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Empirical Indicators of Stratification of Modern Societies
in the Process of Intersocietal Selection

To stratify modern societies in the process of intersocietal selection, it is necessary to define the empirical indicators of such stratification. Therefore, to construct the classification of indicators of intersocietal stratification, the author reviews the existing indicators, develops new ones, and structures them into a coherent scheme. As a result of the research, a complex of forty empirical indicators of intersocietal stratification in the process of intersocietal selection has been elaborated.

Keywords: society, world system of societies, empirical indicators, stratification of societies, intersocietal selection.

From the ecological-evolutionary perspective of Lenski, some societies survived, while others became extinct in the process of *intersocietal selection* (2005, p. 116-117). As was demonstrated in the previous article on this issue (Khutkyy, 2009), it is important to study *the stratification of societies regarding the chances of success of individual societies in the process of intersocietal selection*. For such an assessment, it is essential to: first, define the key concepts, aspects, criteria, and measurements of intersocietal stratification; second, develop indicators, scales, and units of measurement, and, third, conduct measurement by the chosen indicators and define the positions of contemporary societies in the system of intersocietal stratification.

Regarding the core concepts of this research, *a success of society[i] in the process of intersocietal selection[ii]* can be identified as the very existence and reproduction of society as a self-governed social system. Respectively, *a failure of society in the process of intersocietal selection* can be stated as a loss of at least one of its determinant components, structure, or attributes. The most comprehensive indicator of such a failure can be the loss of all population, of all means of subsistence, or the complete destruction of the social structure of a society, which is not pertinent in the contemporary world. On the contrary, a more probable process of failure in the process of intersocietal selection of modern societies is a change of relations inside a society or with other societies, which leads to the loss of its self-governance or integrity. In such cases, the observed processes might be a peaceful annexation or conquest of a society by others, or a breakdown of social structure, indicating the loss of system integrity. However, even in the cases of conquest of one society by another, at least part of its population and material resources becomes a part of another society. Thus, the issue of success of society in the process of intersocietal selection can be reduced to *the reproduction of its qualities, which are adaptive for interaction with the external biophysical and social environments*. In this respect, from the perspective of ecological-evolutionary theory, the determinant variable is the level of technological development[iii]. The rise of ideology as the second most important cause of forming differences between societies is a peculiar characteristic of modern societies of the industrial era (Lenski, 2005, p. 122). This pattern can be considered as the specificity that influences the survival in the process of intersocietal selection especially of modern societies. Herewith, as it has been demonstrated in the previous inquiry (Khutkyy, 2009), not only technology and ideology, but also a total of twenty-five parameters are linked with intersocietal selection.

Since in the previous article (Khutkyy, 2009) the principal aspects, criteria, and measurements of intersocietal selection were developed, at the current research stage it is required to elaborate empirical indicators of such stratification. With the aim of comparing all societies in the world, these should be the indicators that are or can be applied to all societies in the world. Very close to these required parameters are countries' development indicators, elaborated and explicated in the World Bank reports, which have been published since 1978. With respect to indicators, it is

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reasonable to use the 2009 report, which employs standard as well as additional indicators (World Development Report, 2009). Other indicators from the thematic World Bank reports for other years are expedient to utilize as well. Even more detailed indicators of comparison between societies are applied in the United Nations human development reports, published since 1990. It is reasonable to make use of the 2010 report, as twenty years of development are summarized and the measurement methodology is explained in detail (Human Development Report, 2010). The study by Kapitsa (2008) is also valuable for the inquiry, as the overview and analysis of the available indicators of world development, applicable to individual societies, are presented there. Nevertheless, these sets of indicators and the relevant indices do not allow to estimate intersocietal selection in all its aspects and measurements[iv], thereby it is necessary to complement them with some additional indicators. Moreover, they were designed for other objectives, which are not directly aimed to assess the chances of selection of societies in the process of intersocietal selection. Therefore, for the ends of this research, it is required to conduct the adaptation and adjustment of the available indicators according to the applied conception of intersocietal selection (according to the ecological-evolutionary theory (Lenski, 2005)) and elaborate a coherent complex of indicators. Hence, there is a gap between the need for stratification of modern societies according to their chances of success in the process of intersocietal selection and between the lack of a set of empirical indicators of stratification of modern societies, which would make measuring the chances of success of societies in the process of intersocietal selection possible.

