

Non-Formal Institutional Environment of Social Entrepreneurship*



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Abstract. Social entrepreneurship as an alternative way to solve social problems is rapidly becoming popular. The efficiency of this type of activity largely depends on the formal institutions operating in the territory under consideration, as well as on the prevailing values, habits, customs peculiar to social groups which do not live on it and form an informal institutional environment. The purpose of the study is to simulate the impact of informal institutional environment on social entrepreneurship in the global space. The article analyzes the approaches to analysis of informal institutions; it is shown that this problem is raised in works of both foreign and domestic researchers. The Inglehart-Welzel concept of modernization, cultural change and democracy was used in analysis of informal institutional environment. The information framework of the research consists of international reports of the Global Entrepreneurship Monitor, the World Values Survey, the World Bank for 2015 in 30 countries. The analysis of distribution of countries according to Inglehart map criteria shows that successful functioning of social entrepreneurship is facilitated by post-materialistic values developed in the society. The authors of the article construct a non-linear multi-factor model demonstrating the influence of informal institutional environment on social entrepreneurship. It is proved that the most important factors of informal environment having an impact on social entrepreneurship is the autonomy of members in the society, as well as gender equality. The significance of the results is the opportunity to use the identified patterns directly for the development of social entrepreneurship, and solve social problems in general.

Key words: informal institutional environment, social entrepreneurship, factors, Inglehart-Welzel concept, values.

1. Introduction

Social entrepreneurship, being a relatively new phenomenon for the socio-economic processes of different levels of economic levels, has a number of features due to the transformation of behavior of economic agents in the implementation of this type of activity. First of all, social entrepreneurship is aimed at achieving social rather than commercial goals. The consumers of results of socially-oriented activities, including social entrepreneurship, are often a certain group of people with a common social problem, rather than a specific individual. Such expansion of the object of effort makes changes in the mechanisms for attracting resources for the development of this type of activity. A social entrepreneur receives a moral right to attract public resources to achieve social goals [1]. Under these conditions, the performance of social entrepreneurs is greatly influenced by economic, social, and legal conditions in

which they work. However, citizens' distinctive features of behavior, habits, and their values resulting from historical, cultural, national, and mental characteristics are equally important. In other words, the need to consider informal institutional environment affecting the development of social entrepreneurship is of particular importance. Despite the existing need to study the informal environment of socially-oriented activities, the majority of studies are devoted to the influence of formal institutions [2] on social entrepreneurship (M. Dacin [3], U. Stephan, L. Uhlaner [4], S. Zahra [5], etc.).

The study of the role of informal institutions is important for several reasons. First, social values are beliefs related to the actions and goals of economic agents [6], as a result of which the introduction of pro-social values motivates entrepreneurs to receive economic benefits and solve social problems. Second, values determine the standards and requirements to evaluate actions [6]. Public support is gained through

provision of resources which are hard to obtain, which helps reduce transaction costs of social entrepreneurs [7].

The purpose for the present study is to simulate the impact of the non-formal institutional environment on the global social entrepreneurship.

To achieve this goal we review the approaches to analyzing the impact of the non-formal environment on the economic processes, describe the Inglehart–Welzel cultural map reflecting the development of non-formal institutions in different countries, based on analysis of foreign and domestic literature, as well as through regression analysis; determine factors affecting social entrepreneurship, and build a multi-factor non-linear model to demonstrate the identified patterns.

2. Non-formal institutional environment of social entrepreneurship: theoretical analysis

2.1. Social entrepreneurship and approaches to its measurement

On the one hand, social entrepreneurship is viewed as a type of activity characterized by presence of a mission to create and maintain social value; search for and use of new opportunities for completing the chosen mission; implementation of a continuous innovation, adaptation and training process; determined action unlimited by available resources; high responsibility of an entrepreneur for the results of activities [8]; on the other hand, it is an alternative way to solve social problems, a set of rules and standards that specify the behavior between economic actors, that is focused on solving social problems through the development of commercial activity. It is noteworthy that in foreign practice the following schools were formed to study this phenomenon: the socio-innovation school, the socio-entrepreneurial school, and the European and English scientific schools.

The socio-innovation school, with J. Thompson, S. Elward, J. Mair, and I. Marti [9] as the main representatives, considers social entrepreneurship as individual activity to meet social needs through innovative methods. The research subject of the representatives of the socio-entrepreneurial school (R. McDonald, R. Dart, R. Anderson) are non-profit organizations (NPOs) serving the social sphere and receiving additional income [10]. Within the framework of this school, scientists are looking for new ways to provide finance for NPOs; they introduce effective management methods in the activities of social enterprises. However, the representatives of this school do not focus on innovation. The representatives of the European scientific school of social entrepreneurship, U. Stephan and L. Uhlaner [4], as well as R. Spir and I. Vidal see the purpose of socially-oriented activity in meeting public interests and conclude that the effectiveness of their existence is hindered. According to the approach of the English school of social entrepreneurship (D. Turner, C. Liming, S. Dickson and A. Clifford, L. Darby and H. Jenkins [11]), the solution of social problems should be entirely assigned to the business community, while the resulting income is directed primarily to the satisfaction of social needs.

