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Issues Related to the Concept of Formal Institutions

Abstract

The paper provides a literature review in the form of 52 papers, 12 different databases, and 165 different institutional variables, which can be a useful first step for future authors in exploring the phenomenon of formal institutions. Considering the complexity of the concept and differences that exist between formal and informal institutions, it is easiest to define formal institutions as a legislative framework managed by the government of a particular country, which can be changed and adapted in the short and medium term. The aim of this paper is to highlight the basic problems associated with defining, measuring and conducting empirical research in the field of institutional economics. In addition, possible obstacles and solutions to the problems of subjectivity, multicollinearity and endogeneity, which are often not sufficiently considered by authors in academic research on formal institutions, are identified. Finally, an overview of basic remarks on databases enables authors to more easily select the most appropriate database for their potential future research.

Keywords: formal Institutions, endogeneity, databases, literature review

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1. INTRODUCTION

With the appearance of Adam Smith (An Inquiry into the Nature and Causes of the Wealth of Nations) and the development of economics as an independent scientific discipline, the institutional school of economic thought gradually developed. The emergence of a group of authors (Commons, 1959; Hamilton, 1919; Knight, 1921; Veblen, 1914) marked the beginning of a new period known colloquially as Old Institutional Economics. This period was characterized by attempts to create a new systematic theory with institutions at its center. Each of the representatives had their own view of institutions and thus also of how the new theory should function. However, for various reasons (historical circumstances, lack of consensus, economic shocks, etc.), all attempts by the representatives of the old institutional economics failed. In this context, Ross in his paper from 1991 sarcastically concludes that the biggest problem of the representatives of old institutional economics was that they did not deal with institutions. Despite the failure, however, it would be wrong to conclude that the contributions of the mentioned authors were insignificant. Their failed attempts should be viewed through the prism of failure, which was necessary for the emergence of what would later be called New Institutional Economics.

Although there are numerous representatives (Coase, 1937; Matthews, 1986; North, 1990, 1994; North & Lance, 1970), the term New Institutional Economics was first used by Williamson in his famous book Markets and Hierarchies: Analysis and Antitrust Implications. The new school of economic thought challenged the basic postulates of the then-leading neoclassical paradigm and emphasized elements such as property rights, transaction costs, contracts, etc. to the fore. In other words, the elements of formal institutions become the core of the New Institutional Economics analysis. Just as in the case of the lack of consensus on the definition of institutions in the period of Old Institutional Economics, there was no consensus on the definition of formal institutions among the representatives of New Institutional Economics. Although New Institutional Economics succeeded in creating a new systematic theory of economic thought, the complexity of defining and studying the concept of formal institutions remained a challenge that economists still face today. Moreover, in today's digitalized world, their importance may become more important than ever before. Economic shocks, the accelerated development of technology, and a high degree of globalization force economic policymakers to frequently change their formal institutions and adapt them to the new circumstances in their economies. For this very reason, this paper aims to provide a review of the development of the concept of formal institutions, highlighting the way they are defined and measured, as well as the difficulties encountered when authors analyse empirical data. Accordingly, Chapter 2 discusses the issue of defining the formal institutions. Chapter 3 highlights the basic problems associated with empirical research in institutional economics. Chapter 4 analyses available variables and databases that approximate the various effects of formal institutions, while Chapter 5 presents the main conclusions of the paper.

2. DIFFERENT APPROACHES TO DEFINING FORMAL INSTITUTIONS

Formal institutions are one of the best tools available to policymakers to shape the social order of a country. The history of economic thought emphasizes their importance, as they have been studied by history's leading economists from the establishment of the old institutional economy (Commons, 1959; Veblen, 1914) through the new institutional economy (Nobel Prize by North and Fogel in 1991) to the present day (Nobel Prize by Acemoglu, Johnson, and Robinson in 2024). Various authors usually associate the concept of formal institutions with economic growth (Acemoglu, Johnson & Robinson, 2005; Ahlerup, Olsson & Yanagizawa, 2009; Falcetti, Lysenko & Sanfey, 2006), foreign direct investment (Munemo 2014; Peres, Ameer & Xu, 2018;), entrepreneurship (Chambers & Munemo, 2019; Darnihamedani & Terjesen, 2020), or investments (Akobeng, 2017; Jung 2020). Regardless of which variable is the subject of analysis, one of the most appropriate approximations to the concept of formal institutions is given by the extended Solow model with technology. Mankiw, Romer & Weil (1992) clearly emphasize that technology implies not only technological achievements, but also resources, climate, institutions, and other things. Although the institutions in their model focus on economic growth, the model is universally applicable: according to the theoretical framework, better quality and more efficient formal institutions have a positive effect on economic growth as well as on foreign direct investment, entrepreneurship, or investment. However, although they have undoubtedly been the subject of interest of some of the leading economic thinkers throughout history, there are still areas of formal institutions where there is no consensus among economists. One of these areas is certainly related to the different approaches to defining formal institutions.

