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Selected Models of Institutional Changes in Theory and Practice

Introduction

Coase (1998) argued that institutional arrangements govern the efficiency of the economy. His successors, such as Williamson, North, Hodgson, Ostrom, Greif, and Aoki, increasingly emphasized the importance of institutions in expressing human behavior. Similar views on the importance of institutions in their works are expressed by the representatives of the Polish institutional school (cf. Fiedor 2015, Ratajczak 2009; Wilkin 2011). These researchers tried to conceptualize the concept of *institutions* and the process flow of *institutional changes* and, therefore, the evolution of socio-economic systems.

The considerations in this article focus on mental models of institutional change. The generally presented direction of considerations requires formal clarification in the context of goals. The first goal is to systematize research on mental models of institutional change. The second goal is to establish to what extent individual mental models are heuristically fertile, particularly whether they have explanatory and extrapolative values. However, it should be taken into account that the implementation of such goals will be partial. It is due to the impossibility of considering all mental models and the fact that at the level of theoretical considerations, only general conclusions as to the accuracy of the analyzed models can be formulated. It also needs to be recognized that institutional economics has a long tradition

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of under-specifying the concept of institutions (Godłów-Legiędź 2017). This has implications for the final shape of the mental models of institutional change, as the adoption of the definition of fundamental concepts specified at the beginning leads to a specific thought style, as defined by Fleck (1986), which influences the final model. This issue is not strictly discussed in this article, but one must remember that it means focusing on the top layer of mental models. There is no doubt that the systematization of the concept of the institution would deepen the considerations on institutional change, which contributes to further research.

This article deals with the development of institutional economics. It touches upon methodological issues and has some practical value. The review and systematization of the current scientific achievements in this field were considered the appropriate research method. Naturally, it is impossible to review all mental models. In fact, it would not be appropriate since some of them are compilations of others. The review includes those considered by the authors to be of key importance due to the frequency of their citation in the research material, created through a review of highly cited Polish and foreign literature (cf. Rudolf 2017; Wilkin, Kargol-Wasiluk, Zalesko 2019; Godłów-Legięź 2017; Dziemianowicz, Kargol-Wasiluk, Zalesko 2014; Fiedor 2019; Furubotn, Richter 2005; Hodgson 2004). Nevertheless, the choice of mental models examined in this article is subjective and authoritarian to some extent, which should be borne in mind. The selection was also based on the authors' previous experiences (Czetwertyński 2019; Sukiennik 2020; Czetwertyński, Sukiennik 2021).

Regarding the nature of scientific reflection on the concepts of institutional change, the position taken from Ritzer's (1975) consideration of multi-paradigmaticity is adopted, which means that within a given science, there may be several paradigms simultaneously competing for the position of the leading one. A similar view is expressed by Fiedor and Gorynia (2020). They indicate that economics is a multi-paradigmatic science, thanks to the fact that economics shows a common research core (the research on the effectiveness of human activities) from which individual paradigms are derived. These paradigms are understood following Kuhn's (2009) methodological approach, both as a set of concepts and theories building a given science and as a tradition of solving scientific puzzles. Accepting the thesis of the multi-paradigmatic nature of institutional economics leads to the conclusion that individual scientists formulate the theory of institutional change differently and solve empirical puzzles in different ways. It was decided to accept Ritzer's thesis here – without considering the validity of framing science in terms of paradigms. Moreover, it was assumed that science does not have to fit one paradigmatic framework, even though Kuhn (2009) claimed that the unity of the paradigm is what is called "science." The research method appropriate for the considerations in this paper is searching for differences in the very basis of mental models and their impact on the exchange of ideas among scientists, the applications of the models, and ultimately, the further development of the idea.

In order to approximate the empirical application of the mental models studied here, a case study and deductive reasoning were used *ex-post*. This method

is not perfect, as it provides only a certain level of confirmation criterion while accepting the criterion as a binding source of scientific knowledge in general. The assumption, however, is that none of the economic theories, including the mental models presented here, are unquestionably true and that they can be falsified. Therefore, despite the clear and widespread criticism of the confirmation criterion by Popper (2002), it was accepted as sufficient to substantiate the mental models described herein. This criterion for empirical science is understood as the thesis that empirical facts can confirm the claims of that science. Therefore, it was decided that one should be guided by the heuristic qualities of these mental models in their practical aspect, and the discovery of such qualities is provided for here.

1. Theories of institutional change and the formation of institutions

According to Kingston and Caballero (2009), four groups of theories of institutional change are distinguished, which:

- are an evolutionary process,
- are the result of collective choices,
- are design-based,
- are the result of institutional equilibria.

However, a certain clarification needs to be made here, which will allow for drawing conclusions concerning the intentionality of institutional changes and the dynamics and strength of their impact. In fact, any gradual change over time is an evolution, regardless of whether they will be changes resulting from collective choices, or changes designed by decision-makers or resulting from establishing this and not another institutional equilibrium. In such a case, while the changes occur gradually and are distributed over some temporal azimuth (normatively recognized as a long time), they will be considered evolutionary, not revolutionary, i.e., sudden, short-term, and highly influencing changes. In this approach, it does not matter much for determining the evolutionary or revolutionary nature of changes, whether the process of these transformations is bottom-up, i.e., it results from the choices of individual people, or top-down, i.e., it is imposed by some sovereign (Hobbes 1954).

