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FROM MARXIAN SCHOOL OF ECONOMIC THOUGHT TO SYSTEM PARADIGM  
IN ECONOMIC STUDIES: THE INSTITUTIONAL MATRICES THEORY<sup>1</sup>

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**Abstract**

*The paper discusses some theoretical-methodological basis for the institutional change analysis in transitional countries. First, the paper shows the specific approach of the Marxian school of economic thought to the analysis of social and economic institutions. Second, the most general features of the system paradigm in economic theory (Kornai, 1998) are presented. Third, the institutional matrices theory, or IMT (Kirdina, 2001; Kirdina, 2001, 2010, etc.), developing Marxian approach and systemic ideas, is presented. An explanatory power of IMT is shown by the analysis of post-soviet reforms in Russia and East-European countries.*

*Key words: institutions, economic systems, Marxian approach, institutional matrices.*

JEL Classification: B 24; B 25; P 20; P 51;

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**1. Introduction**

To what extent can we apply economic and political concepts developed in other countries to our social practice? What are the criteria and prospects of mutual exchange in the field of "institutional design" between countries? Why are some institutional structures preferable to others? This article presents an institutional matrices theory, which can help to find answers for these questions, and its theoretical prerequisites.

We begin with Marxian school of economic thought. We believe that the potential of Marxist political economy's (and sociological as well) project is still undervalued by the institutional theoreticians. In most debates between institutionalists about Marxian legacy only its historical significance (Hodgson, 2006; Осадчая, 2005) or the role of Marxism as a criticism of capitalism (e.g. Works of URPE<sup>2</sup> economists) is recognized, as opposed to attempts at creative development of Marxism.

Then we discuss a heuristic perspective of the system paradigm. The systemic approach deals not just with individual details of the economy but with the system as a whole, and not just with the economy but with the political, ideological and social dimensions, paying special heed to the interactions between each sphere. As Janos Kornai (1998) has mentioned, Marxian approach is a vivid example of system paradigm's thinking in economic thought of XIX century.

The main objective of this paper is to present the institutional matrices theory, or IMT (Kirdina, 2001, 2010, etc.), which has been worked out in Russia at the Novosibirsk school of economic sociology (Davydova, 1997). According to this theory, so called an X-matrix, formed by institutions with a *redistributive economy*, a *unitary political order* and a *communitarian ideology*, i.e. with priority placed on the "We" over the "I," prevails in Russia and China, along with most Asian and Latin American countries. And so called a Y-matrix, formed by institutions with a *mar-*

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<sup>2</sup> The Union for Radical Political Economics (URPE) is an interdisciplinary association devoted to the study, development and ...a continuing critique of the capitalist system... <http://www.urpe.org/about/abouthome.html>

ket economy, a federative political order and an ideology of subsidiarity, i.e. with priority on "I" over "We," prevails in North America and Europe. Other words, in each society both X- and Y-matrices interact, with one of them permanently prevailing. The prevailing matrix defines a performance framework for appropriate development of complementary institutions from the other matrix.

Then common assumptions shared by Marx's economic doctrine and IMT will be brought out and updates to Marx will be shown. IMT will be also considered in context of the system paradigm.

We finish with using IMT for a cursory analysis of the transitions in Russia and post-socialist European countries. From IMT's perspective, transformation processes in the countries of post-socialist Europe and Russia are both similar and different. In the course of their transformation process European countries are restoring the dominant position of these institutions, which corresponds to their historically prevailing Y-matrix of institutions. They return to their previous path of historic development, which had been deformed by the postwar Soviet influence. As for Russia, it is looking for the new institutional balance in favor of the structure of its X-matrix' institutions in new global challenges.

## 2. Marxian school of economic thought and institutions

Main schools of economic thought, it is known, are Neoclassical, Austrian and Marxian. We agree with David Young that regardless of the variety of alternative approaches and schools (regional and national) in the economic theory, these major schools are characterized by specificity of original philosophical and methodological preconditions, definite historical roots and accepted original examples of research programs (Young, 2002). We think it is possible to state that scientists, who are seriously working in the area of economic theory, belong to one of these schools in a manifest or implicit way because they proceed from the assumptions accepted in the above named schools of economic thought even if they are not aware of it. Neoclassical, Austrian and Marxian schools are nowadays the main constructing frameworks for modern meta-theories, including institutional concepts.

*"All other research approaches are under influence (or in the frame of development) of one of these schools. ... This may be so with respect to the institutionalism approach, which is clearly the most relevant in the present context. Institutional economics encompasses a variety of different theoretical perspectives (based on correspondingly different philosophical foundations) united by an emphasis or an explicit discussion of institutions and institutional change. The three schools identified here may be regarded as having different views about the role and importance of institutions, and much of the content of what is often described as being an institutionalism approach may be regarded as being influenced by one or another of these schools"* (Young, 2002, p. 49).

What are the features of Marx's approach (and Marxian school of economic thought) to the analysis of institutions? From one side, we suppose, it makes sense to define the contribution of Karl Marx as a school founder. From the other side, it is important to understand the peculiarities of approaches of the modern representatives of the Marxian school.

We start by outlining the views of K. Marx himself. First of all, different from economists of other schools he emphasizes the important role of material environment in building the economic institutions. The structure of institutions (K. Marx considered such spheres of institutions' functioning as economy, politics and ideology) *is materially determined* by the level of development of the productive forces. Institutions are the result of social (collective) practices and depend on the manner in which humans collectively produce the means to life (the materialist conception of history or historical materialism).

Another peculiarity of the Marxian approach resulting from the first one is the acceptance of the fact that a particular nature and a particular level of development of the productive forces shape the evolution of economic systems. Marx has started the basis for the analysis of «multiplicity» of economies in their commensurate notions and he considered the capitalistic

economy just as one of them. Economies differ from each other first of all by differences in the ownership system. For K. Marx the *ownership relations* – are the most important institution that defines the specificity of the whole economic structure. And at last, taking into consideration the *historicity of institutions* – Marx wrote about this phenomenon for the first time in his review of the Western Europe economic development in XV-XIX centuries – is also a peculiarity of Marxian analysis. We know that these ideas were later accepted by other schools as well but the reasons, why the economic institutions emerge and why they change, were different from those used in the Marxian tradition.