A literature review revealed that there are a number of authors who define institutions at a higher level (Acemoglu et al., 2005; Holmes, Miller, Hitt & Salmador, 2011; Jutting, 2003; Rodrik, 2000; Williamson, 2000) and a certain group of authors who define them as a concept of formal institutions (Ahlerup et al., 2009; Aidis, Estrin & Mickiewicz, 2007; Chousa, Khan, Melikyan & Tamazian, 2005; Fuentelsaz, González, Maícas & Montero, 2015; Helmke & Levitsky, 2004; Hodgson, 2006; North, 1994; Sobel & Coyne, 2011; Tonoyan, Strohmeyer, Habib & Perlitz, 2010; Urbano, Aparicio & Audretsch, 2018), which clearly indicates a lack of consensus on the use of the term formal institutions as well as the way they are defined. One of the best-known classifications is Jutting's classification (2003) of institutions which, systematizing Williamson's classification (2000), defined institutions at four levels. According to his classification, moving from the first to the fourth level of institutions, economic policymakers need less and less time to implement changes within the respective level of institutions. The institutions of the first level are exogenous in nature and usually include elements such as traditions, customs, norms, etc., where change is possible, but only within a very long period of time (100-1000 years).[1] Second-level institutions can be exogenous or endogenous and are related to the property rights and legal system of a particular country. In contrast to first-level institutions, second-level institutions can change in a much shorter period of time (10-100 years). Third-level institutions, on the other hand, are endogenous and focus on the regulation of contractual relations between different economic entities in the economy. They are exclusively endogenous, and changes within the third level of institutions are possible within a period of 1 to 10 years. Finally, the fourth-level institutions relate to the allocation of resources, they are endogenous and comprise the category of institutions within which changes are possible within a very short period of time. On a similar track, but without specifying the time frame required for change, Rodrik (2000) distinguishes five types of institutions in his work: property rights, regulatory institutions, institutions for macroeconomic stabilization, institutions for social security, and institutions for conflict management. According to Rodrik (2000), property rights institutions simultaneously represent one of the three most important elements of the New Institutional Economies and one of the most important components of institutions in the economy. Without their legal regulation, protection, and security, it is impossible to promote the development of entrepreneurial activity and innovation. This is clearly demonstrated by the migration of investment, skilled labour, and capital to countries where property rights are clearly defined and protected by law.

Furthermore, the digital transformation in conjunction with globalization can have certain negative effects in addition to positive effects, which policymakers should take into account. For this reason, regulatory institutions provide a mechanism by which policymakers can regulate and mitigate problems caused by increased levels of moral hazard, adverse selection, externalities, and so on. Regulatory institutions are particularly important in less developed countries that have yet to build their institutional framework. In these countries,

[1] In this context, exogenous denotes a longer time, and endogenous a shorter time for changes.

the problems of market imperfection can have a much greater impact, which brings the importance of regulatory institutions to the fore.

Institutions for macroeconomic stability refer to the instruments of fiscal and monetary policy in the economy. Throughout history, economic policymakers have used fiscal and monetary policy tools to stabilize their economies in the event of economic shocks. Of course, it is important to keep in mind that each economy is specific and that the same policies may not achieve the same results in different economies. Furthermore, sometimes certain policy tools (e.g. the use of monetary policy during the COVID-19 crisis was not useful because interest rates were already at a very low level - a liquidity trap) may become ineffective and force economic policymakers to find other alternative solutions.

Social security institutions will always exist to a certain extent in the economy. In addition to the institutions that are regulated by the state (such as compensation for the unemployed, deposit insurance, etc.), we can expect to see the development of other forms of institutions in the future that individuals will take on for themselves. In a world of sudden and unexpected economic shocks, we can expect that individuals will increasingly use insurance services against various types of natural disasters, climate change, or global pandemics. In such cases, relying solely on the state may not be sufficient and will force individuals to take out additional protection by taking out various types of insurance.