Among domestic researchers of social entrepreneurship, the most notable are N.F. Kadol [12], studying the features of social entrepreneurship in the Russian economy, Yu.N. Arai and T.A. Burmistrova [13], covering the features of business models in social entrepreneurship, A. Moscovskaya, Head of the Center for Social Entrepreneurship and Social Innovation at the Higher School of Economics (HSE), and others [14]. The team of authors coordinated by researchers from Moscow studies in

detail the practice of social entrepreneurship development both at the national and international level, demonstrating and justifying a special development direction of this type of activity in the domestic practice. It is noteworthy that a distinctive difference of social entrepreneurship from entrepreneurship in general is the predominance of public goals over commercial ones [15], which implies special conditions to encourage entrepreneurs to make entrepreneurship a social issue.

Since the phenomenon of social entrepreneurship is new, there is a problem of its quantitative measurement. The search for information database and methods of measuring social entrepreneurship has identified three approaches most commonly described in the scientific literature: Panel Study of Entrepreneurship Dynamics, (PSED II), Global Entrepreneurship Monitoring (GEM), and analysis of tax returns of NPOs in different countries of the world. Let us consider these approaches in detail and analyze the possibility of their use as a source of data on social entrepreneurship in the framework of the study.

PSED II is a major research project studying the process of company's formation and development at an early stage of its operation [16]. PSED originated in 1993 with the study of the adult population in the state of Viscount, US. The University of Michigan, having developed the PSED methodology, continued to study households in the United States through a telephone survey of 64.000 Americans. Despite the large scale of the study, the applied methodology was not focused solely on studying social entrepreneurship, but was also directly implemented in the US territory, that is why it cannot be applied to determine the cross-country characteristics of social entrepreneurship.

GEM aims to explore social entrepreneurship in 2009 and 2015 in more than 50 countries. This approach is based on a survey to identify the share of people directly engaged in social entrepreneurship in a country. The disadvantages of this approach include difficulties in verifying the validity of obtained data and different approaches on what exactly should be considered as social entrepreneurship in different countries.

In the framework of GEM, tax returns of NPOs are applied. At the same time, despite the large amount of data, the concept of a non-profit organization in the tax legislation of different countries may vary. Moreover, the use of this method is difficult for scientific research in terms of data unification. This method was used in the study of social entrepreneurship development in the United States from 1982 to 2002 and the impact of state support on its development [17]. The method is also used in the work by D. Carroll and K. Stater, who study the impact of income diversification on socially-oriented activities in the United States [18]. It can be concluded that this method is applicable to the study of the phenomenon of entrepreneurship only in one country.

2.2. Non-formal institutions and approaches to their analysis

The need to consider non-formal institutional environment when analyzing social entrepreneurship is primarily due to the importance of social ties for the development of this type of activity.

The idea of non-formal institutions and their role in the development of economic processes is not new. In particular, T. Veblen defining institutes as habitual ways of implementing public life in its connection with a material environment in which lives the society [19], has laid the informal component in them. G. Schmoller also considered "rights", as well

as “morals” that make up the essence of non-formal institutions as part of such institutions. D. North when defining determining the institution, in addition to formal rules, highlighted informal restrictions, in particular the generally recognized patterns of behavior, agreements, and internal activity restrictions [20]. W. Scott when considering the cognitive source of institutions reveals their non-formal component. In this case, only cultural regulation takes place [21].

According to C. Williamson’s theory, restrictions range from attitudes, beliefs, customs, standards and traditions governing the daily individuals’ behavior, to private judicial systems. The key difference between formal and non-formal institutions is that non-formal rules arise spontaneously and are not part of the legal system established by the state [22]. The Williamson’s theory was developed by S. Pejovich, who also points to features of non-formal institutions such as spontaneous emergence and features of sanctions [23].

According to works by D. North and C. Williamson, non-formal institutions such as social values, standards and traditions derived from the cultural heritage are the determining factors in economic behavior. At the same time, non-formal institutions influence the incentive mechanisms and regulatory structures of formal institutions [20, 22].

Interest in this subject is gradually growing among Russian scientists who focus much attention on the role of non-formal institutions in the economic life of the society. V.L. Tambovtsev’s monograph *Economic Theory of Informal Institutions* is devoted to the analysis of definitions and approaches to studying the influence of non-formal institutions on the economic performance. Tambovtsev, forming the author’s understanding of non-formal institutions and determining the unambiguous

criterion for their separation from formal ones, proposes that institutions including non-specialized mechanisms for forcing the rules to be executed be considered non-formal institutions, which means that “the functions of a guarantor of non-formal institutions can be performed by any individual who believes for some reason that the addressees must follow certain rules; and who imposes sanctions to violators if there are any” [24]. A. Auzan in works devoted to the analysis of economic development in world countries, refers to non-formal institutions such as trust in society, gender equality, and individualism of members of the society [26].