Therefore, the purpose of this research is *the elaboration of a complex of empirical indicators of stratification of modern societies regarding their chances of success in the process of intersocietal selection*. This goal requires the accomplishment of a set of objectives: to review the available indicators of stratification of societies; to choose the indicators relevant for measuring of intersocietal selection; to adapt the indicators for the applied conception; and to develop additional indicators, necessary for the complete measurement of intersocietal selection.

Methodologically, it is reasonable to consider that the available indicators can be incommensurable among themselves. Hence, at least three dimensions of distinguishing the indicators can be suggested: by the assessment type – between qualitative and quantitative; by the value type – between absolute and relative; by the temporal parameter – between assessments of states and dynamics. Quantitative values are more detailed and thereby are undoubtedly more useful than qualitative values for the aim of ranking societies. Thus, in selecting the indicators, it is reasonable to give preference to quantitative indicators. Therefore, within the remaining dimensions, it is possible to operationalize the four types of indicators: *absolute and relative, static and dynamic*. In addition, it is logical to discern four mixed types of indicators: absolute static, absolute dynamic, relative static, and relative dynamic. Ideally, the most complete assessment should be grounded on all four types; however, the task of such scope has proven to be overcomplicated and counterproductive at the stage of measurement development of stratification of societies. For practical considerations, a balance between a more detailed and a more concise scheme is better. Besides, not every measurement requires all types of indicators, especially considering that not every indicator has a valid empirical data.

To make the comparison of values concerted and convenient, it is reasonable to apply *scales of the same type*. For instance, many quantitative relative indicators are measured in percentages, so it is expedient to use not shares, but percentages, for all relative indicators, and convert all other scales into percentages (thus, all percentage scales will vary from zero to one hundred). Likewise, measuring the value of certain resources (when such calculations are done and there are valid data), it is reasonable to convert their value to US dollars on the grounds that such measurement is utilized in the world development indices (of World Bank and United Nations) and makes possible to use comparable scales.

Certain measurements (for instance, the degree of favorability of the social external environment for the existence of society and the degree of favorability of relations with the social

external environment) require an integral assessment, which is difficult to derive from objective data. For such measurements, *expert evaluations* might be more productive and useful for the analysis of stratification of societies. Experts are able to quantify characteristics of intersocietal relations and synthesize numerous parameters, including those that are not formalized and are not measured by widely adopted scales yet. To ensure the maximum consistency of evaluation and application of criteria, the most reliable evaluation should be the one provided by the same expert(s) for all the societies observed. Obviously, an expert should possess the relevant qualification for examination of all the societies under evaluation. For the aim of stratification of societies, the expert's ability to compare values for all analyzed societies will be more important than the number of criteria applied. To increase the results precision, for each society average evaluations from several experts should be applied.

There are numerous indicators in the cited sets of indicators for comparison between societies (developed by World Bank and United Nations), which makes the interpretations of the resulting indices complicated. To keep a balance between completeness and parsimony of the complex of indicators it is reasonable to employ the minimal set of principal indicators, sufficient to display the stratification of societies in each measurement.