Ultimately, given the conflicts in the global macro environment, conflict management institutions are unfortunately becoming an increasingly important part of institutions in the economy. Social divisions, high levels of inequality, the independence of the judiciary, corruption, and free elections are just some of the elements that can become a source of conflict in society. In most cases, conflicts arise from a combination of two or more elements, which points to the responsibility of political decision-makers. Ultimately, the underdevelopment of institutions for conflict management can lead to unforeseeable consequences and to deep backwardness of individual countries compared to the most developed countries.

In contrast to Jutting (2003) and Rodrik (2000), Acemoglu et al. (2005) view institutions through two prisms: economic and political. Economic institutions are institutions that determine the extent of economic growth and the distribution of resources in society (Acemoglu et al., 2005). Accordingly, there is a real danger of conflict between different interest groups in the choice of economic institutions. Leadership is assumed by the group that has more political power. Basically, two types of political power can be distinguished: *de facto* and *de jure* (Acemoglu et al., 2005). *De jure* political power derives from political institutions, which function completely identically to economic institutions, only in the political sphere. In other words, when a group of individuals decide on the basis of political power *de jure*, they are making a decision that is anchored in institutions and legislation. In contrast, *de facto* political power involves decisions that do not have to be enshrined in law. Different interest groups can impose different solutions they prefer through peaceful protests or economic rallies.

In line with Acemoglu et al. (2005), Holmes et al. (2011) add regulatory institutions to the economic and political components of institutions. While their view of economic and political institutions is quite similar to that of Acemoglu et al. (2005), the authors attempt to link regulatory institutions to organizations within the economy. Country governments attempt to control the activities of all organizations within the country through regulatory institutions, with a particular focus on international organizations, whose activities can be much more unpredictable compared to organizations operating within the domestic economy.

Furthermore, in contrast to the authors mentioned above, the literature review identified a number of authors (Ahlerup et al., 2009; Aidis et al., 2007; Chousa et al., 2005; Fuentelsaz et al., 2015; Helmke & Levitsky, 2004; Hodgson, 2006; North, 1994; Sobel & Coyne, 2011; Tonoyan et al., 2010; Urbano et al., 2018) who have attempted to define institutions using the concept of formal institutions. One of the best known and most widely used definitions is that of Douglas North, who in his paper from 1994 defined institutions as "*human constraints that structure human interaction. They are made up of formal constraints (e.g., rules, laws, constitutions), informal constraints (e.g., norms of behaviour, conventions, self-imposed codes of conduct), and their enforcement characteristics."* Hodgson (2006) criticises North's definition of institutions as flawed and points out that the term formal institutions should be used with great caution in economic analysis. Institutions imply systems of social rules, not just rules that shape human interaction (Hodgson, 2006). On the other hand, Ahlerup et al. (2009) associate formal institutions with a country's legal system and consider them a crucial factor in achieving high economic growth rates. In the same vein, Sobel & Coyne (2011) define formal institutions as codified legal and political structures and written rules, while Tonoyan et al. (2010) see them as regulations that must be applied to create the economic and legal system of a particular country.

Aidis et al. (2007) defined formal institutions as the visible "rules of the game" in society that are administered by the government and consist of property rights, regulation of business activities, etc. In addition, Urbano et al. (2018) attempt to link the concept of formal institutions to entrepreneurial activity. According to them, formal institutions should include elements such as contracts, property rights, regulation, political structures, and other important elements. Chousa et al. (2005) point out that formal institutions should have the task of regulating the interaction between different economic agents, while Fuentelsaz et al. (2015) emphasise political, legal, and economic rules as an instrument of formal institutions for this purpose. In addition, formal institutions should include the regulation of transactions between private parties and between private parties and the government. Finally, Helmke & Levitsky (2004) consider formal institutions as rules and procedures that are created exclusively through government channels that are considered official.

Taking into account the approaches of all the aforementioned authors, several conclusions can be drawn with regard to the definition of the concept of formal institutions. First of all, formal institutions are a complex concept that is very difficult to explain with a single definition. For this reason, it is not surprising that - similar to the old institutional economy era - there is no consensus on their definition. The use of the "knife" technique in defining formal institutions allows authors to conduct scientific research, as it is not possible to summarise the entire complexity of formal institutions in a single definition.[2] However, a large proportion of definitions are based on North's (1994) definition, which views formal institutions as formal constraints (e.g. rules, laws, constitutions) that structure human interaction. Such an approach is understandable given North's undisputed authority and his general contributions to New Institutional Economics. Nevertheless, a literature review clearly shows that authors have often adapted North's definition of formal institutions depending on the methodology and availability of data used in academic research.

