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Digital Economy as a Source of Revision of Basic Economic Concepts

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ABSTRACT
The basic tool of mainstream economic analysis is the concept of economic equilibrium. At the same time, an approach is often used within the framework of the concept of an institutional trap or the QWERTY effect. This allows speaking about the non-neutrality of economic theories. The paper considers the phenomenon of the institutional trap as an explanatory principle for the functioning of complex socio-economic structures. The importance of the phenomenon under study in the process of the formation of the digital economy is shown. A mechanism is discussed to explain the possibility of a certain direction in the evolution of complex socio-economic systems, depending on their structure. A number of examples of institutional traps are considered, their characteristic features are analyzed. It is shown that institutional factors determine socio-economic dynamics, including possible economic equilibria. These equilibria are determined by one or another institutional trap. It is proposed to use this approach as an explanatory principle when considering the dynamics of complex socio-economic systems.
Keywords: *institutional trap, innovative development, digitalization, foresight, forecast, high technologies*

1. INTRODUCTION

The development of the digital economy is a symptom, and at the same time one of the reasons for the change in the institutional structure of the economy, or what the ordoliberals call the economic order [1,6,9]. At the same time, one should expect a change in economic theorems, accents, and, possibly, the basic provisions of economic theory.

The converse is also true. There is a dependence of the economic order on our ideas about it. Since the unfinished epoch-making work of J. Schumpeter [18], the non-neutrality of economic theories and concepts, unfortunately, is no longer the subject of serious economic analysis. Perhaps an exception is some, in general, peripheral positions of authors working in the direction of institutional economic analysis, whether they are followers of Euken [9] (ordoliberal direction of economic analysis), individual supporters of the QWERTY effect theory and path dependence theory (depending on the path of previous development) (see, for example, [14]).

At the same time, the dominant economic concepts, according to the authors, in modern conditions are a serious obstacle to innovative development, if this term is understood as institutional changes during the transition to the next technological order [19]. The classical concept of innovation, introduced into economic analysis by Schumpeter as a framework, is understood today as filled with specific content: first of all, digitalization, IT and artificial intelligence; then, genomics, new materials (nanotechnology), etc. - understood as realized inventions [19]. Subsequent authors (see, for example, [16]), showed the inextricable relationship of innovative development with social, structural, and institutional factors. At the same time, the basic paradigm of economic analysis leaves these factors on the periphery, referring them to the category of "other equal conditions" according to Marshall. Thus, it is essential to adapt the economic paradigm, built around the idea of economic equilibrium according to the basic model of the Marshall cross [6].

The basic tool of mainstream economic analysis is the concept of economic equilibrium. The latter contains a number of theoretical and analytical tools designed to provide the explanatory function of the economy. At the same time, economic theories other than the mainstream, such as different directions of institutional analysis, use the same tools, trying to explain with them other, outside the framework of the mainstream, concepts. This is the current fate and the concept of an institutional trap - the most important, according to the authors, a theoretical and economic instrument of the institutional paradigm.

The term "institutional trap" was introduced into the field of Russian economic thought by V.M. Polterovich [12]. At the same time, the latter understood and described the institutional trap as something annoying, as a defect on the body of the economy, without which the economy would function normally. An institutional trap is "ineffective but stable institutions or norms of behavior," which, in particular, impede the reform of the Russian economy. This approach inevitably led to the identification of institutional traps and a transitional economy [2].

At the same time, the original analogue of the institutional trap in the English-language literature - the lock-in effect - was understood by North differently - as "once a decision was made, which is difficult to reverse" [8]. Obviously, such an understanding is not loaded either with a sign of

defectiveness or with belonging to economic exceptions and peripheries, to unformed economies.
But, both in foreign and Russian traditions, a different term prevailed for naming "decisions that are difficult to undo" - the QWERTY effect. The QWERTY effect is a neutral institutional trap that does not have the character of a defect in "economic fabric". For the most part, QWERTY traps are a mechanism for random selection from several possible equivalent possibilities, something akin to spontaneous symmetry breaking.
In the context of the development of the digital economy, we are faced with situations of QWERTY choice, the emergence of new institutional equilibria, leading to serious and, possibly, defining structural shifts. The study of this phenomenon, taking into account its influence on the development of society, is the goal of this work.
Below we will consider a number of examples of institutional traps that make it possible to identify a number of characteristic features of this phenomenon that are of interest for our analysis.