Ten aspects of intersocietal stratification have been distinguished in the previous study: (1) the attributes of the *biophysical* external environment of society, (2) the attributes of the *social* external environment of society, (3) the attributes of the *population* of society, (4) the attributes of the *material resources* of society, (5) the attributes of the *culture* of society, (6) the attributes of the *social structure* of society, (7) the attributes of the *economy subsystem* of society, (8) the attributes of the *polity subsystem* of society, (9) the attributes of the *religion subsystem* of society, and (10) the attributes of the *education subsystem* of society (Khutkyy, 2009). Qualitatively different *criteria and measurements for each aspect* of intersocietal stratification have been identified as well. To ensure a consistent application of these developments regarding aspects, criteria, and measurements of intersocietal stratification, the classification elaborated in the cited article will be applied.

In the aspect (1) the attributes of the *biophysical* external environment of society, three criteria have been identified. The first criterion is the (1.1) ecological conditions with the respective measurement of the degree of favorability of conditions of the biophysical external environment for the existence of society. Whereas larger territory provides more opportunity to utilize natural resources and conduct societal activities in general, it is logical to consider the territory as the first indicator of intersocietal selection by this criterion. A standard measurement scale of territory area is the metric scale ranging from zero to tens of millions of square kilometers. Accordingly, the measurement unit is one square kilometer. A specific negative parameter is the danger of natural catastrophes (earthquakes, tornados, storms, volcano eruptions, draughts etc.). Obviously, it is a complex parameter, thus it can be calculated only as an index. In order to make it consistent with the other parameters, it should not be measured in negative values, such as death rate from natural catastrophes used in the Human Development Report (2010, p. 372). On the contrary, it should be considered in positive modality – as security from natural disasters. To make it more pervious, it can be measured in percentages in conventional security points. To adjust the available indicators, measured in substantially negative values, it is expedient to convert scales dividing one by the respective variables and using the resulting variables as security indicators.

The second criterion in this aspect is (1.2) natural resources and the relevant measurement of stratification is *the degree of natural resources richness* of the biophysical external environment. It is reasonable to take into account that not all societal territory is used with equal intensity, thus not all territory has equal value. It is expedient to consider which part of the territory is occupied by habitable and arable land, which is the basic natural resource. For this aim, it is possible to apply the World Bank indicator of the percentage of arable land relative to the total land territory (Khutkyy, 2009, p. 346). The suitability for international trade can be considered too. However, it depends on

specific historical conditions, and especially in the industrial era, it mostly depends on intersocietal relations. The fresh water reserves are important for agriculture and industry, and they can be calculated as the value of these reserves in US dollars. Given the fact that modern industrial societies rely on inanimate sources of energy (Lenski, 2005, p. 103-104), such energy sources as oil, gas, and uranium are important for consideration. They can be measured in US dollars too.

The criterion (1.3) the degree of favorability of interaction with the biophysical external environment in different sources is linked to various indicators, in particular, volumes of carbon dioxide emission, non-carbon emission, and the shares of various energy types (Human Development Report, 2010, p. 370-371). Nonetheless, it is expedient to apply a more comprehensive index of ecological sustainability, elaborated at Yale University and at Columbia University on the basis of twenty indicators, as cited by Kapitsa (2008, p. 120). It makes sense to calculate it in percentages too.

Thereby, in the explored aspect of (1) the attributes of the biophysical external environment of society by the criteria (1.1) ecological conditions, (1.2) natural resources, and (1.3) interaction with the biophysical external environment, it is relevant to apply the following empirical indicators. (1.1.1) *The total territory area of society*, (1.1.2) *the value of the index of security from natural disasters*, (1.2.1) *the percentage of arable land*, (1.2.2) *the value of cool water reserves*, (1.2.3) *the value of energy resources reserves*, (1.3.1) *the index of ecological sustainability*.

The next aspect of stratification of societies is (2) the attributes of the social external environment of society. It might be difficult to measure the criterion (2.1) external social conditions and the respective measurement (the degree of favorability of the social external environment). This is because in this respect societies are hardly ever stratified. Certainly, proxy indictors can be used, such as a country's investment rating, international relations status, the number of visa-free regime bilateral agreements, etc. Nevertheless, the parameters of conduciveness of the social external environment are evaluations covering many qualitative and quantitative variables, and therefore, they can be better defined by international relations experts. Considering this, it is expedient to use the index of favorability of the social external environment, formed by expert evaluations and measured in percentages, as a relevant indicator.