Taking the idea that social change occurs because of the struggle between different classes within society, K. Marx developed *the theory of revolution*. He used the following logics – changes in the material characteristics of productive forces alter the situation of the main social classes; this fact provokes the development of the class struggle and as a result – the revolutionary change of productive means including the major re-building of institutions in economic base, in political superstructure as well as in dominant ideology.

Marx considered the emergence of the economy and economic institutions as *results of social (collective) activity* in the course of long-term iterative process. Marxian dialectics showed the interdependence between public conscience, social practices and conditions in which people live (Тесля А., Тесля Е., 2007). So both conscious human actions and the material “surrounding” factors are reflected in the results of social activity.

To what extent is Marxian methodology developed further by the followers of the Marxian economic school? Let us review only one sphere of this research and in particular the study of institutions. Surely it is hard to talk about the unity of Marx’s economic theory – it is huge and inherently not uniform<sup>3</sup>. The assumptions that still unite Marxists and make them different from the representatives of other schools are, in our opinion, the following.

*First* is the historical materialism based on the assumption of the material conditionality of economic development including the building of institutions. *Secondly*, the generic feature is the critical attitude towards the institutions of the modern market economy («capitalistic economy» if one follows Marx’s terminology). This is why Marxists underline the historically changing nature of the relevant institutions, their “non-uniformity” which is different from the representatives of Neoclassical and Austrian schools for whom the exchange relations (that of the market economy) have universal and historically “eternal” nature. Because of their criticism of the modern society (see e.g. O’Hara, 2000) the institutionalists of the Marxian school are called “radical institutionalists». *Third*, the study of the ownership nature and related peculiarities of the social structure continues to be the focus of the institutional research for modern Marxists as it was true for K. Marx himself.

In 2006 scientists of Marxian school from different countries started the International Initiative for Promoting Political Economy ([www.iippe.org](http://www.iippe.org)) to promote the positions of the Marxian political economy. This Initiative includes the group that studies institutions (Political Economy of Institutions Working Group), in co-operation with organizations that develop “old institutionalism” (European Association for Evolutionary Political Economy, Association for Evolutionary Economics, Association for Institutional Thought), as well as with organizations that unite “new institutionalists” (International Society for New Institutional Economics).

Recently the institutions in the countries in transition and different historical and cultural features started to be reviewed within the Marxian school. Shifting the focus of analysis from “traditional capitalism” countries to these countries is related to the fact that processes in the

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<sup>3</sup> We can judge about non-uniformity of Marxism using the following facts: for example some Marxists take the labor theory of value from Marx’s economic theory and develop it (as P. Sraffa), when others try to combine Marxism with the marginal utility theory (as Austro-Marxists K. Renner, O. Bauer, O. Neurath and others). In the USSR Marxism was presented as political economy of socialism became a part of the official communist ideology that supported the firmness of the socialistic regime. At the same time in the Latin America countries Marxism served as ideological basis for the social revolutions etc.

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countries in transition can be hardly described using the terms of "American institutionalism" – this is how Marxian institutionalists call neo-institutionalism<sup>4</sup>.

We should state that the financial-economical crisis of 2008 intensified disappointment of some of the economists and politicians concerning the ideas of the free market and possibilities of neoclassical theory. In this situation Marx's ideas attract more attention. Inherent to Marx's approach criticism of the capitalistic system and reference to its instability became especially actual as the world crisis broke. The analysis of how often Marx was referred to during financial crisis discussions in mass-media proves that during only one year of crisis the frequency of these references has increased more than twice compared to 25 years preceded the crisis! This data taken from the work of A. Oleinik (2010, ch. 9.) is shown in the table 1.

Table 1: Frequency of joint occurrence of references to Marx and word phrases "financial crisis" in world and American English language press (in one and the same paragraph of the text)

Period	Key words
	Marx/marx...*
8.10.2007 – 8.10.2008	61/88
Starting from 1980s up to October 8 2007	24/74

Source: Lexis Nexis Academic

\*words were counted if they had other letters or combination of letters after "marx-", i.e. Marxian, Marxism etc.

So, we should probably expect an increase of popularity of Marxian school of economic thought, which for many years remained at the periphery of the economic theory.

As for Marxian ideas in Russia, we have to admit, that after the fall of the Soviet Union, Marxism as the official ideology and the trend of economic thought almost disappeared. In the 1990s, courses on Marxist political economy in all universities of the country were replaced by courses on economics. In recent years, a revival of Marxism has gradually begun (independent courses in some Russian universities, for instance, in St. Petersburg – "The Place for Marxism in the Contemporary World" is an example). It sounds strange but in contemporary Russia, Marxism appears to be less widespread than in world and western economic sciences.

In economic scientific research in Russia, the application of Marxist ideas goes in two principal directions. First, Marxist ideas are used to criticize modern capitalism and to show its unacceptability for Russia (Buzgalin, Kolganov, 2003). Secondly, new concepts are being constructed using Marxist methods of analysis and substantive provisions are being developed on the basis of achievements in modern economic thought. Such an attempt, namely, the institutional matrices theory will be presented below in section 4.

### 3. System paradigm in economic theory

Other important reason (after school of economic thought) that defines the difference of opinions among economists-theorists is the fact that scientists follow the specific *paradigms* when they do their research, in addition to those of scientific schools. To our opinion *paradigm* has a broader meaning that exceeds the scope of economic theory, in which we include the above mentioned schools.

<sup>4</sup> See [http://www.iippe.org/wiki/Political\\_Economy\\_of\\_Institutions\\_Working\\_Group](http://www.iippe.org/wiki/Political_Economy_of_Institutions_Working_Group). Today's "confrontation" of Marx and US economic concepts is different from the situation in 1851-1862 when Marx published a regular column in «New York Daily Tribune» (paper of the Republican Party headed by Lincoln), and exchanged with them polite letters (about this: Райнерт, 2011, p. 39-40).

Indeed, the fact that an economist belongs to the specific scientific school defines primarily a set of his/her qualification professional knowledge, notion and terminology system related to the specific perspective of economic research, character of scientific communications and association with the specific set of appropriate scientific literature.

Differently, the paradigm is understood not a specific to a field of science but science as a whole or a wide set of sciences. The notion of a paradigm established in the methodology of science by T.S. Kuhn (1975) is more fundamental and implies a principal vision of the universe and general philosophic values, character of symbolic generalizations, similar concepts and problem solving templates. The adoption of one or another paradigm characterizes the economist not as specialist or professional in the specific subject matter but as a scientist in a general sense, it demonstrates particularities of his/her scientific vision no matter which school of economic thought he/she follows.