Thus, the institutional environment consisting of stable rules, social standards and cognitive structures sets the framework for market transactions and writes the “rules of the game” [20]. Formal institutions characterize the constraints and incentives arising from government regulation, while non-formal institutions are formed within the society and are cognitive in nature; they reflect social agreements and arrangements that have an impact on the interaction and coordination between people within the society [20]. Non-formal institutions are closely related to the values accepted in the society: it is values that reflect the importance of beliefs and goals of members of the society [25]. Auzan emphasizes that values determine behavioral attitudes [26]. L. Polishchuk considers social capital – people’s ability to work together without coercion (in this case there is an external mechanism of coercion) – as a non-formal institution influencing the economic development of the society. The so-called “triad of social capital” consists of trust, shared standards and values, and various social networks. The nature of interaction of these elements is that “networks build trust among

participants and promote the dissemination and strengthening of pro-social standards, and the unity of values and mutual trust expands social networks and contacts". Due to lack of social capital, economic activity "is atomized and becomes more primitive, and economic opportunities are underutilized" [27].

One of the main properties of non-formal institutions is the replacement of malfunctions of formal institutions. At the same time, the procedure for forming formal and non-formal institutions differs significantly. On the one hand, cultural peculiarities, patterns of behavior determined by customs and traditions can be formalized and thus the non-formal institution will be transformed into a formal one; on the other hand, malfunctions of institutions and institutional voids contribute to the formation of new patterns of behavior, which are often informal [4].

One of the most common approaches to analyzing non-formal institutional environment is presented in G. Hofstede's *Culture Consequences* devoted to the study of national cultural values. The study was conducted in the 1960-70s [28]. Hofstede, through interviewing more than 88.000 IBM employees in 72 countries identified four key aspects of culture: distance to power, individualism, masculinity, and avoidance of uncertainty. Distance to power describes citizens' perception of the phenomenon of power, the structure of power distribution, as well as the importance of power on the scale of people's personal values. Individualism describes people's preferences in terms of caring for themselves, their relatives, and families (a high level of individualism) or uniting in groups collectively responsible for their committed members. Masculinity characterizes the dominant values in the society. The masculine content is a preference for heroic action, material

rewards for success, self-affirmation, rather than concern for others. Avoiding uncertainty indicates how citizens feel about uncertainty and ambiguity and whether they will try to control the future. Countries with high rates of avoidance of uncertainty support strong codes of belief and behavior and are intolerant of unorthodox ideas [28]. The methodology of studying non-formal institutions of social entrepreneurship was applied in work by K. Puumalainen, H. Sjögrén, P. Syrjä, and J. Barraket [29].

A common concept in studying a non-formal institutional environment is also the Sh. Schwartz theory, which distinguishes three bipolar cultural dimensions, representing alternative solutions to each of the problems faced by all societies: "Belonging" against "Autonomy", "Hierarchy" against "Equality", "Skill" against "Harmony". To identify the cultural characteristics of different world regions, Schwartz combined data from a survey of teachers and students and obtained results on seven value attitudes of cultures for 67 national groups. As a result of the research carried out during 1988–2005, Schwartz came to a conclusion that the socio-economic status and culture mutually determine each other [30]. Schwartz's approach (Schwartz value questionnaire) helps diagnose the structure of value attitudes of an individual or a group. The main feature of this technique is the differentiation of the concept of "value". The author says that there are two types of values: 1) values as abstract ideals and beliefs affecting an individual; 2) values as a guide to action, representing an "individual's profile". The first group of values is analyzed through assessing the respondent's characteristic qualities, presented in the form of nouns and adjectives, while the second – through assessing the individual's specific actions [31].

According to the Inglehart-Welzel concept, changes in cultural values is the result of socio-economic development of the society. Changes in values is an evolutionary process, during which values that are most suitable for life in specific living conditions undergo “natural selection” [32, p. 43]. The process of socio-economic development consists of two stages: industrialization – a transition from the agrarian to an industrial society; and post-industrialization – the displacement of the production sector by the service sector. At the stage of post-industrial modernization, a shift in the cultural sphere becomes predominant – the values of survival are replaced by the values of self-expression, which gradually increases social emancipation [32, p. 17]. However, according to R. Inglehart and C. Welzel, modernization processes undoubtedly leading to cultural and value changes, cannot be considered rigidly determined. In addition to socio-economic development, there is a number of other factors [32, p. 76]. The authors identify two historical factors of the system order that are resistant to changes: religious traditions of the society and its colonial past. Countries with protestant traditions, as a rule, occupy higher positions on the scale of “survival/self-expression” than catholic countries [32, p. 100]. The development of cultural values is non-linear with the socio-economic development since the degree of presence of secular-rational values and values of self-expression in the society can be explained by a combination of restraining and driving forces; at the same time, traditions and the modernization process affect cultural changes in both directions [32, p. 100].