Following all the above, formal institutions are most simply defined as a legislative framework managed by the government of a particular country, which can be changed and adjusted in the short and medium term. This approach is acceptable for several reasons:

(a) First, the definition does not deviate significantly from the basic postulates of the New Institutional Economics, which can be considered as a first starting point.

b) The definition brings the authors closer to the concept of formal institutions in a simple and easily understandable way, undoubtedly emphasizing that formal institutions are not rigid.

c) The definition clearly emphasizes the importance of the government and the possibility of adaptation, which is very important in today's highly globalized world.

[2] The knife technique is a colloquial term that denotes a situation in which authors must cut and decide on one definition, approach, or method.

d) The definition is applicable in all scientific studies of the above mentioned authors.

However, the above definition has several limitations. Hodgson (2006) highlights organisations as a particular type of institution that must also be considered. Regardless of whether they are national or international organisations from the private (e.g., large corporations), civil (e.g., various associations), or public sector (e.g., state-owned enterprises), their activities also influence the adaptation and change of existing institutional frameworks. In addition, individual components of informal institutions (social pressure, customs, nepotism, corruption, etc.) can also worsen existing institutional conditions and influence future ones. Moreover, there are several academic studies (Aparicio, Urbano & Audretsch, 2015; Chousa et al., 2005; Tonoyan et al., 2010; Urbano et al., 2018) that attempt to model and monitor the impact of formal and informal institutions on different economic variables simultaneously. It should be borne in mind that it is not possible to create a perfect definition of formal institutions that encompasses their full complexity and their links to organisations and informal institutions. The above definition represents a simplified starting point, as economic policy makers can change individual elements of the institutional framework much more easily and quickly than individual elements of organisations or informal institutions.

3. CHALLENGES IN EMPIRICAL RESEARCH

In addition to the already analysed problem of defining the concept of formal institutions, the literature review identified several other "dangers" that can significantly affect empirical research results and that are often ignored by authors in their studies. The problem of subjectivity is one of the most common problems that authors do not pay enough attention to. Indeed, institutional variables from various databases are usually constructed based on the subjective assessment of companies, citizens, civil society organizations, or other types of organizations within a society. Respondents are sometimes unable or unwilling to give an accurate answer to individual elements of formal institutions, or they include their preferences, dissatisfaction, and the state of society in their answers, which can distort the calculated value of the variable. Of course, it is impossible to completely eliminate subjectivity, but it is necessary to pay some attention to this problem. High-quality descriptive data analysis, the removal of outliers, and the use of a lower dimensionality level of institutional variables are a good start for controlling subjectivity.[3]

Multicollinearity is another problem that requires additional attention in institutional economics research. Analysing only the correlation matrix is sometimes not sufficient, especially when several institutional variables from different databases are combined. In creating 6 institutional indicators of the Worldwide Governance Indicators, Kaufmann, Kraay & Mastruzzi (2009) used data from 35 different databases. In this case, the simultaneous use of one of the six indicators from the Worldwide Governance Indicators database with one of the variables from another database (e.g. The International Country Risk Guide or World Economic Forum - Global Competitiveness Report) used in the creation of the WGI indicator may lead to biased analysis results, although the correlation matrix does not formally indicate any correlations between the variables mentioned. Authors can address this problem by using only one institutional variable in their analyses or, if they use more than one, by adding them sequentially to the models. In the case of combining several variables from several databases, excellent knowledge of methodology is required. A problem that requires special attention in institutional economics is the problem of endogeneity.

Wooldridge (2020) points out that endogeneity can occur in three cases: mismeasurement of variables, absence of significant variables within the model and presence of simultaneity. The first two problems are less problemat-

[3] An institutional variable can be formed from 1 to 10 other variables, especially if they are the main indices of a particular database (see Table 2 for more details).

ic for institutional economics, as the authors usually solve them by finding other, better and more appropriate variables and inserting them into the model. The problem of simultaneity is outstanding. Simultaneity exists when there is feedback between the dependent key variable and the independent key variable. In the case of institutional economics, it is almost impossible to find a dependent variable for which this problem does not occur. In academic research, formal institutions are most often associated with variables such as investment, economic growth, or innovation, where the legal absence of a double link between the variables is practically impossible. However, by applying different econometric methods, transforming the main variables of interest, and introducing lags, the authors can eliminate the simultaneity problem.