2. EXAMPLES OF INSTITUTIONAL TRAP

An example of such a trap with a loss of symmetry - in the authors' opinion, erroneous, and thus useful for our analysis - is the following, considered by Polterovich [12]: "A group of motorcyclists turned out to be on a desert island, some of whom prefer left-hand traffic, and the other part - right-hand traffic".
It is argued that after the initial chaos, the norm will be established - right-hand or left-hand traffic. For all the seeming simplicity of the example, he demonstrates the rigidity of the requirements that must be made to institutional analysis, neglect of which leads to incorrect judgments.
First, a superficially institutional view of things allowed in this example to abstract from the question: where, in fact, on the uninhabited skeleton of the road? Why is movement possible there at all? This error is generally characteristic of modern economic analysis based on the postulate of the existence of an economy per se.
Secondly, if we ignore the probable chiral asymmetry of roads (topology of junctions, road signs and markings), then in the case of motorcycle traffic, the establishment of such an equilibrium is generally doubtful. What is the motive for this change, is there any? Both of those who collided and crashed believed that they were driving on the "correct" side. Moreover, for one left-sided collision victim, there is exactly one right-sided victim, and vice versa. The motive for spontaneous behavior change is not visible. This is not the case with cars. The point is the steering wheel, or rather the fact that it is not located in the center. It is for this reason that in the Russian Far East there is a steady pressure towards the establishment of left-hand traffic.
Bracelets on hand
Consider another example of institutional pitfalls that clarifies the "requirement of neatness": Which hand would the average right-handed man wear the bracelet on? The left hand - traditionally - is busy for hours, which automatically leads to an inequality of choice due to established preferences.
Similar reasoning allows formulating the form factor and design of wearable sensors [21]: for example, iWatch was created taking into account existing preferences, despite the more efficient use of wearable devices on the waist and/or on the legs.
The above example of QWERTY traps is associated with symmetry breaking under conditions of indifference. According to P. David [10] and his followers, such effects are nothing more than a superstructure over the fabric of the economy, not affecting such a cornerstone aspect of economic analysis as economic equilibrium, both private and general.
More important in the current conditions of the emergence of the knowledge economy is the case of fundamental institutional traps that cause the lock-in effect.
Route taxis
Let in an arbitrary metropolis a certain number of buses make regular trips along the usual route. A certain number of passengers regularly use this route. On the same route, there is a duplicate (competing) minibus line that is not bound by obligations with local authorities.
Route taxis are more mobile, they work only during peak hours and do not comply with the requirements for stops only at specialized sites. Because of this, the number of passengers using the bus is decreasing. The costs of the bus company are practically independent of the transported passenger traffic, while the income depends linearly. To maintain profitability at least at the break-even level, the bus fare is forced to increase.
At the same time, the route taxi remains the only substitute for the bus, and its capacity is limited. Accordingly, it is economically justified to raise the fare in the minibus.
Thus, competition led not to a decrease in prices, but to an increase, which does not correspond to the basic "theorems" of the economic mainstream. At the same time, the established price is not the result of "the intersection of supply and demand". The amount of demand and the amount of supply act only as parameters, as the scale of the task, along with institutional factors, which determined the equilibrium price.
Here you should pay attention to the fact that the scheme under consideration is not specific, on the contrary, it is quite general in nature: a significant number of economic benefits have substitutes (similar to a "minibus"). And the scheme itself has the character of an institutional trap. For its implementation, according to the authors, it is important to fulfill the following conditions.
1. There is a relatively fixed demand for an economic good (value of demand). A demand curve with a certain elasticity is not assumed at all.
2. There is an "active" substitute, which is implemented on a priority basis.
3. The commodity volume of this substitute is limited, and as a rule, substantially less than the commodity volume of the primary economic good.