We suppose that the major paradigms specific for social and humanitarian sciences include anthropocentric, evolutionary and system paradigms<sup>5</sup> (for details see Кирдина, 2012). Let's note that they are not separated by strict impermeable boundaries. Since they have developed sequentially we may sometime speak that previous paradigm is nested into the following, more encompassing one. Nevertheless they have distinctive features in application to the economic theory, and these features are discussed below.

*The anthropocentric paradigm* appeared before others, it reflects the perception of economics as "a science of individuals' behavior". The concepts of an anthropocentric character exist not only in the social but also in the natural sciences<sup>6</sup>. In the social sciences and economics as well the anthropocentric paradigm manifests itself in the assumption that the individual's self-dependency is an outcome of free choice and responsible action lies at the origin of concepts being developed on its basis. Priority of an individual over interests of any community and inalienability of natural rights of an individual also forms the core of the anthropocentric paradigm (Новая философская энциклопедия, 2000, p. 142) in economics. Liberal and individual values are accepted as main values, and the main methodology principle is considered to be "the principle of methodological individualism". The society structured by institutions as the rules of human interaction is considered as an aggregate of multiple individuals. The main economic institution of the society is the institution of exchange. Institutions are created by people and are presented as individuals' deliberate or spontaneous behavior.

The following *evolutionary paradigm*, formed as a system of views later (based on C. Darwin' works), considers economic development process as a non-equilibrium process, in which instead of individuals economic agent populations and evolutionary laws act: heredity, mutation, and natural selection. That in turn assumes the agents diversity and competition for resources are necessary. The consequences of the natural selection law are adaptation to the environment, survival of the strongest, and transition of survival features in population, although mutations happen. Economic institutions as money, e.g., are results of such kind of process (Menger, 1982).

Now, let's discuss the *system paradigm*. While the evolutionary paradigm was established before the twentieth century<sup>7</sup>, the system paradigm has been developed and widely accepted in the second half of the twentieth century.

Let us consider the most general features of the system paradigm which appear in economic researches. They are described in the well-known study by J. Kornai (1998, 2002):

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<sup>5</sup> We do not separate here self-organizational synergetic paradigm which is being established last decades (see work of Prigozhine, Stengers, 1984) as extension of system paradigm, we suppose.

<sup>6</sup> For example, the anthropic principle is one of fundamental principles of contemporary cosmology (Новая философская энциклопедия, p. 131 [New Philosophic encyclopedia, Vol. 1, Moscow, Mysl]).

<sup>7</sup> While Darwin's Theory of Evolution is a relatively young archetype, the evolutionary worldview itself is, nevertheless, as old as antiquity (remember ancient Greek philosopher Anaximander).

- The social system is considered as a whole. Interrelations between the whole and its parts are the subject of analysis;
- Research has an integral character and can't be assigned to any specific field of science (economics, sociology, political science). Special attention is paid to the interaction of different areas of society functioning;
- The research focuses on the institutions that define the framework and flow of specific processes. Institutions are understood in a broad sense as structures formed historically and developed evolutionary<sup>8</sup>;
- There is a close connection in understanding of the current social organization and of the historical process in which it appeared;
- The main attention is paid to major changes and deep transformations, not to small constant changes;
- It is stated that system "dysfunctions" are inherent, are built in the system, they may be compensated but not eliminated since their self-reproducibility is deeply rooted in the system itself;
- Comparison is a typical method within the system paradigm. It is conducted mostly on the qualitative level.

Kornai presented the list of authors, who, from his point of view, implemented the system paradigm in economic studies. The list includes K. Marx, the founder of Marxist school in economics, members of Austrian (neo-Austrian) school as J.A. Schumpeter, L. von Mises and F. von Hayek, as well as V. Eucken and K. Polanyi. Among contemporary scientists following this trend Mr. J. Kornai also included himself.

Most of those who work in the framework of this paradigm have studies that go beyond the pure economic theory and analyze links between economic relations and general changes in social life (for example, "Capitalism, Socialism, and Democracy" by J. Schumpeter, "Great Transformation" by K. Polanyi etc.).

The formation of the system paradigm shows the need for systemic theories that have the status of scientific ontology (paradigms, "solid cores" of research programs). In the middle of the last century Schumpeter wrote that "Our time revolts against the inexorable necessity of specialization and therefore cries out for synthesis, nowhere so loudly as in the social sciences..." (Schumpeter, 1951, p. 56). Empirical generalizations in economics become more and more fragmentary, as well from the growing number of particular theories do not allow to solve problems of analyzing and comparing "big economies" over prolonged historical periods. Up to now contemporary economists have not yet created theories of this kind, widely accepted by public and scientists, and that leaves the prospective of system paradigm in economic research open.

The system paradigm according to its description includes evolutionary elements<sup>9</sup>, but it is wider than the evolutionary paradigm. While the evolutionary paradigm focuses on the behavior of economic agents, the system paradigm focuses on the features and dynamics of the economic system in the context of the society as a whole.

The followers of Marxian school of economic thought conduct their research within the framework of different scientific paradigms. As for the representation of Marxian school in anthropocentric paradigm it seems to be "empty box" because anthropocentrism is methodologically opposed to socio-centrism that was typical for Karl Marx and his followers<sup>10</sup>. Nevertheless we

<sup>8</sup> Kornai outlined specially the similarity of the system paradigm and neo-institutional theory in that respect, while making the point of their differences in other areas (Kornai, 1998, 2002, p. 10).

<sup>9</sup> Particularly it explains the fact that in some works Friedrich von Hayek and Ludvig von Mises (referred by Kornai as representatives of system paradigm) stress the "accent on evolutionary approach" that is typical for these representatives of new Austrian school (see: *История экономической мысли*, 2001, chapter 42).

<sup>10</sup> It is evident in Marx's study of socioeconomic formation as "a society at a definite stage of historical development" whereas an individual is understood as "personal element of productive forces".

know "analytical Marxism". Its representatives (E.O. Wright, G. Cohen, J. Elster, J. Roemer etc.) denied methodological holism and dialectics of Marx but tried to keep several Marx's categories and at the same time to use the neoclassical methodology (mathematical methods, game theory, etc.). Also analytical Marxists accentuate the intentional activity of individuals that is described as "Rational Choice Marxism" (Gintis, 1987). But this school worked actively for quite a short period of time in 1980-1990 years (Wright, 2007; Хаиткулов, 2009).