Table 1. Literature Review of Time Lags and Their Use in the Literature

Time lag	Authors
One - year lag	*(de Melo, Denizer, Gelb & Tenev, 2001; Eicher & Schreiber, 2010; Falcetti et al., 2006; Freckleton, Wright & Craigwell, 2010; Havrylyshyn & van Rooden, 2003; Munemo, 2014; Peres et al., 2018; Redek & Sušjan, 2005; Selowsky & Martin, 1997)*
Two - year lag	*(Bosma, Content, Sanders & Stam, 2018; Boudreaux & Nikolaev, 2019; Estrin, Korosteleva & Mickiewicz, 2013; Havrylyshyn & van Rooden, 2003; Munemo, 2014; Nasreen, Anwar & Waqar, 2015; Selowsky & Martin, 1997; Sobel & Coyne, 2011)*
Three - year lag	*(Aralica, Svilokos, Bacic, 2018; Estrin et al., 2013)*
Five - year lag	*(Bénassy-Quéré, Coupet & Mayer, 2007; Gwartney, Holcombe & Lawson, 2004; Fabro & Aixalá, 2012)*
Ten - year lag	*(Dollar & Kraay, 2003; Gwartney et al., 2004; Fabro & Aixalá, 2012)*

Source: Authors systematization

Table 1 shows that different authors have used different time lags, which leads to certain effects. Most authors did not specify in their studies how they chose the length of the lags, which again points to the problem of lack of consensus. Most of them used a one-year (9 papers) and a two-year lag (8 papers), while only a few authors opted for a three-year (2 papers), five-year (3 papers) and ten-year (3 papers) lag. In their work, Efendic et al. (2011) conducted a meta-regression analysis for a sample of 41 studies in which they analysed the relationship between institutions and the level of output/growth rates. Using a dummy variable in the case of a one-year lag, the analysis showed there is a possibility that the long-term effects of institutions are weaker than the short-term effects, although their analysis included only four observations from three different studies (Efendić et al., 2011). On the other hand, it should be noted that not all authors examined the effects of the same dimension of formal institutions. This can be seen as a justifiable reason for using different approaches in choosing the length of lags in scientific research. Thus, the time lag problem can occur within 1, 2, 3, 5, or even 10 years. Although they are not the only ones, the mentioned problems constitute the basis without which it is not possible to study the issues of the concept of formal institutions in economics in more detail. The authors should pay additional attention to them and try to control/reduce/eliminate them if possible.

4. DISCUSSION OF EMPIRICAL DATA USED IN INSTITUTIONAL RESEARCH

If the first question of every author is how to define formal institutions, then the second question is: how can their effect on the economy be approximately determined? Once again, the literature review revealed that there is no consensus on the best way to approximate the impact of formal institutions. Nevertheless, the selection of a database is usually based on the available data, the length of the time series, the methodology, or previous studies. The literature review revealed a literature gap in the systematic representation of all available variables and databases that can be used to approximate the impact of formal institutions. In order to eliminate the gap, Table 2 provides information on number of available institutional variables, time frames, authors, and basic notes related to a particular database. The literature review identified 52 academic papers from 12 different databases with 165 different institutional variables.[4] Of the total number of variables (165), 54 (33%) were from the Fraser Institute database, 32 (19%) from the World Economic Forum database, 15 (9%) from the International Country Risk Guide, 13 (8%) from the Heritage Foundation, and 51 (31%) from other databases. The length of the time series of all available databases is available in annual intervals.