According to R. Inglehart and C. Welzel, changes in cultural values at the personal level are manifested in changes at the social level, which contributes to the formation of new

institutions. However, the relations between them are often unambiguous [32, p. 100]. Nevertheless, non-formal institutions reflect the collective opinion that influences the cooperation and coordination of individuals in the society [20]. Shared values are a significant reflection of non-formal institutions [33]. Thus, this approach takes into account a wide range of indicators characterizing various spheres of the society: from religious and political to economic and social ones. Just like Hofstede’s approach, it has a global reach, is carried out regularly, and helps track changes over time, which forms a database of more relevant information on the functioning of non-formal institutions. It is noteworthy that this approach to studying non-formal institutions is used in works by both domestic [26] and foreign authors [4].

2.3. Substantiation of the author’s approach to analyzing the non-formal institutional environment of social entrepreneurship

When analyzing the institutional environment affecting social entrepreneurship, in addition to regulatory and supporting institutions, special attention should be paid to the institutions of the cognitive environment, that is, rules and beliefs established between individuals and their groups through social interaction [2]. These interactions are the most stable and informal, which suggests the importance of studying the impact of the non-formal institutional environment on social entrepreneurship. Cognitive institutions are often non-formal, dependent on the so-called path dependence, and determine the behavior of entire groups of individuals. U. Stephan and L. Uhlaner demonstrate that social entrepreneurs highly appreciate both prosocial nature of their activities and autonomy – features characteristic of the post-materialistic society [4]. This means that the high level of

post-materialistic culture in the society has a positive impact on social entrepreneurship. Socially supportive cultural standards related to non-formal institutions encourage cooperation based on multiple experiences of support, friendliness, usefulness, which stimulates the development of social entrepreneurship.

Based on approaches to analyzing social entrepreneurship and non-formal institutional environment presented in paragraphs 2.1 and 2.2., we formulate provisions underlying the framework of the authors' approach.

First, the GEM study described above is used as an information framework on the state of social entrepreneurship, due to the fact that this is the only database containing data on the development of this type of activity at the inter-country level. The study includes data from surveys of people engaged in social entrepreneurship at the operational stage of organization's development in the broad sense, that is, in any commercial activity with a social and environmental goal.

Second, the Inglehart-Welzel cultural map methodology was used for the study due to more recent data (2015) and a wide coverage of studied values measured in quantitative terms. It is noteworthy that Hofstede's method was rejected because the time lag between the study and the GEM study is 45 years, which is much more than one generation. The predominant cultural focus changes in response to a change in the position of power, although this change is much slower. Adaptation of societies to epidemics, technological development, welfare growth, contact with other cultures, wars and other exogenous factors leads to changes in cultural values [35].

Thus, based on the presented provisions, we developed an approach to analyzing a non-formal environment of social entrepreneurship, presented in detail in the next paragraph.