4. The market power of a substitute (due to its "smallness" or for other reasons) is small. The substitute acts as an acceptor of the price of the primary economic good.
5. A decrease in demand (value of demand!) For the primary economic good leads to the need to increase prices due to the requirement to ensure break-even.

Within the framework of this model, the equilibrium price of an economic good is determined mainly by institutional parameters (such as "the capacity of one bus" and "the capacity of one minibus").

It should be noted that even in those cases when we do not see a specific mechanism of an institutional trap, the economic behavior of a good can be determined - and, according to the authors, it is necessarily determined - by one or another institutional trap. Thus, it is quite obvious that the existence of goods with negative elasticity of income, such as bread, also has an institutional explanation.

3. RESULTS OF THE STUDY. SPECIFICITY OF INSTITUTIONAL TRAP

At the same time, fundamental institutional traps are recognized - but, as noted above, only in "special" economies such as transitional ones - as a source of economic equilibrium. For the economy of the "general type", another explanatory principle is used - the model of private and general equilibrium.

In partial equilibrium models, this is demonstrated by the course of supply and demand curves [6]. These curves are functions of the hypothetical behavior of demand (and, accordingly, supply) when the price changes, but, which is fundamentally important, the behavior "all other things being equal".

Surprisingly, economic analysis is based on a truism. If we fix all the institutional variables (in the authors' opinion, they actually represent the economic content of any of the economic models), then if the goods are more expensive, they will be less willing to buy and more willing to sell. And the fact that any equilibrium will come does not follow from this. Equilibrium is simply assumed a priori. And if there is a state of equilibrium, in this case - economic, then the parameters of the (economic) system near equilibrium should behave in a certain way. This is so, but it does not say exactly why equilibrium takes place, nor about "where", at what point this equilibrium (or a set of equilibria) will take place. All this is explained solely by what is taken out of the parentheses by the method of analysis introduced by Marshall - "all other things being equal."

Indeed, if economic agents acted in strict accordance with the supply-demand model, there would not be many economic phenomena, such as advertising. After all, advertising is a deliberate violation of "other things being equal". Economic behavior is a deliberate change in "other things being equal". If we agree with the thesis (which seemed quite recently indisputable) that the subject of economic science is also such a phenomenon as economic behavior (and not the behavior of the equations of an abstract theory), then the removal of this behavior outside the framework of economic analysis cannot but surprise! And it should be admitted that the theoretical hypothesis "ceteris paribus" is not only unrealizable but also meaningless. Let us repeat - a change in these "conditions" is actually economic behavior.

A modern example of this kind of economic behavior is the processes associated with the formation of the so-called. digital economy. Interested parties in digitalization are changing the institutional and, in particular, the legal framework to ensure the "demand" for digital services (in particular, this is indicated by the fact that roadmaps on a number of issues of the digital economy are being developed by those interested in these processes - for example, Sberbank oversaw the direction of artificial intelligence). Such behavior, from the point of view of mainstream economic theory, is not "market", i.e. is in contradiction with the basic axioms of economic efficiency. Moreover, we see their obvious economic nature.

It is important to note that, changing the institutional structure in order to develop the digital economy, digitalization interests deform or even destroy established institutional traps, which we do not notice, but at the same time participate in the creation of new ones. And with them, perhaps, the structure of the economic fabric. In any case, a shift in economic equilibria (in terms of prices, production volumes) should be expected not only in those industries where digitalization is evident, but also where the institutional environment has been shifted or destroyed.

So, from the point of view of the authors, it is institutional factors that determine everything that we call economic behavior and economics, including possible economic equilibria. These equilibria are determined by one or another institutional trap. Their functioning can often lead to the same results as partial equilibrium models.

It is necessary to understand the interconnectedness of the institutional environment of the modern economy - the correction, correction or replacement of institutions, routines, norms and practices in the interests of some industries (at present - the digital economy, at the beginning of the 20th century - nanotechnology) affects (more often - negatively) in relation to other areas. Today we are experiencing amazing structural changes. One of these shifts is special business models (for example, Uber or Airbnb), in which the main factor of success is not the introduction of innovative technologies, but the maximum mobilization of financial resources. Thus, "uberization" is a process in which a high-tech shift towards low-tech industries is possible.