The degree of cultural resources richness (material products and information) of the social external environment serves as a measurement for the criterion (2.2) external cultural resources. Since societies obtain not hypothetical, but real cultural resources of external social environment by importing, it is reasonable to use the country import indicator, calculated in US dollars. Apart from the goods declared at customs, a considerable amount of information is derived from international voice traffic, but in contemporary settings, the scope of international Internet-traffic is more significant (Kapitsa, 2008, p. 84). Foreign investments, which provide opportunities to develop local production, are important for the development of national economy too. A standard indicator of their measurement is the amount of foreign direct investments (World Development Report, 2009, p. 366), calculated in US dollars.

Regarding the criterion (2.3) intersocietal relations and the relevant measurement (the degree of favorability of relations with the social external environment) there are some considerations. The percentage of external debt of GDP seems to be a quite telling indicator. However, some states (such as the US) blossom despite high values of this indicator; therefore, it is not a valid identifier of chances of success in intersocietal selection. Therefore, it is better to rely on expert evaluations, to be quantified into values of the index of favorability of intersocietal relations.

Thereby, the aspect (2) the attributes of the social external environment embraces three criteria of intersocietal stratification (2.1) external social conditions, (2.2) external cultural resources, and (2.3) intersocietal relations. The respective empirical indicators include (2.1.1) *the value of the index of favorability of the social external environment,* (2.2.1) *import amounts,* (2.2.2)

foreign direct investments amounts, (2.2.3) *amounts of international Internet-traffic,* (2.3.1) *the values of the index of favorability of intersocietal relations.*

The aspect (3) the attributes of the population of society is rather important for the chances of success in intersocietal selection (Lenski, 2005, p. 116). As for the criterion (3.1) the composition of population and its measurement, the degree of optimum of the composition of population, various indicators can be applied. For example, one can count the percentages of men and women; however, it is difficult, if ever possible, to specify whether a certain category is more beneficial for society. Therefore, it is more relevant to apply the standard indicator of population (quantity) (Human Development Report, 2010, p. 184). It is worth considering that in advanced industrial societies the majority of population lives in cities, and due to this, the modern world system of societies is characterized by the urbanization trend (Lenski, 2005, p. 118). An urban population is engaged in more profitable non-agrarian activities; thereby its percentage can be an indicator of intersocietal stratification. Consequently, it makes sense to apply the indicator of percentage of urban population, calculated from the total population (Human Development Report, 2010, p. 184). Taking into account the fact that youth often serves as a source of innovation, useful for creation of new technologies, it is appropriate to consider the share of young population too. Therefore, it is expedient to apply the indicator of percentage of young population in the total population. On the other side, middle-age population is considered the most productive, thus it is relevant to consider this part of population too. Thereby, the cumulative percentage of young and middle age population available for work, as calculated by the UN methodology, can be applied (Kapitsa, 2008, p. 219). Besides, in any case, it is beneficial for society that the population is healthy, so it is expedient to use the indication of population health. For instance, public health expenditures might be a proxy, but a rather widespread indicator (Human Development Report, 2010, p. 198), measured in US dollars. For an efficient functioning of a society, its population must be engaged in productive activities, that is in employment. There are a number of related indicators: unemployment rate, working age population, employment by sector etc. (World Development Report, 2013, p. 374). Nevertheless, one universal indicator would be sufficient. It has to be of positive direction, that is, its values should be directed towards the higher chances of success in intersocietal selection. The employment coefficient (the percentage of working population relative to workable population) meets these criteria (Kapitsa, 2008, p. 204).