Moreover, the normative time azimuth will determine whether the change is evolutionary or revolutionary. From the perspective of a generation, a change may take an evolutionary course, but from the perspective of a century, it may already be revolutionary. Nevertheless, the separation of the evolutionary group from institutional change theory is dictated by the genetic development of thought on the concept of institution. Relevant here is the conviction that societies are moving from less to more complex forms. In this context, the evolutionary theories of institutional change need to consider that not only do changes occur over time, but institutional structures are increasingly complex.

1.1. Mental models of intentional change
Evolutionary theories of institutional change

Evolutionary theories will assume slow, minor changes in individual institutions, leading from less to more complex institutional structures. This concept can be related to Dawkins (1996), who pointed to the gene as the source of changes. Therefore, if the institutional structure (a set of all existing institutions) is treated as an organism, the gene is the individual institution, and the change of institutions affects the entirety to a greater or lesser extent.

One of the first evolutionary theories of institutional change was formulated by Veblen in 1899. He recognized that institutions (viewed as habits of thought) were relatively persistent but could change in certain ways. Veblen (2008) specifies that his considerations on economic institutions that developed in the past operate in the present. However, changes in the economic environment – related to demography and technology – are a source of the increasing ineffectiveness of institutions. As a consequence, they are modified to fit the current situation. When enduring habits of thought begin to change, changes in the external environment occur simultaneously and independently, causing the newly developed institutions again to fail to correspond to the present fully. The transformation of institutions in the economic sphere will also cause changes in the distribution of wealth, which means that part of society will benefit from the changes and part will lose. The part that loses, insofar as it has the ability to do so, will therefore inhibit these changes, leading to the creation of relics. The evolution of the social structure is a derivative of the process by which natural selection of institutions has occurred, and the transformation of institutions occurs as a result of changes in the external environment.

In turn, Hayek (1973) developed an evolutionary theory of institutional change based on the selection at the level of a social group. It is based on natural selection, not at the level of an individual member of society but the entire social group. From this point of view, the rules of conduct evolved through selection as the groups that practiced them were more successful and displaced others. In other words, groups with institutions less adapted to the existing conditions did not survive and disappeared or had to assimilate. As a result, human thinking and actions are governed by the rules developed in society through the selection process. Therefore, it can be concluded that institutions are the product of the experiences of previous generations. Hayek also admitted that some of the rules could be formalized, and attempts to design new ones could be made, but in general, he argued for the spontaneity of social processes and the impossibility of designing them. He considered deliberately designed rules and organizations, including the state, as part of overall larger order. According to him, through group selection, the general configuration of rules will strive for an optimal structure based on coherent general principles, e.g., property rights. In fact, this is in line with the idea of social evolution, where society *sui generis* strives to develop civilization.

Another theory of institutional change is related to the theory of Coase (1937), which Williamson (2000) later developed in the framework of the economics of transaction costs. In this theory, institutions adjust to the transaction within which they operate, which Williamson refers to as alignment. It consists in the fact that transactions that differ in their attributes are aligned to institutional structures that differ in terms of costs and coverage to obtain the best economic effect, i.e., minimization of transaction costs.

The important point here is to specifically state at what analytical level of institutions the theory of institutional change referring to transaction cost economics is anchored. Representatives of the new institutional economics, including Williamson, North[1], or Ostrom, focus on contracted institutions. Thus, they do not deal with changes in all institutional forms. It is clearly visible in Williamson, who uses the division into formal and informal institutions, within which he proposed dividing the institutional analysis into four analytical levels. The first level, *embeddedness*, consists of informal institutions understood as (social) norms, customs, traditions, or religion. It is a level whose elements can function unchanged from hundreds to thousands of years. Their formation is not strictly rational-intentional but rather spontaneous, which means that the sources of informal institutions emerged with a minimal amount of calculation. The second level is the institutional environment, which consists of deliberately created formal rules, the changes of which last from several to several dozen years. It is a set of formal institutions usually identified with the constitution, statutes, or the legal system. This level is created deliberately to organize the political, economic, or social environment (North 1991). The next level of "governance" is to supplement the structures of the legal system with regulations of a lower power of influence. It is about a contractual specification of the relations between economic entities, and therefore precisely contractual institutions. This level encompasses a network of contractual regulations whose expected time frame of change is years or decades. It is transaction cost economics that corresponds to this level in analytical terms. The last level, the allocation of resources and employment, corresponds to equalizing marginal values. Hence, it is the level of continuous alignment of the relationship between resources and their allocation among the micro-entities of the economy. This level is furthest away from institutional threads and corresponds to neoclassical economics and agency theory theories.

Given the above division of institutional analysis, the level of "governance" is of key importance in studying institutional change through the prism of the transaction costs economics (Hardt 2009). According to Williamson, the cause of institutional changes within the contracting institution is a change in exogenous parameters that affect transaction costs, such as production technology or the method of monitoring. If a change in these parameters causes the existing institutions to

[1] In the case of North (2014), it should be borne in mind that his research interests lead him beyond only institutional change examined through the prism of the transaction costs economics. Thus, unlike Williamson, he does not remain solely within the "governance" level.

cease to be effective, then new, more efficient institutional forms will gradually emerge. Here, too, the selection process is essential, as worse solutions give way to better ones. The pressure of competition eliminates ineffective solutions and is the source of evolution. The result of institutional change is determined by the fact that the most effective institutions in a given repeated situation "win." These, in turn, are replicated – perpetuated, and the very process of institutional change leads to an increase in welfare.