4. ROLE OF INSTITUTIONAL TRAPS IN SOCIO-ECONOMIC DEVELOPMENT

Established social institutions in all their diversity underlie our economic behavior. The basis of their stability (social

institutions from formal norms expressed in the form of law or regulatory institutions to informal norms, including routines and norms of social behavior) are our illusions and beliefs. As an example, let us mention the statement of Professor Hayek: "... as I wrote 45 years ago and as I continue to believe, from a practical point of view, one of the worst things that can happen to us -is if the general public again ceases to believe in basic quantitative theory" [17].

It is fundamentally important to note that the entire set of monetary institutions, which are a mutually conditioned institution [15], is conditioned by an institutional trap.

In order for conditional values to be accepted in payments (it does not matter if there is a value in reality or it is just declared), coercion is applied. Institutions of coercion can be legislative acts confirmed by the authority of the state, the will of the dictator, or the authority of the Church - it doesn't matter! Forcing one actor in the economy guarantees another actor that his payments in money will be accepted, as well as that he can demand payment in money. The use of money becomes economically expedient and therefore universal. And the institution of coercion becomes background, optional, acquires the characteristics of a routine, as they are described in [7,20]. Note that, in particular, one of the possible directions of development may be the loss of anonymity by money, which will inevitably lead to the return of the status economy of the Middle Ages (see, for example, [11,15]).

In general, the nature of any institutional trap is such that it makes no sense to ask what comes first: laws declared to be objective, or our willingness to follow them? A striking example of this is the Forex market following the so-called technical analysis, which exists due to the mass adherence of economic agents to this "theory".

In other words, the money mechanism is based on our belief in it, on our understanding of how it functions.

Fundamentally the following understanding. Institutional traps are not a set of certain "conditions" that trap a state of equilibrium. The institutional trap is inextricably linked to the structure of the economy as a whole and its private structures. More precisely: institutional traps are a property of economic structures. In this regard, according to the authors, it is more appropriate to speak not about institutional, but about structural economic theory.

The proposed paradigm of economic analysis of economic structures and their inherent institutional traps makes it possible to get rid of the fundamental defect of modern economic views, which consists in the openly reductionist nature of the mainstream of economic thought. In the context of the mainstream, especially in its extreme expressions, such as neoliberal theory, economic laws are perceived as fundamental laws of nature, and with the freedom of individual behavior, total human behavior is determined and follows "fundamental" laws [4].

It should be noted that this defect, albeit in part, was carried over to the institutional theory. Actually, the institutional direction of economic analysis, as well as the adjacent evolutionary paradigm, proceeds from the presence of certain external laws (borrowed by them from the mainstream of economic thought) that do not depend on the randomness of the private, be it a random choice from the possibilities (North's QWERTY model), or the will of the economic agent (A. Alchian [1], see also [5]). So, for example, Alchian, within the framework of constructing an evolutionary economic theory, argues that an economic agent acts according to his will, pursues his goals, but his behavior does not affect the final result - blind selection selects from a set of economic agents only those whose conscious behavior coincided with the requirements of this blind selection, regardless of their will, goals, etc.

However, consistent institutional analysis in its toolkit contains the possibility of explaining the purposeful and simultaneously synchronized behavior of economic agents. So, no one is surprised that moving, for example, from St. Petersburg to Moscow and back, both Radishchev and modern man used roads, and did not burst through forests and swamps. The presence and nature of infrastructure is largely dictated by economic behavior.

The understanding of infrastructure conditionality in practical economic activity has been fully achieved. It is enough to refer to the strategic documents of the socio-economic development of the Russian Federation (including national projects) and their obvious infrastructural aspect. However, economic theory obviously lags behind practice.

The emphasis on the abstract "competitive market" deprives us of the opportunity to seriously analyze the real economic structures that determine the national economy, the structure of which is deeply different from the "competitive market".

Among the real economic structures available for our analysis, the so-called. vertically integrated structures. The latter form the backbone of the world economy, more commonly known as transnational corporations. The most "classic" example of vertically integrated structures, according to the authors, can be aircraft construction.