And what about the *evolutionary paradigm* and Marxian school of economic thought? One of the founders of institutionalism T. Veblen, who was probably the first one to apply the evolutionary theory categories to economics (Veblen, 1898), is not so far from Marxian school we suppose<sup>11</sup>. It is known that T. Veblen was very respectful towards Marx, though he did not agree with him on every point, especially about the question of labor theory of value. But Veblen as well as Marx emphasized technological factors in the evolution of institutions, viewed institutions' development as a natural historical process (revolutions being the part of it). Also both Veblen and Marx admitted that group (collective and class) characteristics are more important than individual (in contrast to Neoclassical and Austrian schools) for the analysis of social economic phenomena.

We also consider C. Freeman and C. Perez, well-known researchers of cycles of economic development who developed further the "Another Canon" as the representatives of Marxian school of economic thought working in the evolutionary paradigm.

Most interesting for us are economic studies within the system paradigm in Marxian school of economic thought. In modern Russia we can see a new wave of such topics. This is a feature of Russian economic thought, wherein evolutionary and institutional research investigations jointly form the basis for a Renaissance in the system paradigm of economic research with a dynamic and self-organizational vision.

First of all, Georg Kleyner (the Central Economic Mathematical Institute of the Russian Academy of Sciences, Moscow) develops his new theory of economic systems as an alternative to both neoclassical and neo-institutional evolutionary mainstream. From his point of view, "according to a system paradigm, the functioning of an economy, i.e., the realization of the processes of production, distribution, exchange, and consumption of material and nonmaterial goods, is viewed through the prism of creation, interaction, transformation, and liquidation of *economic systems*. The principle of methodological individualism, basic to the neoclassical paradigm, gives way to the principle of methodological systematic, basic to the system paradigm. This means that the main actors in economics will not be independent (and spatially separated from one another) individuals, but only relatively independent (possibly overlapping spatially) economic systems" (Kleyner, 2009, p. 4).

Marxian economic school and system paradigm were represented also in research of the Novosibirsk economic-sociological school (Davydova, 1997), or NESS<sup>12</sup>. In 1970-1980s not only canonical - for the soviet social science scholars - Marxian tradition but systemic approach as well was a main methodology for Novosibirsk sociologists (Социальная траектория..., 1999, chapters 3, 4). On the eve of perestroika in 1983 a founder of NESS Tatyana Zaslavskaya prepared the report "About the perfection of socialist relations of production and problems of economic sociology" (later it became known as the Novosibirsk Report in the West and was often considered one of the first signs of perestroika). "Although expressed in terms of Marxist theory, this paper - an outline of a proposed research project to study the social mechanisms of economic development... - was sharply critical of current conditions" (Zaslavskaya, 1990, p. xii-xiii). In the 1980-1990s the social mechanism of economic performance became the main subject of the analysis for the NESS team and Marxian-cum-systemic methodology prevailed. Many of us were

<sup>11</sup>This point of view contrasts with W. M. Duggar - H. J. Sherman (2000)'s vision. These authors believe that approaches of Thorstein Veblen and Karl Marx to social evolution are both radical, but very different and contradict each other.

<sup>12</sup>The flourishing of NESS activity was in a Soviet period of 1970-1990s.



fascinated by these studies and ideas. Later they served as a starting point to build our own concepts. The institutional matrices theory is one of them.

#### 4. Institutional Matrices Theory (IMT), or X- and Y-theory

"The perception of the object under study in the various scientific and theoretical approaches depends strongly on the researcher's theoretical and methodological background. For example, socio-economists and economic sociologists use different approaches toward the *analysis of economic phenomena, including those associated with the institutional topics*: the former develop an approach based on a synthesis of the elements of economic theory and sociology, while the latter use purely sociological approaches" (Yerznkyan, 2012, p. 29). In our case we apply a socio-economic approach with its attempt to synthesize theoretical ideas from economic and sociological sciences.

A list of main "predecessors" whose economic and sociological ideas are important for the institutional matrices theory (IMT) can be drawn in the following manner:

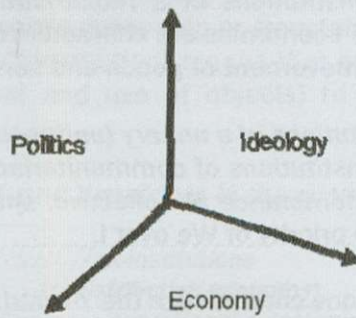
- August Comte (1798-1857, French philosopher and social theorist) - "*progress as the development of order*"
- Karl Marx (1818-1883, German philosopher, sociologist, economist) - a materialist concept of history, a systemic (sociological and political economic) approach
- Emile Durkheim (1858-1917, French sociologist) - sociology as a science of institutions and the concept of a *sui generis* society
- State School in Russian historiography (second half of the 19<sup>th</sup> century - B. Chicherin, A. Gradovski, M. Vladimirski-Budanov etc) - the explanation of the state's leading role in Russian history on the basis of natural conditions and the counterpoising of Russian history with the history of Western Europe
- Pitirim Sorokin (1889-1968, Russian-American sociologist) - the idea of distinction between social and cultural systems
- Talcott Parsons (1902-1979, American sociologist) - structural functionalism
- Tatyana Zaslavskaya (born 1927, Russian sociologist) - the idea of the "institutional core" for the social mechanism of economic performance
- Karl Polanyi (1886-1964, Hungarian intellectual, forced to flee to Austria, USA and Canada) - economic anthropology and the concept of redistributive economy
- Douglass North (born 1920, USA, Economics Nobel Laureate "for having renewed research in economic history") - he coined the 'institutional matrix' term
- Harvey Leibenstein (1922-1994, Ukrainian-born American economist) - he was first to use the idea of X-efficiency
- Olga Bessonova (born 1958, Russian sociologist) - the economic "razdatok" theory
- Alexander Akhiezer (1929-2007, Russian culturologist) - the concept of socio-cultural evolution.

Based on the above-mentioned ideas, we elaborated a model of human society as a social system structured along three axes: *economy, politics* and *ideology* (see Fig. 1). These value spheres are strongly interrelated morphologically as parts or sides or components of a whole.