A similar line of thinking is represented by Sukiennik, Dokurno, and Fiedor (2017), who, after North, divide institutions into formal and informal ones and claim that institutional transformations occur when the institutional system is not in equilibrium. This theory can be described as the theory of costs of institutional change, in which the course of the change process is a derivative of the so-called extraordinary events (e.g., wars, ideological conflicts, referenda) and the cost of institutional change. Great importance is given here to the costs that have to be incurred in the process of institutional transformation, including the expense of decommissioning the old institution and the cost of introducing the new one. Hence, some ineffective institutions may not be changed due to the high cost of changes. In a similar context, Lissowska adds that if the costs of the institution's mismatch are not high, the outdated standards are tolerated (Lisowska 2008).

There is an evolutionary pressure in the theories outlined above. It leads to eliminating "ineffective" institutions through selection, leading in part of these concepts to improve institutional performance. For example, in Veblen, the optimal state is unstable or unattainable. It results from the linearity of the time in which the institutions operate. An optimal solution will never be possible since institutions come from the past and operate in the present. However, the situation becomes more complicated with the assumption that the evolutionary process may lead to many equilibria (including ineffective ones), as predicted in the theory of costs of change[2]. In other words, some of these concepts only apply when there is competition between different institutional forms, the most effective of which will replace the less effective ones. In other cases, change does not lead to improvements or may not happen at all. This contradicts the evolutionary approach related to the sunk cost effect. It should be borne in mind that evolution based on natural selection does not consider the impact of sunk costs on the course of change. These costs affect people and bind them to the institution, causing a kind of entrapment that cannot be broken through economic reflection – the application of cost-benefit analysis. According to this calculation, sunk costs as unrecoverable should not be considered in making decisions. However, it turns out that they can have such an impact, which leads to getting stuck in the development path of ineffective institutions. Similar problems are caused by the cost of liquidating institutions, which is also not included in evolution. All decommissioning costs are always undertaken in the selection process; they are, in a way, its characteristic feature from which

[2] These concepts can also be included in the so-called equilibrium approach to institutions due to the emergence/reach of certain optima, for example local ones.

there is no turning back. There is always a temptation to calculate and possibly postpone the change when a rational-purposeful action occurs.

Another element influencing the process of evolution and shaking its direction is the relationship between informal and formal institutions (Fiedor 2015). Roland (2004) adds that informal institutions evolve, but if this process results in transformations that do not align with the formal institutions in force, there is pressure to change the latter. The compliance of formal and informal rules was also noted by Vollan, Prediger, and Frölich (2013), who claim that the way legal provisions are implemented is essential in reducing collective problems.

In summary, interfering with the selection-based evolutionary process that shapes institutions will likely lead to the formation of local optima that do not add up to the global optimum. Therefore, it is probable that there will be many suboptimal states, the duration of which is a function of the frequency of the situation to which a specific institution relates and the extent to which it is accepted by the entire population (Alchian 1950). Moreover, the approach represented by Hayek, whether the treatment of transaction costs does not explain the fact that countries that have similar technology use different institutions to "govern" similar transactions, or why there are ineffective institutions in different countries, or why countries do not they replicate an institutional structure that is effectively used in more developed countries. In fact, one should follow the assumptions of multilinear evolutionism, albeit not necessarily in terms of environmental and ecological factors, but generally external ones, which cannot be universally treated. In the concept of institutional change costs, such mechanisms are explained due to the difference in informal institutions between countries and the different characteristics of institutional systems in different countries. However, these authors do not explain the origins of these differences and do not emphasize the role that past conditions may play in shaping regulations and changes in the institutional system.

Other theories emphasize the possibility of many possible sets of self-reinforcing institutions, the shape of which results from the initiated dependence path (Kwaśnicki 2003). In such a case, the choice of an institution and the relationship between the regulations may result from historical events. Therefore, this concept is an analysis that explains the current system, e.g., institutional one, as a result of time-distant causes that are reproduced for some reason. It was pointed out by North (1990), among others, who stated that at the institutional level, solutions might be adopted as a consequence of past decisions that determine the present and future formation of institutions. In contrast, remaining on the dependence path results from the fact that events at the beginning of the sequence have a significant impact on the later course of the sequence, while those occurring after some time are of decreasing importance, and this can lead to locking in the path (David 1995). In other words, entering the dependence path may make some institutional arrangements more likely than others.

Additionally, people in new situations tend to copy institutional arrangements occurring in analogous situations. As a result, people coordinate their action strategies and undertake activities according to rules in analogous situations

(Sugden 1989). Thus, in the new situation, various actors will shape the institutions before they are adopted. If one of these actors has the advantage in terms of the opportunity toshape the institution, then the solution advocated by that actor may be implemented entirely or partly and will apply to society. Therefore, many states of equilibrium may be ineffective, which is related to the lack of incentives for institutional change due to the excessively high costs of changes or the lack of groups (opportunities) that would have the ability to prepare and implement the change. Unlike the transaction cost approach, or Hayek and Veblen's concepts, and in line with the concept of institutional change costs – in the discussed case, it is not necessary that effective regulation will be adopted and the strategies of individual actors will be based on these rules.

Theories of collective choice in the process of institutional transformation

The previous section focused on evolutionary or quasi-evolutionary theories, as in the case of institutional change cost theory. These theories raised the issue of spontaneity, which does not imply the lack of intentionality of change, but suggests that not all institutional change must be dictated by economic calculation. In addition, all institutions were subject to some sort of selection, for example, the passage of time (Veblen) or the relationship of transaction costs (Williamson). This section of the paper will discuss theories that treat institutional change as a centrally controlled process. In this process, rules are clearly defined by a collective political entity, such as a community or state, and individuals and organizations engage in collective action to change the rules for their benefit. Knight (1995) notes that different interest groups emerge and opt for different institutional arrangements because they have different socio-economic effects – beneficial for given groups. An example of the causes of this type of change may be distributional conflict. Different distributive rules exist, so individuals and interest groups engage in rule changes to gain benefits. The process of institutional changes itself takes place at a higher political level (Libecap 1989).