By the criterion (3.2) the population composition dynamics and the corresponding measurement of the degree of population reproduction optimality, one can apply the population growth rate indicator (Kapitsa, 2008, p. 216). Nevertheless, for countries with a large population and high rates of population growth, it is optimal to have a low population growth rate, while for countries with small population and low rates of population growth, sometimes even lower than the reproduction rate, it is useful to have a high population growth rate. Therefore, it is more reasonable to utilize the minimum population growth rate, sufficient for population reproduction, as an optimal one. Then this indicator will equal to one hundred percent subtracted by the observed population growth rates divided by the maximum possible population growth rates.

To conclude the argument above, in the aspect (3) the attributes of the population of society, by criteria (3.1) the composition of population and (3.2) the population composition dynamics, it is reasonable to use the following indicators of intersocietal selection. (3.1.1) *Population (quantity),* (3.1.2) *the percentage of urban population,* (3.1.3) *the percentage of young and middle age population,* (3.1.4) *public health expenditures,* (3.1.5) *employment coefficient,* (3.2.1) *the degree of population reproduction optimality.*

Regarding the aspect (4) the attributes of the material resources of society, it is undoubtedly important, as the trend of the world system of societies is the growth in quantity, diversity, and complexity of material products (Lenski, 2005, p. 118), caused by the higher productivity of industrial societies. Whereas the relevant criteria of intersocietal stratification are (4.1) food resources, (4.2) material objects, and (4.3) energy resources, and the respective measurements –

their quantities, it is expedient to employ these measurements as indicators, calculated in US dollars. The available indicators of wealth, applied by the World Bank for assessment of world development, are well suited for this purpose. Among them the most valid are: wealth of nations, including cropland and pastureland (it includes the value of the grown harvest and livestock) and natural capital (the yearly value of energy and material resources), calculated in US dollars (World Development Report, 2010, p. 373). According to the criteria list applied, the last indicator should be broken down by the values of material and energy resources.

Thereby, in the aspect (4) the attributes of the material resources of society by the criteria (4.1) food resources, (4.2) material objects, and (4.3) energy resources it is appropriate to apply the following indicators of intersocietal selection: (4.1.1) *the value of food resources*, (4.2.1) *the value of material resources*, and (4.3.1) *the value of energy resources*.

The aspect (5) the attributes of the culture of society might seem unexpected for assessment of intersocietal stratification. Nevertheless, according to Lenski, such component of culture as technology, especially subsistence technology, can serve as a competitive advantage, and thereby be decisive for intersocietal selection (2005, p. 116). In particular, the increasing store of cultural, and specially, technological information, is a global trend (Lenski, 2005, p. 118). By the criterion (5.1) symbol systems and its measurement, the degree of prevalence of adaptive symbol systems in society, it is advisable to use such an aggregate indicator as the amount of intangible capital (the annual value of raw labor, human capital, social capital, and the quality of institutions) (World Development Report, 2010, p. 373), measured in US dollars. Regarding the criterion (5.2) technologies and their measurement, the degree of prevalence of efficient technologies in society, it is possible to utilize a number of various indicators. Specifically, these might include the provision of population with telephone communications (the percentage of population having a telephone line), cell phone communications (the percentage of population having a mobile phone number), computer penetration (the percentage of population having personal computers), and Internet penetration (the percentage of population having Internet access) (Kapitsa, 2008, p. 84-85). Besides, it is possible to calculate the percentage of technological development expenditures of GDP or the number of registered patents. Albeit, it is most efficient to apply a more comprehensive indicator, in particular, the availability of latest technologies (World Development Report, 2010, p. 373). The criterion (5.3) ideologies and the relevant measurement, the degree of prevalence of integrative ideology in society, it is difficult to measure, yet possible. For instance, it can be the cumulative percentage of the most widespread ideological orientations in a society. That is, from the perspective of societal cohesion, it is not that important exactly which technologies are widespread, but how big the portion of the population shares them.