A vertically integrated structure is immanent in a number of institutional traps, one of which is the specialization trap. A subcontractor of such a structure - rather a medium-sized than a small enterprise - on the basis of a contract is involved in an important activity - the production of a particular unit. Part of the competence (quality control and compliance with the standards of both the product and the technological process itself) are then external to the subcontractor. Thus, the subcontractor is highly specialized and at the same time poorly replaceable. (The contractor and the subcontractor are in a mutual institutional trap). If a contractor starts a new search activity (what is called the word "innovation"), then he needs to do it either himself, or have a "subcontractor" of a fundamentally different type - a small mobile enterprise, the failure (more than likely) which does not bring with it additional costs. This is the so-called. "Small innovative enterprise". In the presence of vertically integrated structures, small innovative enterprises can also be organized on an initiative basis - the risk for them will be only slightly greater than for enterprises organized with the initial participation of the contractor.

But does the activity of a small innovative enterprise make any sense outside the existing network of vertically integrated structures? It seems that no. However, the problems associated with the creation of such small enterprises at Russian universities indicate a fundamental lack of understanding of this structural dependence.
Another economic structure associated with the development of innovations is the so-called territorial production clusters. The concept of a territorial-production cluster was introduced from the periphery of economic analysis in [13]. It is noteworthy that the most important thesis of Porter's book is not commented on even though he is underlined by its title. In the terminology we propose, this thesis of Porter sounds like: territorial-production clusters are economic structures that ensure the "shutdown" or "softening" of competition mechanisms for cluster enterprises, the inclusion of cooperation mechanisms and, thereby, the creation of a cluster of significant competitive advantages for innovative enterprises. In other words, here, too, the economic equilibrium is shifted from the spontaneously competitive one. And this is a sure sign of the presence of an institutional trap that provides a different state of this equilibrium.

5. CONCLUSIONS

The rapid development of digital technologies, including artificial intelligence, poses a number of fundamental questions for economic analysis, including the question of analyzing economic dynamics and, above all, the dynamics of economic orders.
The analysis shows the importance of the concept of institutional trap as a fundamental mechanism for the functioning and sustainability of the economy on all its scales - from microeconomic to the national economy as a whole. On the basis of this concept, the systemic relationship of the economic fabric, its dependence on social institutions is shown.
Ideas about the so-called. The "invisible hand of the market" are in clear contradiction with our conclusions and proposed models. The economic order, and its relationship with other orders (normative, social, etc.) as it was represented, following Eiken, by the ordoliberals, more accurately reflects the economic reality.
The willingness of society to follow the established economic order is not automatic. Order is a manifestation of the institution of power. And it - power - should be based on ideas adequate to economic and social reality. And the understanding of the non-neutrality of economic theory as a factor in building an economic order harmonized with the social fabric is an important factor in the success of state regulation and public administration.
In this work, we do not touch upon the possible connection between institutional traps and the social life of society: this issue requires additional in-depth analysis. Also, at this stage, it is difficult to formulate possible ways out of existing and/or emerging institutional traps. It seems, however, that the most obvious and effective decision is the adoption of effective management decisions that allow changing the conditions for the functioning of the system.
The authors believe that the mechanism of the institutional trap discussed in the work can be used as an explanatory principle when considering the dynamics of complex socio-economic systems. The position taken by modern institutionalist economists [8] seems to the authors - in the conditions of obvious institutional shifts, codependent with the formation of the digital economy - deeply insufficient. In economic dynamics, institutions are not only a leading factor, but also acquire their own economic content: there is no economic content outside of their economic content. And the idea of the digital economy as an economy scalable to the effect of digitalization is wrong: it is an economy with different institutional equilibria, which we understand as an institutional trap.
From a practical point of view, the proposed approach makes it possible to optimize the foresight process based on mathematical models of the social dynamics of society. Using the concept of "institutional trap" is tantamount to identifying (assigning) various pools of attraction in mathematical models (attractors) that describe the dynamics of society. In practice, from the point of view of foresight technology and mathematical modeling of socio-economic systems, the proposed approach makes it possible to classify forecasts depending on the degree of their feasibility and given initial conditions.

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