This line of thinking is represented, among others, by Alston (1996), arguing that institutional changes can be treated as a result of the action of supply and demand in society. It seems that this theory provides opportunities for development due to the degree of autonomy attributed to political actors and information asymmetry, market transparency, or a tendency towards opportunism. For example, according to Kaufman (2007), Commons' work has focused on how politically determined rules of the game affect economic behavior and outcomes, where rules are created and enforced by various groups and organizations, but especially by the state. Kaufman argued that if existing laws became inappropriate, individuals or groups would try to change them through the courts or legislation. Therefore, in his view, the courts play a crucial role in determining the direction of institutional change. On the other hand, according to Hodgson (2004), there is the so-called artificial selection of institutions rather than natural selection in Commons.

On the other hand, Ostrom (2005) uses the so-called hierarchy of rules: (1) operational rules that govern everyday interactions, (2) collective choice rules, which are rules for selecting operational rules, (3) constitutional rules, which are rules for selecting collective choice rules, (4) meta-constitutional rules, i.e., rules for selecting constitutional rules – following the laws of nature of Hobbes. At the top of this hierarchy, a level is reached where there are no rules invented by people, only a set of constraints that reflect the limitations of physical nature. These laws of nature are given independently of man's cultural superstructure and indicate a kind of determinism of the establishment of meta-law governing socio-cultural and, in this case, institutional development. The analysis of institutional change in this framework requires the assumption that rules are changed at lower levels while rules at higher levels are fixed. Therefore, the process of institutional change begins with each entity estimating its expected costs and benefits of institutional change. Then, if this change is beneficial for the group of entities who come together in so-called minimum coalition[3], an institutional change can occur. The course of institutional changes is thus determined by benefit-cost analysis and higher-order rules.

According to Libecap (1989), the impetus for institutional changes can be triggered by exogenous changes in parameters. These changes are determined by the distribution of benefits within the existing and proposed new systems and depend on whether the groups concerned believe in their introduction or blocking effectiveness. Hence, it seems that history plays a vital role in determining the outcome of institutional change, as operating institutions influence the bargaining power of various parties and often form groups interested in maintaining the status quo, which may hinder the implementation of institutional changes, and thus, more generally, makes institutional change a process related to path dependence.

Levi (1990) emphasizes that formal rules may increase the chance for certain groups to act, while groups disadvantaged by the current rules may try to force institutional change by withdrawing consent to the currently existing solutions. Ostrom (2005) adds that if potential beneficiaries of institutional changes cannot compensate for the losses to groups losing on the proposed solution, they may take action to block changes, even if they are beneficial from the society's point of view try to force the change, which does not change their situation but is unfavorable to the public. Ostrom adds that limited rationality creates a barrier to effective solutions, as some or all players may have misconceptions about the effects of the proposed institutional change. Additionally, the limited rationality of actors increases the potential for experimenting with institutional arrangements and/or copying arrangements that work effectively in other countries. To sum up, institutional changes are intentional/deliberate, but this does not change the fact that the pattern of change may be evolutionary. Nevertheless, they can also be revolutionary changes when a group has exerted strong pressure and led to major institutional transformations.

[3] It may be, for example, a dictator or a party majority.

A different concept within the scope of collective selection is the theory based on the so-called hierarchy of rules, which treats the state (or its elements) as an actor with its own goals. Depending on the degree of autonomy attributed to political actors, who may be seen as reflecting the interests of certain groups, or assigning a more independent role to political actors, many institutional states are possible (Kingston, Caballero 2009). These concepts focus on purposeful and centralized rule-making in the political process, but they do not answer the question of why formal regulations are sometimes ignored or do not produce the intended results. This type of approach to institutional change does not take into account the role of informal rules that may interact with formal rules, as considered, for example, by Libecap (1989) and Ostrom (2005). These informal "principles" can be applied without rational evaluation and can be seen socially as moral or ideological constraints rather than as strategic constraints. However, if everyone else follows these rules, they will be respected even by entirely rational players. It is crucial because even if most people follow a norm without rational judgment, it is unlikely to evolve or survive, even if a rational actor could achieve a higher pay-off by abandoning it (Kandori 1992, Sugden 1989). Consequently, this model views formal and informal rules asymmetrically and is not widely applicable in explaining changes in informal institutions.

1.2. Between spontaneity and institution design

The presented evolutionary theories tend to overlook the role of collective action and the political process in the course of institutional change. In contrast, a centralized approach, based on a hierarchy of rules, ignores the role of informal institutions. Therefore, the question arises of how to integrate these approaches so that there is an interaction between spontaneous and rational-purpose mechanisms of institutional emergence and institutional change.