The International Country Risk Guide database (1984-2023) has the longest continuous time series, followed by the Heritage Foundation database (1995-2024) and databases such as the European Bank for Reconstruction and Development (1989-2014), Global Entrepreneurship Monitor (2000-2023), Fraser Institute (2000-2022) and Worldwide Governance Indicators (2002–2023). Some databases (i.e. Polity II, Polity III, Polity IV) have longer time periods, but the question arises as to how applicable and comparable the data is today in terms of the methodology used in the past. As Table 2 shows, 14 papers used data from the Worldwide Governance Indicators database for their research. The Worldwide Governance Indicators database is followed by the International Country Risk Guide database and the Heritage Foundation, with 9 identified papers, and the Freedom House database and the Fraser Institute database with 7 identified papers. Other databases record 28 papers, which accounts for 38% of the total number of all scientific papers. In other words, the five databases mentioned above cover 62% of all identified scientific research related to the concept of formal institutions in the economy. Some databases are not included in Table 2 because they are no longer in operation (e.g. Databanks International and Business International) or because very few authors used them (e.g. Business Environment Risk Intelligence, Euromoney, World Audit and World Competitiveness Yearbook). Finally, Table 2 provides an initial framework on which to build a meta-regression analysis. By applying the right coding techniques based on the data in the table, it is possible to gain new insights in the field of institutional economics that are not available in the literature. Moreover, the analysis can be extended by including additional studies that were omitted due to space limitations. In this way, an even more robust basis for the development of a meta-regression analysis can be created.

[4] Some papers use variables from two or more databases in their research.

Table 2. Overview of all Available Institutional Indicators

Database	Number of available institutional variables	Time period	Authors who used the database	Notes
European Bank for Reconstruction and Development - EBRD	*6.*	*1989. – 2014.*	*(Di Tommaso, Raiser & Weeks, 2007; Efendic & Pugh, 2015; Eicher & Schreiber, 2010; Falcetti et al., 2006; Havrylyshyn & van Rooden, 2003)*	*The values of all variables range from 1 to 4+. The value 1 stands for little or no change compared to the rigid centrally-planned economy, while the value 4+ stands for an industrialized market-oriented economy.*
Worldwide Governance Indicators - WGI	*6.*	*1996.* *1998.* *2000.* *2002. – 2023.*	*(Agostino, Nifo, Trivieri & Vecchione, 2019; Aparicio et al., 2015; Aralica et al., 2018; Beck & Laeven, 2006; Chambers & Munemo, 2019; Daude & Stein, 2007; Enriquez-Perales, García-Gómez, Díez-Esteban & Lizarzaburu Bolaños, 2022; Glaeser, La Porta, Lopez-de-Silanes & Shleifer, 2004; Havrylyshyn & van Rooden, 2003; Klapper, Amit, Guillén & Quesada, 2007; Munemo, 2014; Peres et al., 2018; Sahasranamam & Nandakumar, 2018; Silve & Plekhanov, 2018)*	*The values of the variables range from -2.5 (poor rating) to 2.5 (good rating).*
Heritage Foundation	*13.*	*1995. – 2024.*	*(Al-Fayoumi, 2016; Acemoglu et al., 2005; Aidis et al., 2007; Bendig, Kleine-Stegemann, Mazur & Zapkau, 2024; Estrin et al., 2013; Fuentelsaz et al., 2015; Galindo-Martín, Méndez-Picazo & Castaño-Martínez, 2019; Havrylyshyn & van Rooden, 2003; Redek & Sušjan, 2005;)*	*The values of the variables range from 0 to 100, where 100 represents an excellent and 0 a poor rating.*
Freedom House	*10.*	*2006. – 2024.*	*(de Melo et al., 2001; Djankov, La Porta, Lopez-de-Silanes & Shleifer, 2002; Fabro & Aixalá, 2012; Havrylyshyn & van Rooden, 2003; Nasreen et al., 2015; Scully, 1988; Sobel & Coyne, 2011)*	*The three variables that make up the political rights index consist of the answers to 10 questions, each of which is given a maximum score of 4 points. Accordingly, the maximum value of the political rights index is 40 points. The four variables that make up the index of civil liberties, on the other hand, consist of the answers to 15 different questions, whereby the maximum value that can be achieved for a single question is also 4 points. In other words, the maximum value of the civil liberties index is 60 points. The total score is the sum of the two indices mentioned.*
Transparency International	*1.*	*1995. – 2023.*	*Akobeng, 2017; Desai, Gompers & Lerner, 2003; Djankov et al., 2002; Estrin et al., 2013; Freckleton et al., 2010)*	*Due to the change in methodology, the data from the period before 2012 is not comparable with the data from the period after 2012. The index is scored on a scale from 0 (high level of corruption) to 100 (low level of corruption).*