3. Authors' approach to analyzing a institutional environment of social entrepreneurship

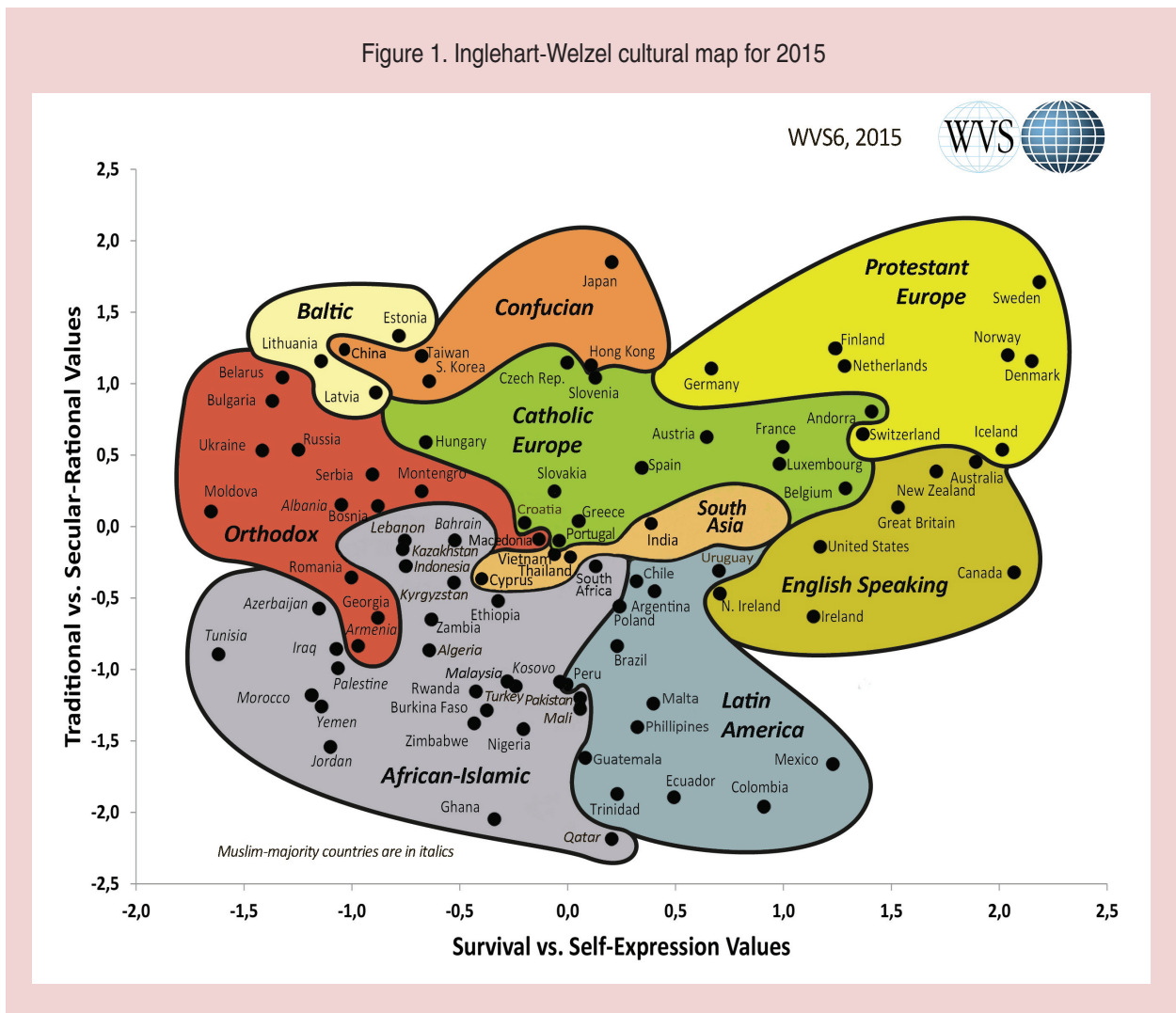
3.1. Application of the Inglehart–Welzel cultural map for analyzing social entrepreneurship

Based on data from the World Values Survey (WVS) in the early 1970s, R. Inglehart and C. Welzel formulated the concept of post-materialistic values, which proposed a new approach to studying values and their changes from generation to generation. According to the concept, young wealthy people in Western countries are less interested in the issues of income and security in the country, and more – in social and environmental problems and problems related to civil liberties. Inglehart notes that “the place of economic achievements as highest priority at the present post-modern society is increasingly focusing on the quality of life” [32]. As a result of achieving a high level of economic security, the population of countries who were the first to reach industrialization, focused on post-material values.

The Inglehart-Welzel cultural map is presented in *Fig. 1*.

The map shows cultural values systematized by 1) traditional and secular-rational on the Y-axis and 2) survival and self-development values on the X-axis. The movement from the bottom up characterizes the transition from traditional to secular-rational values, and the movement from left to right – the transition from survival to self-expression (post-materialistic) values. Traditional values include the importance of religion, absolute standards, and traditional family values; secular-rational values imply less attention to traditional family values and authority. The values of survival are focused on economic and physical security, as well as on the low level of trust and tolerance in the society. The values of self-expression

Figure 1. Inglehart-Welzel cultural map for 2015



give priority to subjective well-being, self-expression, and quality of life.

In this study, we analyze how the combination of these values is related to the level of social entrepreneurship development .

The cultural characteristics of behavior reflect a set of personal values that citizens adhere to [25]. It follows that the number of socially-oriented entrepreneurs is proportional to the number of people in the country who adhere to the values consistent with social entrepreneurship. Social entrepreneurs through their activities try to solve social problems and participate in production of public goods, which explains the interest of citizens with pro-social

values to socially-oriented activities. Thus, the major motivation of a social entrepreneur is creating social value (rather than personal well-being), which corresponds to the values of post-materialistic societies.

The theoretical hypothesis formed on the basis of the study can be presented as follows: the level of social entrepreneurship in the country depends on the values of post-materialistic societies. To confirm the validity of this hypothesis, we analyzed how countries with different levels of social entrepreneurship are distributed across the quadrants of the Inglehart map (Fig. 2). The level of social entrepreneurship is marked by a point showing

Figure 2. Distribution of countries with different levels of social entrepreneurship on the Inglehart-Welzel map



Source: compiled by the authors based on Inglehart map.

the position of the country on the map. For this purpose, correlation analysis and analysis of statistical data were used.

First of all, we checked whether there is a connection between the level of social entrepreneurship and the value of index describing post-materialistic values on the Inglehart map. We revealed that there is a connection between these variables, although weak ($r = 0.36$). Analysis of average values in each of quadrant demonstrates that in the first and fourth quadrant, the average value of the level of social entrepreneurship is 4.1 and 4.58% respectively, while in the second and third quadrant – 2 and 2.63% respectively. Also in both 1 and 4 quadrant 63% of the sample is concentrated.