For example, Williamson (2000) treats informal rules as a backdrop where formal institutions are "embedded." While he recognizes the possibility of long--term feedback from lower to higher levels, he abstracts therefrom. In contrast, North (1990) assigns informal rules a central role in institutional change. In this approach, as in the hierarchy of rules, formal rules change due to the political process originating from deliberate actions of organizations and individual entrepreneurs. The impulse to change formal rules can come from exogenous or endogenous changes in parameters, including through learning. North combines this theory with a theory in which informal rules evolve with formal rules as their extension. Informal principles are replicated through the evolutionary process of cultural transmission and play a key role in institutional transformations because the change occurs slowly and unintentionally. After the change of formal institutions, the informal rules, which have evolved gradually as an extension of the earlier formal rules, can survive the change. The result may be restructuring general constraints in both directions, i.e., forming a new, less revolutionary equilibrium. According to North (1991), institutional change is an incremental process that involves making

many small changes. This process is tied to the dependence path as individuals learn, organizations grow, and ideologies form in the context of a specific set of formal and informal rules. Organizations may then try to change the formal rules in their favor, affecting informal policies over time. In general, there are many equilibria, and there is no guarantee of a successful result. In other words, according to Lissowska (2017), North suggests the influence of accepted formal rules on the formation of informal rules, which aim at their enrichment and adaptation to specific situations. Thus, as Fiori (2002) adds, in such a situation, there may be inconsistencies, competition, and even conflict between slowly changing informal customs and potentially rapidly transforming formal institutions, with a variety of consequences – but this requires further and in-depth analysis.

Unlike North, Roland (2004) distinguishes between "rapidly changing" (political) institutions (similar to formal rules), which can be quickly and intentionally changed as part of a centralized political process, and "slow-acting" (cultural) institutions (similar to informal rules), which change slowly in a continuous and decentralized manner. Thus, unlike North, Roland changes informal rules rather than formal regulations, which are the main drivers of institutional change.

Another approach to institutional change and the relationship between formal and informal institutions is represented by Brousseau and Raynaud (2006), who argue that initially, many institutional projects are private initiatives (experiments) in which participation is voluntary. However, over time, through competition for supporters, economies of scale, and network effects, some (not necessarily optimal) of these projects become institutions and function as part of a so-called higher-level institutional environment, which means that respect for them is obligatory. According to them, the institutional process can be started by creating some kind of informal rules to climb the ladder of hierarchy and become formal rules.

In contrast, Ruttan (2006) provides a framework within which resources, technology, cultural endowments, and institutions influence each other. As a result, an imbalance in resource allocation resulting from changes in resource equipment, technology, or "cultural endowment" can create a demand for institutional change. In some cases, new institutions can evolve spontaneously, and in others, they are provided by entrepreneurs or politicians who mobilize appropriate resources, e.g., political and bureaucratic, to change the existing rules.

1.3. An equilibrium approach to institutions

The equilibrium approach to an institution is associated with Schotter (1981), who proposed modeling institutions as an equilibrium within the framework of non-cooperative game theory. This approach was later developed by Calvert (1995), who stated that institutions should meet the Nash equilibrium condition. Institution, according to Calvert, is just the name we give to parts of kinds of equilibria. However, this approach has a flaw, which is pointed out by other researchers who argue that this kind of approach should refer to specific macro-social structures (Hèdoin 2012). Some equilibrium scholars treat formal and informal rules in

a unified framework, shifting the focus from rules affecting human behavior to behavior as such (Aoki 2001; Greif 2006). Researchers representing this approach begin their reflections with the so-called "state of nature" – along the lines of the Hobbesian view, where the only constraints that exist are of physical nature. Therefore, there are many possible equilibrium states. In other words, institutions, behaviors, and outcomes cannot be inferred solely due to existing technological limitations. Indeed, the institution's equilibrium approach emphasizes the role of formal and informal rules as tools to enable players to coordinate one of these multiple equilibria by helping them arrive at a common set of beliefs about behavior both within and outside the game.

The equilibrium approach to institutions was later developed to explain the stable functioning of institutions in societies for many years. It assumes that institutions are in Nash equilibrium in a game with self-reinforcing properties, where unilateral deviation does not benefit the players. Additionally, enforcing the rules in this approach is endogenous. It also allows us to understand why there is the heterogeneity of institutions in similar domains across economies by appealing to the possibility of multiple equilibria in running games. However, this approach to institutions is not without weaknesses, i.e., it does not allow to explain how new institutions arise, and understanding this seems cognitively important and useful.

In this context, Aoki began to develop his concept of institution, which is attributed to the equilibrium approach. Aoki (2001) formulated the concept of proto-institutions, which are peculiar idealization and abstract components of real institutions. According to his understanding, institutions (real, not abstract ones) cannot be studied or understood without considering their mutual relations and interactions. Consequently, his cognitive method is based on abstract proto-institutions that, with the help of game theory, are used to learn about and understand real institutions. At the same time, however, he sought to understand the institutional changes that would proceed following this cognitive method through the establishment of equilibria, such as Nash's (1950), although there may be other equilibria as well. Aoki has two goals. The first is to understand the complexity and diversity of institutional arrangements in different economies that exemplify many existing equilibriums. The second is to understand the mechanism of institutional change, which would be consistent with the equilibrium approach but would allow for the emergence of completely new institutions. Aoki (2011), in his newer research, concluded that institutions are rules of a repeated game that are not established in an exogenous manner or determined by the system, culture, or meta-game – as in the case of game theory. These rules are created endogenously through strategic interactions of agents in the course of running a repeated game, which have a factual basis. Indeed, Aoki's understanding of institutions is similar to the equilibrium view, but it differs in that in Aoki, institutions are not only principles that affect regularities in human behavior but also a system of shared beliefs that functions implicitly.