Thus, social relations forming the inherent structure of such social system include the following:

- economic interrelations related to resources used for the reproduction of social entities;
- political, i.e. regular and organized social actions to achieve the defined objectives; and
- ideological interrelations embodying important social ideas and values.

Fig. 1: The main projections of society as a whole

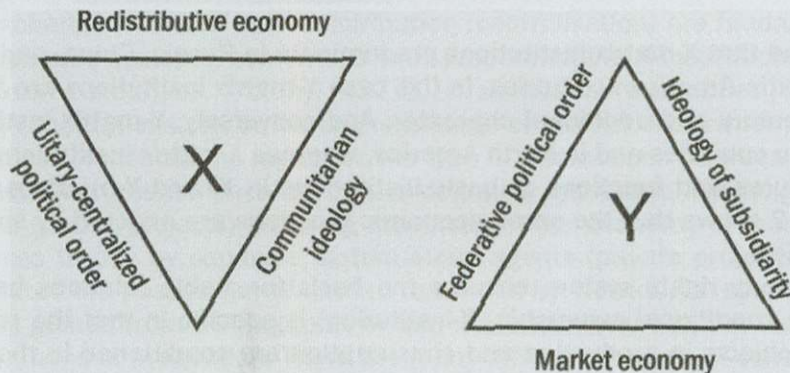


Each sphere is regulated by a corresponding set of basic institutions. Institutions permanently reproduce the staples of social relations in different civilizations and historical periods. Basic institutions integrate a society into one 'whole' that is developing, sometimes with conflicts and at other times with harmony, sometimes with competition and at other times with cooperation.

Institutions have a dual character: they are objectively determined and humanly made at the same time. On the one hand, institutions manifest self-organizational principles in a society as a co-extensive natural-social system. On the other hand, institutions are the result of purposeful human reflection with regard to relevant laws and rules; they emerge and are shaped as 'human-made' entities. As T. Veblen wrote "... Social institutions have not only the result of selection and adaptation process, shaping the prevailing and dominant types of relationships and spiritual position, at the same time they are special modes of the existence of a society, form a special system of social relations and, hence, in turn, are an effective selective factor (Веблен, 1984, p. 200).

Aggregations of interrelated basic economic, political and ideological institutions are defined as *institutional matrices*. Historical observations and empirical research as well as mathematical modelling and a broad philosophical approach constitute a ground for our hypothesis about two particular interdependent types of institutional matrices existing around the world. Namely, we call the two types X-matrices and Y-matrices and compare the unique identities of each one in relation to the other. These matrices differ in function of the set of basic institutions forming them (see Fig. 2).

Fig. 2: Institutional X- and Y- matrices



The X-matrix is characterized by the following basic institutions:

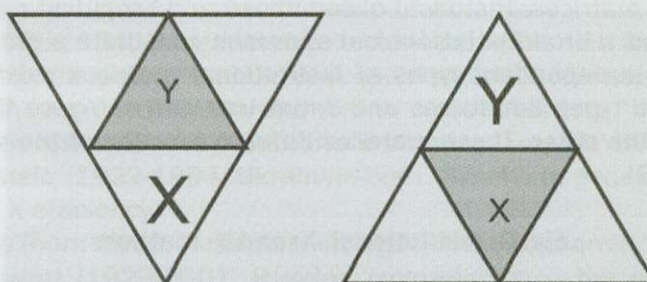
- in the economic sphere: *institutions of a redistributive economy* (term introduced by Karl Polanyi). Redistributive economies are characterized by the situation when the center (on the top!) regulates the movement of goods and services, as well as the rights for their production and use;
- in the political sphere: *institutions of a unitary (unitary-centralized) political order*;
- in the ideological sphere: *institutions of communitarian ideology*, the essence of which is expressed by the idea of dominance of collective, shared, public values over individual, sovereign, private ones, the priority of We over I.

- The following basic institutions characterize the Y-matrix:

- in the economic sphere: *institutions of a market economy*;
- in the political sphere: *institutions of a federative (federative-subsidary) political order*;
- in the ideological sphere: *institutions of a individualistic (or subsidiary) ideology*, which proclaims the dominance of individual values over the values of larger communities, bearing a subordinate character to groups and the personality, i.e. the priority of I over We.

In real-life societies and nations, X- and Y-matrices interact, with one of them permanently prevailing. Nevertheless, the matrices are not entirely exclusive of each other, given that both X- and Y-matrices co-exist concurrently in any given case. In other words, the social structure of any society can be singled out as a dynamic binary-conjugate structure of these two interacting, yet alternative institutional complexes. The domination of one of the matrices over the other is usually constant in the course of history. The dominant institutions of the prevailing matrix therefore serve as a performance framework for complementary institutions from the other matrix (see Fig. 3).

Fig. 3: Combinations of dominant and complementary institutional matrices



We contend that X-matrix institutions predominate in Russia, China, and India, along with most Asian and Latin American countries. In this case Y-matrix institutions are "a must" but they have a complementary and additional character. And conversely, Y-matrix institutions prevail in the most European countries and in North America, whereas X-matrix institutions are additional.

The structures and functions of basic institutions in X- and Y-matrices are presented in Tables 2-4. Table 2 shows that the same economic functions are enacted by specific institutions in different matrices.

The property rights system ensures the basis for stable relations between economic agents. *Supreme conditional ownership* (X-institution) is specific in that the rules of access for the use of some objects in production and consumption are conditioned in the end by the 'supreme' (which in Russian means 'from above') level of economic hierarchy. These rules change over time and depend on external circumstances. The supreme hierarchical level of governance determines the rights of access in accordance with the public role and importance of given reso-

urces at each historical moment. If the objects belonging to any economic agent do not assure an essential contribution to total productivity or if they are not used for public benefit, then they can be legally seized and returned to public ownership or transferred to other productive 'social economic' agents. *Private ownership* (Y-institution) means that society sanctions all property rights (including the possession, disposal and use of objects) to individual or collective economic agents.