Thus, the assumption that post-materialist values influence the level of social entrepreneurship determined the further area of the research and served as a justification for the possibility of using the WVS questionnaire for studying social entrepreneurship.

According to the latest wave of the WVS study, Russia is in the upper left quadrant of the Inglehart-Welzel map, which indicates a high degree of industrial but a low level of post-industrial development. In the 2015 GEM report used for the present research, there are no indicators for Russia, but the share of the population employed in social entrepreneurship in the 2009 GEM report comprised 1.23%, while in the US this figure was at the level of 5%. If we follow the concept that countries at

the post-industrial stage of development have more opportunities to change the institutional environment of social entrepreneurship, Russia is at the initial stage of formation of socially-oriented activities, and, consequently, social entrepreneurship will develop with the development of the post-industrial stage of modernization, changes in cultural values and informal institutions.

3.2. Factors affecting social entrepreneurship

To achieve the goal of the research, we used basis theoretical analysis to identify factors characterizing the non-formal institutional environment and greatly affect the level of social entrepreneurship.

The first factor is social needs of the society. As noted above, the priority of the social mission over other goals is a key factor in decision-making in favor of social and entrepreneurial activity [33]. At the same time, the social mission is manifested in the clarification of unsatisfied social needs or formation of new ways to address them. The variable reflecting the social needs is derived using WVS data, measuring the values of the society related to priority areas of their countries' development. The indicator of social goals priority was chosen for the study; it reflects the share of the adult population considering achievement of social goals prior to economic goals.

The second factor characterizing the non-formal institutional environment is the population's activity in organizations with social goals. This choice is made based on studies by S. Alvord, L. Brown, and C. Letts who consider the previous social experience of entrepreneurs as a key factor in the development of social entrepreneurship, contributing to the creation of supporting networks [34]. Previous studies show that the high level of citizen participation in public organizations can

positively influence the increase in the number of social entrepreneurs due to the awareness of social problems and gained experience. In order to measure the level of citizens' social activity we used data from the WVS reflecting the share of the adult population engaged in associations or organizations with social purposes, including religious, humanitarian organizations and groups of mutual help.

The third factor characterizing the non-formal institutional environment is the degree of autonomy of the society. In societies with strong social ties between their members there is no need for socially-oriented activity as all social problems are solved within the family or community. With a high degree of autonomy of a society with a high degree of isolation of its members a special mechanism for solving social problems is required, which, among other things, may be social entrepreneurship. Moreover, according to the concept of the American school of social entrepreneurship, this type of activity should be innovative [39]. G. Hofstede in his study *Social Contract* comes to a conclusion that in countries with a pronounced individual origin the innovation rates are high. To measure the degree of autonomy we use an characterizing the share of citizens who consider themselves autonomous, that is, do not consider themselves as part of the country, region, or individual local community. WVS survey data were also used as an information framework.

The fourth factor analyzed in the scientific literature is gender equality. Cultural values and expectations influence the nature of gender roles accepted in the society, namely which job and career opportunities are acceptable for women. The extent of gender differences is an important aspect of the social structure that can be affected by culture. The measurement of gender equality is based on parameters such

as social equality, health, and employment. Over the past 25 years gender roles have changed significantly, while cultural changes have been less intensive. However, culture has a property of accelerating or slowing down changes in the sex-role relations [32, p. 83]. The study by C. Nicolas and A. Rubio devoted to the distribution of gender roles in classical and social entrepreneurship concludes that the share of women participating in socially-oriented activity at the operational stage of development is two times lower than that of men in countries with underdeveloped economies. The gap between men and women in developed countries is 31% in favor of men. Moreover, though the share of women in social entrepreneurship is gradually increasing, the initiatives launched by women in developing countries are fragile. When it comes to financial security of social enterprises launched by women, two out of three enterprises close down. While enterprises organized by men cease to exist only in half of the cases [37]. The presented arguments justify the legitimacy of including this factor in the model.

Despite the general trend of favorable sustainable development of social entrepreneurship in countries with a high level of gender equality, there are exceptions in our study. Countries such as India and Botswana have a low rate of gender equality, yet, according to GEM, these countries have a high share of people engaged in socially-oriented activity. According to the study by the Thomson Reuters Foundation, India is a country with a huge domestic market and easy access to investment. At the same time, foreigners, especially Americans, note investment opportunities in Indian projects¹. Though traditional investors may be

skeptical of social enterprises, there is strong involvement of women and people aged 18–34 in this type of activity. According to the study of the Bank of America in 2016, 85% of young people wanted their investment to lead to social change. It was also revealed that the interest of women was higher than that of men. According to the Thomson Reuters Foundation study, gaining access to investment remains one of the biggest challenges for social enterprises. However, India is among countries with most affordable financing after Canada, Singapore, USA and Belgium². The high rate of social entrepreneurship in Senegal is due to involvement of authorities in the process of attracting foreign investment and simplifying the legitimization of business. Thus, access to real estate has been simplified, guarantee funds have been created to cover the risks associated with agriculture and social entrepreneurship [35]. The research into the impact of the formal institutional environment, including the role of the investment climate, is currently also being studied in detail. However, observations may indicate that investment plays a more important role than the non-formal institutional environment.

