on gross value added amounted to 0,18. In the structure of employment – it is 0,14. Thus, A. Salai index showed no significant differences in the structure of employed by industry. There are noticeable changes in the structure of gross value added. However, it is necessary to take into account a

sufficiently large number of gradations of the specific weight of the indicator – 15 sectors, which significantly reduces the scientific significance of the result and confidence in it.

The index of V. M. Ryabtsev calculated by us does not depend on the number of gradations of the aggregate structure. During the same period, the index for the structure of the employed population was 0,13, which can be interpreted as a low level of differences in the structure of employed by industry for the period from 2002 to 2016. However, this index calculated on the gross value added and equaled to 0,16 shows a significant level of variation in VDS. Thus, the index suggests that there are significant differences in the structure of gross value added.

In the short run, attempts to improve the social and economic structure leads, as a rule, to the situation chasing the economic efficiency. However, the efficiency of state should be determined by the level of the public utility, rather than solely by the economic efficiency of national activity. The income, generated in effective industries and fields of national economy, is transferred to the state to support distributive relations amongst the recipients. As a result, the effective industries, do not receive back enough funds for their own development.

As a result, there arises a strong differentiation of incomes across the industry sectors and groups of population. This does not permit to use a human

capital to the full extent. Evaluation of the factors, which lead to such a situation, is one of the vital tasks, as it would permit to successfully solve the problem of creating favorable conditions for development of the society and the economy.

The most convenient form for factorial analysis is building correlation models, which permit to quantitatively evaluate the influence of each taken indicator on a social efficiency of life of every member of a society (Moskovskaya et al., 2011).

The countries with high living standards (European Union countries), average living standards (BRICS countries, i.e. developing countries such as China, Indonesia, Malaysia), and low living standards (Peru, Columbia, Chile and others) were taken into a regression model.

The analysis of 2015 correlation of the Gini coefficient, which shows the degree of social differentiation, with 4 indicators, which characterize the economy development efficiency (index of consumer confidence, index of a human potential development, inflation index, and a share of high-tech industries in GDP of countries) prove the presence of a rather strong relationship.

The three-factor model included only the index of a human potential development, inflation index, and the share of high-tech industries in GDP of countries. The results of modelling are presented in Table 3.

Table 3: Countries grouping according to the index of the absolute level of 1% increment of growth for high-tech industries share in GDP in 2018.

Groups of countries according to the absolute level of 1% increment of growth for high-tech industries share in GDP, %	Number of countries in a group	Share of EU countries in each group	Coefficient of funds renewal and upgrade, %		Investments in a fixed capital		Inflation level, %	HPDI (human's potential development index), %		Proportion of the population with incomes below minimum subsistence, %		Coefficient of the lost earnings*
			2018	2015	2018	2015	2018 / 2015	2018	2018	2015	2018	2018
0,007-0,04	28	100	28,6	18,7	19,3	100,6	100,3	85,9	86,2	5,4	5,2	1,64
0,04-0,072	2	50	23,5	21,5	22,0	102,2	101,8	83,7	84,0	2,5	3,0	2,69
0,072-0,09	4	25	33,5	20,9	21,5	104,2	104,7	81,9	82,1	4,1	4,2	2,57
0,09-0,121	8	0	31,9	25,6	20,4	104,6	104,2	73,6	77,7	5,9	6,0	4,29

Source: Calculated by authors on the basis of Eurostat data.

*Correlation of an average occupational earning to an average pension in the country

Thus, the majority of developed countries in grouped data does not have a high share of high-tech industries in GDP. At present developing countries represent the main flagships for the economy growth driven by technological development. The level of social protection of the population and differentiation of incomes is ambiguous given the similar inflation expectations in the countries.

A deflation scenario of development can be observed in the world economy that is related to a gradual slowdown of investments – the main driver of countries' economies. This situation is related not to the lack of resources, but rather to the excess supply due to the end of dollar emission. Besides that, the problems caused by the dollar being the world currency, have aggravated.

It had an especially adverse effect on developing countries where the level of investments declined by more than 5% in 2016 compared to 2015, which in turn affected the rates of industrial production. In the other two groups of countries the level of investments declined by more than 1%. As a result, the degree of a social inequality and uncertainty of the society regarding its future have increased. The coefficient of lost earnings showed its 2,6 times growth related to the last group.

4 CONCLUSIONS

In the past two decades, a unipolar world transformed into a bio-polar world in which Russia found itself in a group of developing countries. At the same time, having vast territory, natural resources, and cheap labor and providing a considerable contribution to the world GDP, the country remains socially ineffective.