Thereby, in the aspect (5) the attributes of the culture of society by the criteria (5.1) symbol systems, (5.2) technologies, and (5.3) ideologies it is logical to apply these indicators of stratification of societies: (5.1.1) *the amount of intangible capital*, (5.2.1) *the availability of latest technologies*, and (5.3.1) *the value of index of ideological homogeneity*.

The importance of the aspect (6) the attributes of the social structure of society is confirmed by the Lenski's discovery that societal complexity is favorable for intersocietal selection (2005, p. 116). The previously defined criteria include (6.1) social differentiation and (6.2) social stratification and the relevant measurements, namely the degree of social differentiation optimality and the degree social stratification optimality. In addition to them, it is important to add one more criterion – (6.3) social integration and its measurement, the degree of social integration of society. High social integration allows not to dispend social relations for internal conflicts (in particular, the presence of military conflicts is considered to be a negative sign, hindering societal development), but focus them on productive activities. As for social differentiation, it is quite sufficient to employ the indicator of the number of professions. There are numerous indicators measuring social stratification, namely: absolute and relative poverty, objective and subjective poverty (Kapitsa, 2008, p. 148-149), national poverty line (World Development Report, 2006, p. 286), or the ratio of

the richest decile to the poorest decile. Taking into consideration that high inequality demotivates people and reduces individual initiative, and conversely, a more egalitarian and rich population is more productive, that is, creates more wealth per capita, it is reasonable to conclude that for society it is more beneficial, when incomes are distributed more evenly. Of course, there is a perspective that incomes that are more equal do not provide sufficient stimuli for work. Howsoever, there are alternative approaches according to which such communities possess axiological and normative stimuli, such as labor importance, the motivation of satisfaction from self-expression in an emancipative, not alienated labor. For the measurement of income distribution equality it is adequate to apply the Gini coefficient (indicating the extent to which a real distribution of incomes between individuals or households deviates from a perfectly equal distribution) (World Development Report, 2006, p. 287), but measured in percentages. As for social integration, Kapitsa suggests to utilize the indicators of employment and social mobility (2008, p. 185-186). Notwithstanding, a more valid indicator is the level of trust (the percentage of people who believe that others can be trusted) and the level of civic participation (the percentage of people who report being engaged in matters related to their community or country) (World Development Report, 2013, p. 376). Decidedly, the historically registered rise in societal complexity (the complexity of social structure and, respectively, differentiation) is connected with the increase in social inequality in societies and among them (Lenski, 2005, p. 118). Nevertheless, a fortunate combination of a high societal complexity and a high social integrity increase the chances of success of modern societies in the process of intersocietal selection.

Therefore, in the aspect (6) the attributes of the social structure of society by the criteria (6.1) social differentiation, (6.2) social stratification, and (6.3) social integration it is reasonable to apply the indicators of intersocietal stratification (6.1.1) *the quantity of professions*, (6.2.1) *the values of Gini coefficient*, (6.3.1) *the level of trust*, and (6.3.2) *the level of civic participation*.

In the aspect (7) the attributes of the economy subsystem of society, two criteria are utilized. By the first criterion (7.1) the production of goods and services by the measurement amount and intensity of production, it is absolutely sufficient to apply the following standard indicators. Gross national income (GNI) (the total value added from domestic and foreign sources) (Kapitsa, 2008, p. 26) and GNI per capita (GNI, divided by midyear population) (World Development Report, 2009, p. 362), calculated in US dollars. Besides, it is better to use GNI per capita, than GNI per capita corrected for purchasing power parity, as the advantage of richer societies should not be ignored. With the aim to consider GNI dynamics, it is expedient to use the indicator of the GDP growth rate (in percentages). The criterion (7.2) the distribution of goods and services in society and its measurement, the degree of effectiveness of distribution of goods and services in society, is somewhat more complicated to measure. A large amount trade in a society should be recognized as a positive phenomenon, for it is conducive for obtaining more optimum goods and services. On the other side, trade might contain speculative components, but for this study, this is negligible. Thereby, the percentage of trade as GDP share (World Development Report, 2009, p. 347) can be used as a proxy indicator of distribution of goods and services in society.