Greif (2006) puts the situation differently, arguing that an institution is a system of rules, beliefs, norms, and organizations that together generate regularity

of (social) behavior. Greif and Laitin (2004) stress the importance of endogenous institutional change. They introduce the term *quasi-parameters*, describing exogenous parameters in the short term but gradually change due to the game, such as information available to players. Changes in *quasi-parameters* can broaden the range of situations in which an existing pattern of behavior (institution) is an equilibrium, or they can undermine an existing institution, leading to "institutional disequilibrium" and an incentive for institutional change. Thus, institutional change can follow a process of "punctuated equilibrium" in which gradual changes in *quasi-parameters* sometimes lead to a "crisis" (and institutional change) when it becomes clear that existing patterns of behavior are no longer an equilibrium. Similarly, Aoki (2001) argues that institutional change often involves short, tumultuous periods of intentional institutional change and experimentation, interspersed with more extended periods during which these experiments are eliminated by competition.

These approaches differ from each other but have a common element, i.e., they identify institutions with patterns of behavior (the regularity of behavior) and not with the rules that trigger them. In this approach, when regularity is present, each agent is constrained by exogenous physical constraints on the underlying game and endogenous institutional "rules of the game" that reflect strategies of other players incorporating formal and informal institutions. By maximizing their well-being under these constraints, agents choose strategies (perhaps inadvertently) that trigger expectations that reinforce constraints on everyone else. In this way, institutions emerge as endogenous equilibrium results, reflecting a socially constructed "reality." In the concept of equilibrium, institutional change does not consist in changing the rules but in changing expectations. A new rule that does not change people's expectations in the desired way may have no effect at all; thus, a rule that prohibits certain behaviors will be effective only if people generally expect others (including those entrusted with enforcing the rule) to act in ways that make them effective.

1.4. Common elements and differences in theories of institutional changes

Both intentional, calculated, spontaneous, and centralized and decentralized institutional changes align with the equilibrium view. Exogenous changes in parameters, such as changes in technology or preferences, can disrupt the equilibrium, leading individuals and organizations to attempt to change the "formal rules" to achieve a coordinated change in the beliefs of many players about the strategies of other players. Alternatively, gradual changes in parameters may result in gradual adjustments to expectations and behavior. Since the formal rules remain unchanged, this kind of institutional change would manifest as a change in "informal rules."

In this context, each society is characterized by a different institutional environment, in which informal institutions are of paramount importance in terms of numbers. Formal and informal institutions are critical in anticipating interactions between people and shaping their actions. Effective institutions, assuming that the institutional system is harmonized, i.e., operates under institutional congruence

conditions, increase the predictability of human interactions and thus reduce uncertainty in economic processes (Gruszewska 2017). Thus, high-quality institutions[4] reduce transaction costs accompanying the exchange process. Thus, an effective institutional system increases management efficiency and contributes to the growth of prosperity.

Additionally, if the institutions are harmonized, their self-reinforcement takes place (Pejovich 1999), thanks to which the functioning of the institutional system is less expensive, if only because there is no need to establish monitoring agendas. Then society bears the costs of implementing new or modifying old institutions, and the costs related to the functioning of the institutional system are high (Greif, Kingston 2011). It is worth adding that modern econometric research has found relationships between institutional variables, such as property rights or adherence to legal rules or trust, and social welfare (Keefer, Knack 1997). Therefore, it seems that knowledge about the course of institutional changes and their causes and reasons for the emergence of institutions is cognitively important and valuable.

2. Costs of institutional changes – case studies

An example of rapid institutional changes and the associated costs is the departure of the European Union (EU) by the United Kingdom (UK), the so-called Brexit, which was formally launched on June 23, 2016. The UK had been a member of the EU since 1973 but had never decided to introduce a common European currency or abolish internal border controls in the Community, among other reasons, because it did not find public support (Mayer, Vicard, Zignango 2019). Therefore, a question should be posed, why has the British society decided to abandon integration?

The answer to this question requires knowledge of the institutional norms functioning in the British society. The British saw European integration not as a political but an economic project, and their reluctance to the EU resulted from their opposition to the growing number of EU laws and the delegation of competencies to officials in Brussels. Therefore, the referendum was held under the slogan "restore control" (Born et al. 2019). According to Kundera (2017), the reasons for Brexit can be divided into two categories, i.e.:

1) long-term factors, i.e., related to historically shaped institutions in the UK, including:
   a. norms defining the maintenance of autonomy concerning the cultural/institutional layer in relation to the European Community and then the EU;
   b. institutions related to the superpower's past, which influence contemporary attitudes and actions of politicians;

[4] The measures of institutional quality include, for example, the ability of the institutional system to adapt to new phenomena, the degree of compliance and transparency of the law, indexes of economic freedom etc. It should be noted, however, that these measures are not perfect, and the effectiveness may vary, i.e. depending on the point of view and entities operating within the given institution.

   c. institutional differences resulting from the different legal systems in force in the continental countries of the EU and the UK.
2) direct causes, which can include:
   a. extraordinary events and processes immediately preceding the decision to leave;
   b. the increase in immigration and the European Commission's policy to deal with refugee problems;
   c. distrust of British citizens towards the EU bodies and their bureaucracy.

The UK's decision to leave the EU seemed to come as a surprise to the British authorities. Nearly a year after the referendum was held, negotiations began to establish the terms and conditions of the separation. Ultimately, the UK left the EU on February 1, 2020, leaving, however, an 11-month transition period to regulate international agreements (https://www.consilium.europa.eu/pl/policies/eu-uk-after-referendum/). At this point, it should be noted that the very withdrawal of the UK from the EU can be considered an organizational change, the consequence of which was the need for institutional changes. Therefore, many costs related to Brexit, such as restrictions in foreign trade, a decline in foreign direct investment, a decline in public confidence in the government, or restrictions on the flow of labor, can be considered indirectly related to Brexit. In turn, the direct costs associated with it can be considered the costs of negotiations accompanying the process of leaving the European Union or changing existing EU legal norms.