On order to analyze data on gender equality we use the 2015 World Bank report (CPIA Gender Equality rating) where for each country the Gender Equality Index was calculated.

When determining the impact of these factors on social entrepreneurship we used the index of social entrepreneurship development presented in the GEM report as a dependent variable. GEM is a global research into entrepreneurship conducted by the association of universities. The purpose of this research is a cross-country comparison of entrepreneurial activity. The GEM research uses a unified

¹ Available at: <http://poll2016.trust.org>

² Available at: <http://poll2016.trust.org>

system of measurements in all the countries under study; by 2009 the number of surveyed countries reached 80. GEM conducts annual random sample surveys of 2.000 adults in each country, and then collects information on all aspects of social entrepreneurship. The present study uses the 2015 GEM report on research into socially-oriented activities, with 167.793 people from 83 countries were surveyed. GEM measures the development of social entrepreneurship in the world through the share of people engaged in socially-oriented activities and the total population aged 18–64. This report is the largest comparative study of social entrepreneurship in the world. On the one hand, this methodology takes into account informal business activities, on the other – objective answers of respondents cannot be guaranteed.

4. Research procedure

In order to further simulate the impact of the non-formal institutional environment on social entrepreneurship, we formulated four hypotheses of the impact of theoretically identified factors on the level of social entrepreneurship development:

1) *with the increasing priority of social goals over economic ones the level of social entrepreneurship increases (X_1);*

2) *with the growing population's activity in organizations with social goals the level of social entrepreneurship increases (X_2);*

3) *with the growing autonomy of the society the level of social entrepreneurship increases (X_3);*

4) *with the growing gender equality the level of social entrepreneurship increases (X_4).*

In addition to factors presented in the analysis of the impact of the non-formal institutional environment, we analyzed more than 10 indicators characterizing religious features, citizens' activity, economic growth, equality rate, etc. However, due to the fact

that the correlation between these factors was extremely weak, regression coefficients are insignificant and are not theoretically confirmed, they were excluded from further analysis.

When testing this hypothesis, the authors used statistics provided by GEM, WVS, World Bank for 2015 in 30 countries. Using multi-variate non-linear regression analysis, an econometric model was developed to reflect the dependence of social entrepreneurship on non-formal institutions.

When constructing the model, we conducted preliminary analysis of the initial statistics, which revealed the most appropriate type of functional relations between the economic processes. At the second stage, the correlation analysis of the studied factors was carried out, which helped determine whether the factors forming the negative phenomenon of multi-collinearity are present in the model. At the third stage, a multi-variate model was constructed; at the fourth stage, the study of the quality of the constructed model was conducted. The fifth stage included testing and elimination of auto-correlated residuals in the model. Data processing was carried out using software products such as MS Excel and E-views. The econometric models obtained during the analysis are presented in the following paragraph.

5. Research result

The following variables were considered to test the hypotheses and further model the impact of the non-formal institutional environment on social entrepreneurship:

Y – share of people engaged in social entrepreneurship in a particular country;

X_1 – share of adults considering achievement of social goals prior to economic development;

X_2 – share of adults who are part of

associations or organizations for social purposes, in particular religious, humanitarian, and mutual help organizations;

X₃ – share of people who considers themselves autonomous members of the society.

At the initial stage of data analysis we revealed that the distribution of random variables by the tested factors and dependent variable Y is non-linear. The distribution has the form of power dependence. In this regard, original data were transformed into a non-linear form, and then a regression non-linear model was built.

As a result of pairwise correlations matrix analysis it was revealed that the multi-collinearity is absent in the model (*Tab. 1*).

After eliminating factors that do not have a significant impact on the results of testing the hypothesis of regression coefficients insignificance, we established the dependence of the level of social entrepreneurship on factors X₃ and X₄.

The results of regression analysis are presented in *Table 2*.

After conversion, the model was presented as follows

$$y = e^{-3.56} \times X_3^{0.37} \times X_4^{2.86}$$

At the next stage, we assessed the performance and reliability of results. The significance of the determination coefficient (F-statistic=0.0018) suggests that the model as a whole is reliable and confirms the sample representativeness. The determination coefficient R²=0.37 indicates that the variation of indicators of social entrepreneurship development by about 37% depends on the indicators selected at the stage of modeling the pairwise correlation coefficients matrix. The testing of the null hypothesis of insignificance of regression coefficients shows that the selected factors do have an impact, their regression coefficients are statistically reliable and significant. The value of the F-criterion and the significance level of p demonstrate that the constructed model is significant at the significance level α=0.05. At the final stage,