Database	Number of available institutional variables	Time period	Authors who used the database	Notes
Amadeus database	*6.*	-	*(Desai et al., 2003; Klapper, Laeven & Rajan, 2006)*	*The database is commercial and does not have free access. Due to that, the time length and the characteristics of the variables are not known.*
Global Entrepreneurship Monitor - GEM	*7.*	*2000. – 2023.*	*(Aralica et al., 2018; van Stel, Storey & Thurik, 2007; Wennekers, van Stel, Thurik & Reynolds, 2005)*	*The data collection follows a strict protocol, according to which each country must provide at least 36 national experts to participate in the survey. The methods used to select the experts vary: Internet, universities, personal contacts, etc.*
Doing Business	*10.*	*2004. – 2020.*	*(Aparicio et al., 2015; Darnihamedani & Terjesen, 2020; Klapper et al., 2007; Munemo, 2014; van Stel et al., 2007)*	*The database does not have continuously comparable data. There is very little data available for the entire period 2004-2020.*
The International Country Risk Guide -ICRG	*15.*	*1984. – 2023.*	*(Acemoglu, Johnson & Robinson, 2002; Ahlerup et al., 2009; Assane & Grammy, 2003; Busse & Hefeker, 2007; Daude & Stein, 2007; Esfahani & Ramírez, 2003; Eslamloueyan & Jafari, 2019; Hall & Jones, 1999; Pereira & Temouri, 2018)*	*The database is commercial and access to the database is not free.*
Polity II, Polity III and Polity IV	*5.*	*Data available until 2018.*	*(Acemoglu et al., 2002; Esfahani & Ramírez, 2003; Estrin et al., 2013; Glaeser et al., 2004)*	*A very long time series of data, with different time periods available for different countries.*
World Economic Forum - Global Competitivness Report	*32.*	*2006. – 2020.*	*(Desai et al., 2003; Estrin et al., 2013; Jung, 2020; Wennekers et al., 2005)*	*The report is compiled for a period of two years, with certain institutional variables taken from other institutional databases such as Transparency International, Doing Business, etc.*
Fraser Institute	*54.*	*1970; 1975; 1980; 1985; 1990; 1995; 2000. – 2022.*	*(Bénassy-Quéré et al., 2007; Bosma et al., 2018; Boudreaux & Nikolaev, 2019; Fabro & Aixalá, 2012; Gwartney et al., 2004; Nasreen et al., 2015; Sobel & Coyne, 2011)*	*The values of all variables range from 1 to 10, with 1 representing a poor score and 10 an excellent score. Furthermore, according to the Fraser Institute's methodology, all variables and indices are created with a two-year lag which can be useful for controlling the endogeneity problem.*

Source: Databases and systematization of authors

5. CONCLUSION

Since the old institutional economics, through the new institutional economics and until today, the lack of consensus has become one of the main characteristics in the study of formal institutions. A literature clearly shows the lack of consensus among authors in all areas of formal institutions: from their definition, and approximation methods to the control of endogeneity problems in empirical research. For this reason, the technique of choosing a particular approach - the "*knife*" technique - becomes a necessary first step in conducting any research in institutional economics. In such cases, authors should emphasise all the advantages and disadvantages of a particular approach and try to show the complexity of formal institutions through empirical research. Therefore, a good knowledge of formal institutions is necessary, whether it is about the concept itself, measurements, or methodologies used in individual scientific research. Considering all the above, future research will focus on creating a meta-regression analysis to determine the similarities and differences between the conducted research identified through the literature review.

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Problemi vezani uz koncept formalnih institucija

Sažetak

Rad pruža pregled literature od 52 znanstvena rada, 12 različitih baza podataka te 165 različitih institucionalnih varijabli. Uzimajući u obzir kompleksnost koncepta te razlike koje postoje između formalnih i neformalnih institucija, formalne institucije najjednostavnije je definirati kao zakonodavni okvir kojim upravlja vlada određene zemlje, a koji se može mijenjati i prilagođavati u kratkom i srednjem roku. Glavni cilj rada je istaknuti osnovne probleme vezane uz definiranje, mjerenje i provođenje empirijskih istraživanja iz područja institucionalne ekonomije. Nadalje, rad također ističe potencijalne prepreke i moguća rješenja vezana za probleme subjektivnosti, multikolinearnosti i endogenosti kojima autori najčešće ne pružaju dovoljno pažnje kada su u pitanju znanstvena istraživanja formalnih institucija. U konačnici, pregled osnovnih napomena vezanih za baze podataka omogućuje autorima lakši odabir najprikladnije baze za njihovo buduće potencijalno istraživanje.

Ključne riječi: formalne institucije, endogenost, baze podataka, pregled literature