Based on many different estimates, the impact of Brexit on the UK economy will be pronounced. According to some scholars, the cost of institutional transformation associated with the British exit process has resulted in a 1.7% to 2.5% slowdown in economic growth as measured by GDP (Born et al. 2019). Further estimates of the costs of institutional change varied depending on the type of institutional arrangements adopted, i.e., the agreement to be concluded between the two economic areas, the so-called "hard" and "soft" Brexit (Erken et al. 2018).

Finally, an agreement was negotiated, which was signed on 24.12.2020. Its ratification by all EU member states and the UK is delayed, resulting in the implementation of the adopted agreement on a provisional basis from the beginning of 2021. This agreement shows institutional flexibility, which means that some of its provisions can be revised every five years (Brussels, XT 21054/19). The changes related to the new legal conditions for trade between the two economic areas will impact the price level. According to Dhingra et al. (2017), leaving the EU in the "soft" variant will lower the level of welfare – measured as real consumption per capita by 1.3%. It should be noted that the costs of institutional changes accompanying Brexit include the UK and EU member states (Heise, Boata 2019).

Another cost of Brexit will be the attempt to maintain the stability of the institutional system, both in the UK and in the EU member states. These costs will be incurred in adjusting legal norms, i.e., adjusting institutions and ensuring institutional balance. Nevertheless, it should be noted that some economists tend to argue that that the costs of institutional transformation will be smaller than the benefits of leaving the EU (Booth et al. 2015). Their argument is based on the assumption

that the UK will simultaneously liberalize trade with the EU and the rest of the world and adopt a liberal strategy of regulating internal economic transactions. According to Arregui and Chen (2018), the UK is already so liberal that further liberalization will not bring many benefits. Other researchers, however, believe that this kind of view is overly optimistic due to the fact that (Latorre et al. 2020):

- it assumes a tendency to liberalize trade between all economic partners – which may be difficult, for example, in the case of China or Russia;
- it assigns all regulatory costs to EU directives and standards.

It may be difficult to determine what part of the adopted legal norms have their source in EU regulations in the latter case. For example, the estimates contained in the written parliamentary reply given in April 2005 suggest that about 84% of all laws and regulations adopted or introduced into German law in 1998–2004 originated in the EU (Gaskell, Persson 2010) – this may indicate a high level of institutional coherence and low running costs in the institutional system at that time. On the other hand, MacShane, then Minister of State for Europe, stated that only 9% of UK law originated in the EU. At the same time, the House of Commons Library calculated an average of 14.1% between 1997 and 2009 (Miller 2010) – which in turn, may indicate a low level of institutional cohesion and high costs of the functioning of the institutional system at that time, which could have been one of the incentives to leave the EU.

Please note that the theories of institutional changes, especially the concept of costs of change, indicate that institutional inconsistency leads to an increase in the operating costs of the institutional system, e.g., an increase in transaction costs, which implies a burden on a country's economy. In such a case, institutional transformations may occur, which was the case in the described situation. For example, a study commissioned by the UK government shows that several regulations lead to a high operating cost of the institutional system. Gaskell and Persson (2010) estimate that the hundred most important EU regulations cost the British economy £33.3 billion per year. However, the most expensive 5% of regulations implemented in the economy cost 26.9% of all this amount. In addition, they estimated that the cost of operating the institutional system in the form of the five most costly EU regulations is about £19 billion per year, which is over 15% of the total cost resulting from the implementation of EU regulations. These are regulations related to renewable energy, bank capital requirements, working time, climate and the environment, and the work of temporary workers. Thus, such costs constitute a burden on the institutional system and concern a relatively small part of the economy. The UK's leaving the EU may not bring savings in the form of a decrease in the operating costs of the institutional system, and it will not be a relief for the British economy. This claim is also quite plausible, given that the UK has committed to maintaining certain legislative standards after Brexit (Fingleton et al. 2017).

Despite the many costs associated with the institutional changes resulting from Brexit, it is also important to point out the benefits, including the savings associated with the membership fee that GB paid to the EU budget. According to the

researchers, these savings may reach around £10 billion per year, or 0.53% of annual GDP (Whyman, Petrescu 2017).

The information presented allows us to argue that the costs of Brexit-related institutional change are both diverse and can be divided into:

- ex-ante cost:
  - costs related to the UK's withdrawal from the EU, including, for example, negotiation costs;
  - costs of institutional transformations derived from preparation for the UK's exit from the EU, including the costs of adjusting legal solutions at the stage of preparing the relevant provisions for the exit from the Community;
- ex-post cost:
  - costs of institutional transformations resulting from the UK's exit from the EU, including, e.g., changes or creation of new regulations;
  - opportunity costs in the form of a slowdown in economic growth, a decline in trade turnover;
  - costs of revision of the agreement concluded between the UK and the EU on leaving the Community every five years.

In conclusion, Brexit will not bring revolutionary changes to the British legal system or the economy. From an institutional perspective, it can be said that Brexit turned out to be suboptimal ex-post and ex-ante because the costs of institutional changes significantly outweigh the benefits. Therefore, the question remains whether the GB should seek to reverse the already begun process and return to the EU structures.

Conclusions

The summary needs to begin with a reminder of the goals set at the beginning. The first was to systematize research on mental models of institutional change. The second was an attempt to find out to what extent individual mental models are heuristically fertile.