Table 1. Results of correlation analysis

	Y	X1	X2	X3	X4	X5
Y	1					
X ₁	0.30350605	1				
X ₂	0.222013327	0.643	1			
X ₃	0.382891553	0.227	0.341	1		
X ₄	0.481958601	0.321	0.221	0.015	1	

Table 2. Results of regression analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_X3_	0.370193	0.150195	2.464755	0.0204
LN_X4_	2.858845	0.914802	3.125098	0.0042
C	-3.559549	1.200329	-2.965477	0.0063
R-squared	0.373294	Mean dependent var	1.074841	
Adjusted R-squared	0.326871	S.D. dependent var	0.722148	
S.E. of regression	0.592483	Akaike info criterion	1.885649	
Sum squared resid	9.477964	Schwarz criterion	2.025769	
Log likelihood	-25.28474	Hannan-Quinn criter.	1.930475	
F-statistic	8.041184	Durbin-Watson stat	2.019726	
Prob(F-statistic)	0.001821			

we verified the prerequisites of the Gauss–Markov OLS. In particular, the expected value of random deviation of residuals for all observations tends to zero. The Darbin–Watson statistic used to detect the presence of autocorrelation of residuals ($d_{\text{calc}}=2.278$) demonstrated that there is no dependence between the residuals; they are distributed randomly:

$$DW = \frac{\sum(e_t - e_{t-1})^2}{\sum e_t^2} = \frac{19.1429}{8.4043} = 2.278.$$

The model was also tested for heteroscedasticity through visual analysis of the plot of residuals. Signs of dispersion variance and dependence of residuals have not been not detected, the model is homoskedastic.

Thus, the quality test demonstrates that the model is reliable and confirms the influence of factors of non-formal institutional environment on social entrepreneurship.

6. Discussion

The regression analysis has demonstrated that the priority of social goals over economic ones and active participation of the population in activities of organizations with social goals does not affect the level of social entrepreneurship development.

According to the constructed model, the important factors are the autonomy of members in the society and gender equality. This indicates that only the third and fourth hypotheses are satisfied.

The influence of autonomy of society members on the level of social entrepreneurship development is primarily due to the fact that in the society with strong social ties between its members often addresses social issues within the family or community, which indicates there is no need to establish and develop social entrepreneurship. However, the index value at X_3 equaling 0.37 indicates that the growth rate

of autonomy of society autonomy is higher than social entrepreneurship.

The impact of gender equality on the development of social entrepreneurship is confirmed by the thesis of F. Wilson and J. Kickul about the “female face” of social entrepreneurship. This is due to the fact that women are more focused on the values of self-expression than on gaining profit. However, economic and social motives are not mutually exclusive. It is noteworthy that in order to develop social entrepreneurship women need to have rights to carry out socially oriented activity. The index value at X_4 indicates that the value of this factor is large. The growth rate of social entrepreneurship is higher than that of gender equality index.

The value of the absolute term equaling $e^{-3.56}$ (≈ 0.028) should also be mentioned in analysis of this model. The quality test of this model has demonstrated that the absolute term for this model is significant. This indicates that there are other factors affecting social entrepreneurship. We believe that the value of the absolute term hides the influence of formal institutions on social entrepreneurship. This issue is planned to be studied in more detail in future studies.

Comparing the results obtained during modeling with the Inglehart map it is reasonable to draw a conclusion about the close connection of the degree of autonomy of society with the formation of secular-rational values in the society (Y-axis), that is, the higher the index of autonomy, the more likely is the development of socially-oriented activities in this country.

Gender equality affects the formation of values of self-expression but it does not fully characterize them. Thus, it is incorrect to speak of direct correlation between the existence of values of self-expression in the society and gender equality. But the highest rates of gender equality, according to the World Economic

Forum, are recorded in the countries of Northern Europe, North America and Australia. All these countries are located in the 1st and 4th quadrant of the Inglehart map and high values of self-expression.

7. Conclusion

In this study, in order to simulate the impact of the non-formal institutional environment on global social entrepreneurship the following results were obtained.

First, we analyzed the approaches to the analysis of non-formal institutions. It is demonstrated that this problem is raised in works by both foreign and domestic researchers. The paper covers various approaches to analyzing the influence of the non-formal institutional environment on the socio-economic processes and justifies the use of the Inglehart map in the study of social entrepreneurship.

Second, based on data on social entrepreneurship development in different countries

and using the Inglehart cultural map we created an adapted map for countries with different levels of social entrepreneurship.

Third, a non-linear multi-factor model was constructed to demonstrate the impact of the non-formal institutional environment on social entrepreneurship. It is proved that the most important factors in the non-formal environment having an impact on social entrepreneurship are autonomy of members and gender equality.

The significance of the presented research consists in the substantiated need to take into account the non-formal institutional environment when studying social entrepreneurship. This study can be developed by taking into account the addition of factors describing the formal institutional environment, as well as factors determining this influence in different groups of countries. This research area will be implemented in the authors' future studies.

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