Considering the above, in the aspect (7) the attributes of the economy subsystem of society by the criteria (7.1) the production of goods and services and (7.2) the distribution of goods and services in society, it is adequate to apply these indicators of intersocietal stratification: (7.1.1) *gross national income*, (7.1.2) *GNI per capita*, (7.1.3) *GDP growth rate*, and (7.2.1) *the percentage of trade as GDP share*.

The aspect (8) the attributes of the polity subsystem of society has three criteria. As for the criterion (8.1) the division of power and the respective measurement, the efficiency of mechanisms of division of power, citizen participation in political life is important. Therefore, it is reasonable to use the indicators of voice and accountability (the scope of citizen participation in elections and the degree of implementation of their rights) (Kapitsa, 2008, p. 294), measured in percentages. It should be mentioned that these indicators, as well as the following ones in this aspect, are grounded not on

representative surveys data, but on statistical data and expert evaluations. The criterion (8.2) the adoption of rules and decisions and the corresponding measurement, the efficiency of adoption of rules and decisions concerning functioning of society as a whole, is also complicated for measurement. Still, the support of population for the parliament, government, and president are valid indicators for this criterion. The criterion (8.3) the exercise of power in society and its measurement, the efficiency of exercise of authority has more indicators developed. These include: government efficiency (the evaluation of quality of the services, provided by authorities), rule of law (the evaluation of activities of authorities and citizens' trust to authorities), and corruption control (data from international organizations) (Kapitsa, 2008, p. 294-295). Among these indicators, the most encompassing is the government efficiency (the evaluation of quality of services, provided by authorities), which can be measured in percentages too.

To conclude, in the aspect (8) the attributes of the polity subsystem of society by the criteria (8.1) the division of power, (8.2) the adoption of rules and decisions, and (8.3) the exercise of power in society, it is relevant to use the following indicators of stratification of societies. (8.1.1) *The percentage of population, participating in elections*, (8.1.2) *the percentage of population, participation in the exercise of political power*, (8.2.1) *the percentage of population, supporting national laws and other legislative acts*, and (8.3.1) *government efficiency*.

The aspect (9) the attributes of the religion subsystem of society, probably requires the least detailed analysis. Similar to the values of the index of ideological homogeneity, the criterion (9.1) religious homogeneity and its measurement, the degree of religious homogeneity, can be measured as the percentage of the most widespread religion among a society's population. Certainly, in some societies there might be issues with the coding of variables. A question may arise, whether societies, where the majority of population are believers of the feuding varieties of one religion, are homogenous. Perhaps, in such case, the percentage of the most widespread variety of a religion should be calculated. Herewith, hypothetically, societies that are more religious might have higher religious homogeneity values than more secular societies, for they have more believers in general. Nevertheless, secular societies might be more ideologically coherent. In any case, the most coherent society would be the one, which is integrated both religiously and ideologically. The criterion (9.2) the religiosity of population of society and its measurement, the degree of religiosity of population of society, is relevant to define by self-identification – as the percentage of population, which considers itself as believers of a certain religion. Of course, this is a rather generic and simultaneously an inclusive criterion. Still, measurement of religiosity as a share of population who believe in God or in immortality of the soul, or who attend church regularly, are even more debatable, as they can depend on specificities, characteristic of particular religions.

Therefore, in the aspect (9) the attributes of the religion subsystem of society by the criteria (9.1) religious homogeneity and (9.2) the religiosity of population of society it is reasonable to apply these indicators of intersocietal stratification: (9.1.1) *the percentage of the most widespread religion among the population of society*, (9.2.1) *the percentage of population, associating themselves with a certain religion*.