In Russia, as a representative of developing countries, an analysis of the structure of gross value added and purchasing power conducted for the period from 2002 to 2018 inclusive showed that the bulk of gross value added during this period was created in the extractive industries, however, they employ only 2.2% of the total labor force, which causes high rates of productivity growth in this sector. The main part of the profit received in this sector is rent from natural resources and in the absence of its own high technologies, the main directions of supply of high-tech goods are imports. Thus, the average annual share of exports of high-tech goods from China to Russia over the past 5 years was more than 30% (Birdsall, 2010).

The share of high tech goods in the total volume of the Chinese export showed steady growth and reached 40% (The economic system of modern

Russia: ways and objectives of development: Monograph Ed. A.A. Porokhovsky, 2015). Transformations and economic growth in countries-beneficiaries without investment and reduction of purchasing power of both households and producers adversely affect the economic efficiency of Russia (Demidova et al., 2018).

This is proved by models for developing and developed countries which showed that in modern conditions the state's emphasis on superiority of market mechanisms over social policy can lead to stable economic growth but not to increased welfare of a society.

The constructed correlation and regression models for developed groups of countries and developing groups of countries showed that both in most cases do not have a significant share of high-tech industries in GDP. Today, developing countries are the main engine of economic growth and technology development. However, the level of social protection of the population and income differentiation are very ambiguous. In this regard, the global economy is developing a scenario of deflation of development, which is characterized by a slowdown in investment activity associated with oversupply due to the cessation of dollar issuance. This has a particularly negative impact on the group of developing countries, where the level of investment decreased by more than 5% in 2018 compared to 2015. As a result, the rate of industrial production has decreased and social inequality in the community has increased. According to the authors, the coefficient of lost earnings showed an increase of 2.6 times compared to wages in developed countries.

The economic development in the majority of countries does not actually lead to effectiveness of social institutions or reduction of income inequality. And this holds true even for developed countries. In this case the basic strategy of state programs should be aimed at development of human potential of every member of a society.

Russia as a country-consumer, rather than a manufacturer of modern technologies, cannot develop its economy without creating an effective social infrastructure aimed at the development of human capital through the formation of intellectual and innovative environment. Institutional transformations should involve an innovative value chain that would include fundamental research, applied R&D, and commercial technologies. Only in this case the Russian domestic economy can compete with China, India, and other countries. Institutional developments in the form of the fund of national welfare and state funds for development should

become the key tools to solve the strategic problems of the economy formation. It is also required to form such institutions of development as techno parks, business incubators, and technology transfer centers, all in in the conditions of insufficient financing.

The efficiency of the Russian economy should contribute to a correspondingly fair distribution of resources. This can lead to emergence of consensual ideology, which is aimed at the growth of social effectiveness of the economy and protection of the country population.

A high-level objective to focus solely on economic rational of any economic institution at the expense of its actual utility is explained by the increased requirement for lowering costs and increasing labor productivity. However, a low technological level of production and lack of opportunity to produce a variety of industrial products knowledge-based components, which would have high domestic demand, lead to a high import substitution and dependence on foreign supplies of ready-made products. In addition to that, the problem is further aggravated by a depressive state of the science.

The implications for Russia are the lack of financing for research and development and, as a result, current incapability to occupy any niche in the world production.

In most sectors, forming the GDP of Russia, a share of high-tech products is fairly low and involves only production of raw materials or semi-finished goods and, therefore, does not give a possibility to get a bigger share of value added.

The solution to this problem, which resonates in the experience of some countries, can be the increase of a part of expenses for R&D from the Federal Budget allocated on a competitive basis. However, there arises a question about changing the institutional component of state aimed at ensuring social utility of every member of the society. The share of gross value added and labor productivity in any sector of the national economy should be proportional and correspond to the labor remuneration which a worker receives. This proportionality should also be taken into account while implementing the redistributive relations in the economy of the country.

The required and sufficient condition here is a creation of a successful anti-inflationary monetary policy and a fiscal policy, which will permit to distribute the resources in the country, activity of the state in the field of foreign trade turnover, allowing to mitigate negative consequences of declining trade cycle in the economy. Favorable living environment

for the population and their confidence in the future should be maintained.

The main dilemma today encompasses the role of the state in the Russian Federation as a subject of economic activity and the necessity of cardinal changes in the legal and judicial system. If these changes do not take place, the differentiation between poor and rich countries will deepen even further. Furthermore, the obsolete structure of the economy creates a dependent development path. The current challenges are due to the fact that from the one side, there is a requirement to develop market institutions, and from the other side, there arises a requirement to increase social purposes of these institutions. Today such dualism remains one of the most important issues of many states.

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