Table 2: Institutions of X- and Y-matrices in the economy and their functions

<i>Functions of institutions</i>	<i>X-institutions (redistributive economy)</i>	<i>Y-institutions (market economy)</i>
Regulating access to goods (property rights system)	Supreme conditional ownership	Private ownership
Transfer of goods	Redistribution (accumulation- coordination-distribution)	Exchange (buying-selling)
Interactions between economic agents	Cooperation	Competition
Labor system	Employment (unlimited term) labor	Hired (short and medium term) labor
Feed-back loops (effectiveness indices)	Cost limitation (X-efficiency)	Profit maximization (Y- efficiency)

The transfer of goods within a respective property rights framework is regulated by redistribution or exchange. *Redistribution* (X-institution) in Polanyi's sense of the term, describes the transfer process of material goods and services (and also property rights) not between entirely independent agents, but between agents and the center as their mediator. Historically, redistribution emerges in nations where the majority of economic agents depend on significant common resources (e.g. water, fertile land, rivers, roads, staple goods, etc). In such cases, it is necessary to coordinate transactions not only between autonomous interactive agents, but also between dependent economic agents that can be involved explicitly or implicitly. The motivation to minimize transaction costs leads to the creation of one special 'supreme' center responsible for institutional coordination. All necessary information is accumulated in this center on the top, which the agents access. Appropriate resources are also concentrated in this center to support its coordinative functions. *Exchange* (Y-institution) means horizontal interactions between independent economic agents, primarily with the goal of gaining profit in a market economy. As Schumpeter wrote, "As far as it goes about market economy, for fundamental theory it makes no difference what kind of market economy it is: a system of primitive exchange between hunters and fishermen or a complex organism that we can see today" (Schumpeter, 1926, s. 74).

Since exchange (market) and redistribution (centralisation) are fundamental peculiarities of different economic systems, economies with predominating X-institutions can be rightfully named '*redistributive economies*' (Polanyi, 1977), or '*centralised economies*', whereas economies with prevailing Y-institutions can be named '*exchange or market economies*'.

The next set of institutions regulates the type of interactions between economic agents. *Cooperation* (X-institution) establishes itself as a definitive institution if joining economic actors for common tasks (public projects) involving resources in the economy is more productive than restricting resources to use by separate, autonomous agents (private projects). *Competition* (Y-institution) stimulates the possession of limited resources by individuals (economic actors) when personal benefit is gained from owning (part of the) material resources, the technological environment and other means of production. There are many different models of competition in market economies, for instance "*monopolistic competition*" (Chamberlin, 1956) or "*imperfect competition*" (Robinson, 1933), etc.

Which institutions regulate the labour relations in X- and Y-economic systems? *Employment (unlimited term) labour* X-institution means the necessity of obligatory employment

and forming public guarantees to attract the able-bodied population to work. The Japanese phenomenon of "lifelong hiring", for example, reflects this type of institution. Thus, the sphere of work also displays the laws of redistributing manpower (human resources), as K. Polanyi noted (Polanyi, 1977, p. 36). The essence of *Hired (short and medium term) labour* Y-institution is that labour relations are mainly in the sphere of mutual relations between the employer and the worker and tend toward hiring for a certain limited time according to a contract. "Normal" unemployment is a necessary attribute of such a system of labour relations. In the sphere of work, as Karl Marx wrote, labour-power becomes a commodity that is bought and sold on the market.

Those institutions that function with feed-back loops also perform a role in economic systems. Without competition, the efficiency of a redistributive economy can be achieved only with regulated cost limitations in each segment and in the economy as a whole. H. Leibenstein (1966, 1978) called this phenomenon "X-efficiency". Restraint on costs is carried out by means of normalizing expenses, price controls, tariffs and other measures with the purpose of raising overall economic efficiency. In contrast to *X-efficiency (Cost limitation)*, institutions in X-matrix institutions serve as feedback to the Y-matrix, namely via *Y-efficiency (Profit maximization)* institutions. These institutions identify the priority of profitability, or growing producer and consumer surpluses.

The basic political institutions in the X- and Y-matrices are presented in Table 3. X-political order represents a top-down model of society, while Y-political order characterizes a bottom-up model.

Table 3: Institutions of X- and Y-matrices in politics and their functions

<i>Functions of institutions</i>	<i>X-institutions (unitary political order)</i>	<i>Y-institutions (federative political order)</i>
Territorial administrative organization of the state	Administrative system (unitarity)	Federative structure (federation)
Governance system (decision making)	Vertical hierarchical authority with Center on the top	Self-government and subsidiary
Type of interaction in the order of decision making	General assembly with the rule of unanimity	Multi-party system with the rule of democratic majority
Access to governing positions	Appointment	Election
Feed-back loops	Appeals to higher levels of hierarchical authority	Legal suits

Territorial administrative organization of the nation-state is regulated by an *Administrative system (unitarity) institution* in X-matrices and a *Federative structure institution* in Y-matrices. The governance system, or flow of decision making is represented by a *Vertical hierarchical authority with a Center on the top* in X-matrices and *Self-government with subsidiarity* in Y-matrices. Types of interaction in the order of decision making in X-matrices are *General assembly system with the rule of unanimity* and a *Multi-party system with the rule of democratic majority* for Y-matrix respectively. Access to governing positions can be carried out by *Appointment* as X-institution or *Election* as Y-institution. Finally, we can indicate different institutions for the ongoing process of institutional development, namely feed-back mechanism. This takes place either by *Appeals to higher levels of hierarchical authority* for X-matrices or with *Legal suits* for Y-matrices.

The ideological institutions express social consensus on the main rules and norms of social actions and indicate what is deemed to be fair and just in mass opinion (Table 4).

Table 4: Institutions of X- and Y-matrices in ideology and their functions

<i>Functions of institutions</i>	<i>X-institutions (communitarian ideology)</i>	<i>Y-institutions (individualistic ideology, subsidiary ideology)</i>
Core principle of social actions	Collectivism	Individualism
Normative understanding of social structure	Egalitarianism	Stratification
Prevailing social values	Order	Freedom
Labor attitudes	Well-being-oriented	Pecuniary-oriented
Principles of common thinking	Generalization-Integralism/Holism	Specialization-Atomization/Mereism

X-institutions of communitarian ideology are *Collectivism* as a core principle for social actions, *Egalitarianism* as normative understanding of social structure, *An order* as one of prevailing social values, *Well-being oriented* labor attitudes and *Generalization/ Integralism/Holism* as principles of common thinking and ideas about the essence of society. Respectively, a complex of Y-institutions of subsidiary ideology includes *Individualism, Stratification, Freedom, Pecuniary-oriented* labor attitudes and *Specialization/ Atomization/Mereism*. All economic, political and ideological X- and Y-institutions coexist in different combinations and are embodied in many institutional forms. Thus, though we are outlining the general features of X- and Y-matrix institutions, in real-life situations the extreme cases are never fully demonstrated this way. Normal functioning of X- and Y-matrices requires an appropriate institutional balance with all morphologically interconnected institutions.