In the context of systematizing the mental models of institutional change, it was considered appropriate to designate those described as evolutionary theories and theories based on collective choice. Systematization was no longer evident and needed to be detailed in this respect. This is because the very concept of evolution implies small changes spread over time. Thus, in principle, any theory of institutional change can describe small-scale changes that have a normatively long time azimuth. Nevertheless, in the theories of Veblen, Hayek, and Williamson, the aspect of time and the selection criterion are explicitly exposed. It also reveals the problem of spontaneity, which should be contrasted with the pure calculation of economic intentionality.

On the other hand, in theories of collective choice, e.g., Alston, Ostrom, or Libecap, there are revolutionary (not evolutionary) threads. However, it should be considered that all systematizations inherently have interpretative qualities.

The various theories are broad and lead to different epistemological solutions – as attempted to show in the comparison of spontaneity and design in the context of institutions.

Referring to the second goal, i.e., the attempt to determine to what extent individual thought models are heuristically fertile, and in particular whether they have explanatory and extrapolative values, it should be stated that they fail to be unifying. It means that these are not theories that explain everything. They seem to be rather detailed theories explaining only a specific aspect of reality and institutional change. In other words, the various phenomena that comprise the entire institutional change can be explained by different mental models in a complementary way. In fact, each of these mental models can explain one aspect of institutional change without explaining the other. Several mental models can be applied to the cited example of Brexit that explain some aspects of it and do not address others. Thus, the informal aspects (hidden in the immeasurable costs of institutional change) related to the imperial tradition of the UK and a strong sense of separateness and autonomy explain the considerations of Veblen and Williamson. It is significant for Veblen to recognize that institutions refer to the past and act in the present, and therefore are not adjusted to the present but to the past. In the case of the UK, the institutions related to its imperial tradition do not correspond to the "superficial" changes caused by joining the EU. Hence the public opposition to the change in the form of Brexit. It is complemented by Williamson's considerations on the level of embeddedness – informal institutions that gave the cultural identity of British society were not transformed in the relatively short period of membership in the EU structures. This mental model suggests that changes at the level of institutional governance, which involve aligning British law with EU solutions, are not as powerful as informal institutions from the level of embeddedness. The level of institutional order must therefore be changed again under Brexit.

Alston's mental model, which can explain the extraordinary event of the referendum, has great epistemological possibilities. In this case, one can see the notification of the demand for change and the response of the supply side – the government. There was a dependence here, which took place through measurable democratic processes, i.e., the appropriate political fraction was selected, a referendum was held, and then the society's decisions were implemented. The reported demand for institutional change also fits in with further considerations on the costs of this change and their design. The specific requirements of society relegate to the background the rational planning of institutions based on the criteria of economic calculus. In this case, North's considerations on the dependence path are helpful. An event, the Brexit referendum, has led to a path from which it is impossible to return. It initiated the process of institutional changes generating costs for the British economy. Paradoxically, leaving this path would entail further costs. Therefore, one may be tempted to say that one choice determined the path of institutional development, closing the previously available alternatives. A similar line of thinking is presented in institutional change cost theory, in which institutional transformations can occur when the institutional system is not in equilibrium. In the described case, one could

observe the inconsistency of formal and informal institutions, which initiated the process of changes and led to the transformation of systemic arrangements and, consequently, to Brexit, which, according to this theory, does not have to lead to optimal changes in the institutional system.

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SELECTED MODELS OF INSTITUTIONAL CHANGES IN THEORY AND PRACTICE

Summary

This paper is a continuation of the research on the course of institutional changes, the results of which were presented in the article published in "Ekonomista" in 2017, (Sukiennik, Dokurno, Fiedor 2017). The aim of this article is to compare various concepts of institutional changes and to indicate in which aspects they are similar and in which they are different. The article points to various possibilities for the emergence of institutions, institutional changes, or interactions between institutions, based on the Nash equilibrium, limited rationality, transaction costs, transformation costs, or the concepts emphasizing the role of habits and path dependence. The article contains a review and systematization of the scientific achievements to date in institutional economics. The study mainly uses the method of ex-post deductive reasoning, accompanied by a case study of costs of institutional changes caused by the UK's departure from the European Union.

Keywords: institutional economics, institutional change, Brexit

JEL: D02, E14, N01

WYBRANE MODELE ZMIAN INSTYTUCJONALNYCH W TEORII I PRAKTYCE

Streszczenie

Praca ta stanowi kontynuację badań nad przebiegiem zmian instytucjonalnych, których rezultaty zaprezentowano w artykule opublikowanym w „Ekonomiście" w 2017 r. (Sukiennik, Dokurno, Fiedor 2017). Celem niniejszego artykułu jest porównanie różnych koncepcji zmian instytucjonalnych oraz wskazanie, w jakich aspektach są one podobne, a w jakich się różnią. W artykule wskazuje się na różne możliwości powstawania instytucji, zmian instytucjonalnych czy interakcji między instytucjami, które opierają się na równowadze Nasha, ograniczonej racjonalności, kosztach transakcyjnych, kosztach przekształceń lub koncepcjach podkreślających rolę nawyków oraz zależności od ścieżki. Artykuł zawiera usystematyzowany przegląd dotychczasowego dorobku naukowego w obszarze ekonomii instytucjonalnej. W pracy posłużono się głównie wnioskowaniem dedukcyjnym *ex post*, a także wprowadzono studium przypadku dotyczące kosztów zmian instytucjonalnych spowodowanych wyjściem Wielkiej Brytanii z Unii Europejskiej.

Słowa kluczowe: ekonomia instytucjonalna, zmiana instytucjonalna, brexit

JEL: D02, E14, N01