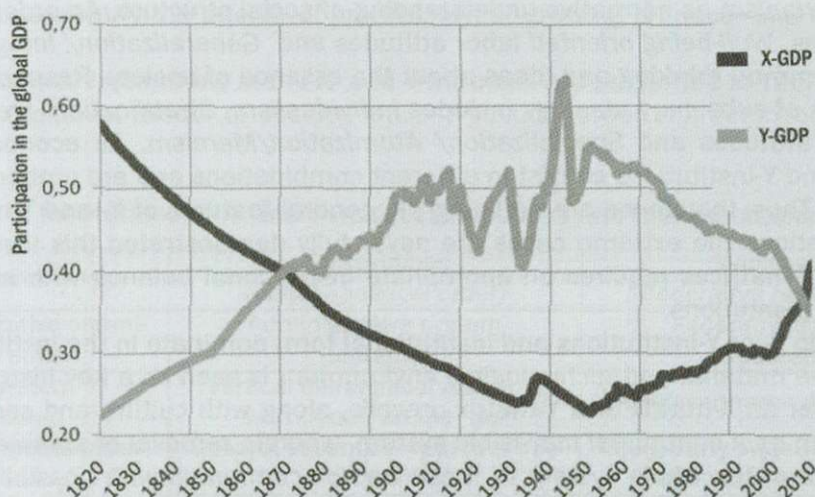
Why do X- or Y-institutions and institutional form dominate in the institutional structures of societies? The material and technological environment is seen as a key historical determinant of whether either an X-matrix or a Y-matrix prevails, along with culture and social actions<sup>13</sup>. The environment can be a *communal* indivisible system, wherein removal of some elements can lead to disintegration of the whole system or it can be *non-communal* with possibilities of functional technological dissociation (Bessonova et al., 1996, pp. 17-18). The institutional content of a nation developing within a communal environment is determined by the tasks of coordinating joint efforts towards effective use. Thus, X-matrices are formed under communal conditions. A non-communal environment is divisible into separate, disconnected elements; it is able to disperse and can exist as an aggregate of dissociated, independent technological objects. In this case, an individual or groups of people (e.g. families) can involve parts of the non-communal environment in their economy, maintain their effectiveness, and use the obtained results on their own, without cooperating with other members of the society. If this is the case, the main function of such formed social institutions is to assure an interaction between the atomized economic and social agents. Y-matrix institutions are thus shaped in a non-communal environment. To be more accurate, in a communal environment X-matrix institutions are dominant and Y-matrix institutions are complementary. In a non-communal environment the institutional situation is *vice versa*.

The ratio of dominant and complementary institutions is defined by the changing conditions of social-economic development. On one extreme, there is a totality of dominant institutions without conscious implementation of complementary institutions. This tends to result in collapse (e.g. USSR's breakdown in the '80s and '90s) or in a social and economic crisis (e.g. the U.S.'s

<sup>13</sup> The role of culture for economic development is investigated in work on civilization approach (see e.g. Steven Rosefielde (2002, 2005, 2008). Social and collective actions as a factor of institutional change are a subject for neo-institutional studies. In our research these factors are not investigated.

recent '07-'09 recession). The opposite extreme implies the attempt to replace historically dominant institutions with complementary ones. This move leads to revolutions through reconstructing dominant institutions into new forms (e.g. the French Revolution as a reaction to economic and political centralization and, alternatively, the Russian October Revolution as an outcome of an attempt at "building capitalism") or unsustainable socio-economic development (e.g. some Latin American countries). The main task of social and economic policy in each country is to support the optimal combination (proportional balance) of predominant and complementary institutions. For example, the economic policy has to find the best proportion between market and redistributive institutions as well as forms of their modernization (Kirdina, 2003). People and authorities can activity help to achieve this balance faster and more efficiently than just letting history take its course. The comparative role of nations with X- or Y-matrix prevailing in the world change cyclically (see Fig. 4).

Figure 4: Proportion of GDP produced by countries with a prevailing X- and Y-matrix, 1820-2010 (Search: Maddison Data Base, <http://www.ggdc.net/MADDISON/oriindex.htm> a sample of 34 nations~75% of World GDP)



Maddison Database was used to calculate GDP levels for nations with a prevailing X-matrix (China, India, Japan, Brazil and former USSR countries) and Y-matrix (Western Europe-12 including Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Sweden, Switzerland and United Kingdom, and Western Offshoots including Australia, New Zealand, Canada and United States). A sample for analysis includes 34 nations (~75% of World GDP) data of which were affordable for the period of time 1820-2010.

We can see over 140 years a long wave with a switching GDP leader. From 1820 (and before) to 1870 more GDP was produced in countries with a prevailing X-matrix. Since 1868-70 the role of countries with Y-matrix is increasing, and after 1870 they produce more GDP. The maximum spread between shares of Y-matrix and X-matrix countries took place in 1950-65. But since 1970s the dominance of Y-matrix countries gradually decreases; since 2008 the share of X-matrix countries again prevails and keeps growing (we know forecast for BRICS-countries).

Coming back to the institutional matrices theory, it may be regarded as being more influenced by Marxian school and at the same time it develops the institutionalist' approach of the Novosibirsk economic-sociological school in Russia. We know that some authors try to reconcile institutionalism and Marxism (O'Hara, 2000,) and others illuminate some fundamental differences of analysis and outlook between these doctrines (Duggar and Sherman, 2000; Hodgson, 2006). In case of IMT we can see common philosophical and methodological premises shared by it and Marxian school of economic thought and elaborated as well (Table 5).

Table 5: Marxian School of Economic Thought and the Institutional matrices theory (IMT)

Common assumptions shared by Marx and IMT	Elaboration/updating of common assumptions	
	According to Marx	According to IMT
Society is considered as a social system of interacting economy, politics and ideology.	"Economic determinism" (primacy to the economic structure over politics and others in the development of human history)	Economy, politics and ideology are morphologically interconnected, they are of equal importance
Social system is studied as a set of structured relations. "In Marxism, the supreme analytical work is done by the structure" (Hodgson 2006:66). Structures, not individuals, are the main focus of analysis.	Key economic institutions and ideology are the subject of analysis.	Sets of economic, political and ideological institutions are the subject of analysis.
Two alternative types of social systems are marked – European society and the so called Asiatic mode of production (or Western and Eastern societies).	Structures of the European social and economic system were analyzed in details, not the Asiatic mode of production.	Two types of institutional matrices (X- or "Eastern" and Y- or "Western") and their institutions are analyzed on equal footing.
The important role of techno-logical change for social relations "The forms of conditions of production are the fundamental determinant of social structures which in turn breed attitudes, actions, and civilizations", Schumpeter p. 13, Epy.	The prevailing stage of technology is key factor for given social order and the mode of production (the 'hand-mill' creates feudal, and the 'steam-mill', capitalist societies).	Two types of material and technological environment (communal and non-communal) are analyzed as key factors for prevailing institutional X- or Y-matrices.
The recognition of historical specificity and historical dialectic.	European history is presented as a process of the mode of production change.	History of societies with prevailing X-matrix (Russia, China, etc) and Y-matrix (European countries) is presented as a process of institutional modernization.
Two types of alternative institutional (economic) structures are considered, e.g. capitalistic type with private property and socialistic type with common property (Marx) or societies with the prevailing of X- or Y-matrix (economic) institutions (the IMT).	Any kind of mixed economies, in which alternative institutions of property (and others), are combined, are impossible. It is a struggle between them, and only one type of institutions could be "a winner".	Institutions of the X- and Y-matrices co-exist. All societies and economies have a mixed institutional structure. To support an appropriate proportion between dominant and complimentary institutions is the important task of social and economic policy.
The importance of disequilibrium, chaos and complexity of social systems and recognition of crises and social revolutions are acknowledged.	Revolutions change the mode of production and social type of society <sup>14</sup>	Revolutions update the institutional structures but do not change the prevailing position of the dominant matrix.

Like Marx's economic doctrine IMT is built as a systemic social theory, which means recognizing the role of technological change and environment for economic development, including the building of 'human-made' institutions. Sharing most of presumptions of Marx's economic doctrine, accepting his analytical schemes, IMT updates and elaborates them in an attempt to

<sup>14</sup> In fairness, it should be noted that Marx, as Schumpeter wrote, "was much too strongly imbued with a sense of the inherent logic of things social to believe that revolution can replace any part of the work of evolution...it only comes in order to write the conclusion under a complete set of premises" (Schumpeter, 1951:72).



better understand our dynamic and complex global world. It helps by using IMT in different spheres, including post-socialist transition in Russia and East-European countries.

##### 5. Post-socialist transition from IMT point of view: instead of Conclusion

Even in 1994 in his book "Whither Socialism?" Stiglitz (1994, p. 277) wrote: "*being economists, we are called upon to analyze various proposed measures to change economic policy and institutions. Now we have more sophisticated analysis tools, and so we are better prepared, in respect of any proposed change to ask: "What are consequences?" Using the terminology of evolution, we can ask: "What is the probability of surviving these changes?" We are even able to do social engineering, and ask whether we can establish such institutions or develop reforms...*". The final section of the article is largely devoted to proposing some answers to such questions. We try to explain different consequences of post-socialist transformation in East-Europe and Russia and to understand the probability of surviving these changes from the institutional matrices theory's point of view<sup>15</sup>.

The post-socialist transition was a "real life experiment" to check whether it is true that "an institutional system can be partially or completely destroyed and then reconstructed", as B. Yerznkyan (2012, p. 39) wrote, or not?

From IMT perspective, transformation processes in the countries of Eastern Europe and Russia were both similar, and different. On the one hand, our states undergo the same process of an intensive introduction of institutional forms specific to the Y-matrix institutions, i.e. market economy, federative political system and individual freedom values as the main public idea. It was an attempt to go from "socialist experiment of institutional monism" to neo-liberal institutional monism (Draskovic, Draskovic, 2012, p. 121). Moreover, our states have the same goals - those of achievement higher indicators of socio-economic development of the nations.

On the other hand, there was a fundamental difference. In the course of their transformation process, East European countries restore the dominant position of these institutions, which corresponds to their Y-type institutional matrix traditionally inherent for them. They return to their previous path of historic development, which had been deformed by the postwar Soviet influence. As for Russia, it - irrespective of its political leaders' preferences - aims, on the one hand, at the renewal, modernization and restitution of the dominant position of the X-institutions historically necessary for the redistribution economy, unitary-centralized state and communitarian ideas; and, on the other hand, it is actively introducing market, federative and subsidiary institutional forms (such as private property, competition, elections, court system etc.) necessary for the institutional balance, and adopting them to the structure of our traditionally dominant X-matrix.

We agree that "institutional synergism (pluralism) is the only real, possible, and proven condition and priority for economic development, based on real (rather than rhetorical) economic freedoms, protected property rights and contracts, entrepreneurship, and healthy market competition" (Draskovic, Draskovic, 2012, p. 132). But proportions of market and redistributive institutions, federative and centralized mechanisms etc. depend not only on features and specific development problems and priorities in different countries but the type of prevailing historically intrinsic institutional matrix as well.

The aim of Russia's policy should be therefore to look the proportion between X- and Y-matrices, developing a successful combination, favouring X-matrix institutions that will help it move forward confidently as a sovereign nation, moving further beyond the shadow of its Soviet past in the 21<sup>st</sup> century. As for Eastern countries, the favour of Y-institutions should be more successful combination.

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<sup>15</sup> It is a big literature on problems of post-socialist transition, see e.g. Arrow K. (2000); Aslund, Boone, Johnson (1996); Berg, Sachs (1992); Blanchard (1997); Blanchard, Dornbush, Krugman, Layard, Summers (1991); Coricelli (1998); Gavrilenkov, Kuboniwa (1997); Kolodko (2005); Lavigne (1995); North (1997, 2000); Popov (2000); Sachs (1989); Welfens (1999) and others. Most of them stress the difference between the process of institutional changes in Europe and "an inexplicable anomaly" in Russia.

This is why paths and results, and future of transformation processes are so different in East European countries and in Russia. However, we hope that economic and political contacts, openness of our societies resulting from globalization, as well as the will of our nations and efforts of our academics will contribute to successful change of the transforming states within the evolution specific to them, determined by the nature of their institutional matrices.

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