The aspect (10) the attributes of the education subsystem of society, is also important for the assessment of intersocietal stratification. By the criterion (10.1) educational level and its measurement, the educational level of population of society, it is possible to utilize numerous indicators. For instance, overall enrollment ratio, expected education length, computer literacy rate (the percentage of population, able to use computer) etc. (Kapitsa, 2008, p. 87, 234). However, the most significant are such universal indicators as literacy rate (the percentage of adult population, able to write and read) (Kapitsa, 2008, p. 100) and the percentage of population with secondary and tertiary education. Regarding the evaluation of (10.2) educational system and its measurement, the degree of efficiency of education in society, there are such indicators, as the ratio of teachers to students (Human Development Report, 2010, p. 192), repetition rate, or educational system funding (Kapitsa, 2008, p. 240-241). Nevertheless, for an objective evaluation of the quality of education it

is relevant to measure not preconditions, but results of education. And the most universal among the available indicators is the percentage of youth, which has passed reading test (Kapitsa, 2008, p. 238-239).

Therefore, in the aspect (10) the attributes of the education subsystem of society by the criteria (10.1) educational level and (10.2) educational system it is reasonable to make use of these indicators of stratification of societies: (10.1.1) *the percentage of adult literate population*, (10.1.2) *the percentage of population with at least secondary education*, (10.1.3) *the percentage of population with tertiary education*, and (10.2.1) *the percentage of youth, able to read*.

The comparison of societies by values of specific indicators allows examining a detailed structure of differences between them. Yet for the aim of stratification of societies not in certain dimensions, but in their totality, it is advisable to compare societies by their integral values. This is made possible by applying the normalization procedure. First, the lowest value in a real sample of societies should be equaled to zero of the new scale (by subtracting this minimal value from values of each society in the dataset). After that, the highest observed value should be equaled to one in the new scale (by dividing values of each society by this highest value). At the current stage of development of the complex of indicators, they are regarded as having an equal importance (that is, the weight of each equals one). Further, the relative weights of the indicators might be identified. After that, the arithmetic means by all forty indicators can be counted as the values of the index of the chances of success of societies in the process of intersocietal selection.

Because of the examination, selection, analysis, the adjustment of available indicators and the development of new indicators of intersocietal stratification it is adequate to conclude the following. Based on the author's conception of aspects, criteria, and measurements of stratification of modern societies, it is relevant to apply the elaborated complex of the forty indicators of intersocietal stratification. This complex of indicators is grounded in the conception of intersocietal selection, developed within the ecological-evolutionary theory. It further develops the author's previously elaborated complex of the ten aspects and the twenty-five criteria of intersocietal stratification and includes a structured set of the forty indicators of intersocietal stratification, which can be used as an integral index of chances of success of societies in the process of intersocietal selection. Thereby, the likelihood of survival of individual societies can be assessed by values of this integral index, whereas the societies themselves can be ranked by the obtained values. Due to this, this complex of indicators serves as a valuable methodological instrument, which, once applied to the relevant quantitative data of the world societies, allows evaluating the chances of survival of the modern societies in the process of intersocietal selection.

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Notes

[i] According to the conceptualization conducted in the previous article, *society* is defined here as a self-governed social system consisting of humans, means of subsistence of humans and all relations among them; *self-governed social system* is conceptualized as a social system, which is regulated by information influences of a governing subsystem; herewith, the existence of a state serves as the indicator of self-government of a social system; *state* is defined as the governing subsystem of society performing normative regulation of society as a totality (Khutkyy 2009, p. 7).

[ii] From macrosociological perspective, intersocietal selection can be defined as "the process of selection, whereby some societies survive while others become extinct" (Lenski, Nolan, & Lenski, 1995, p. 461).

[iii] "Technologically advanced societies have enjoyed a substantially greater probability of survival than less advanced societies" (Lenski 2005, p. 117). This is why quantitatively higher levels of the development of forces of production in some societies and lower in others are crucial for the assessment of chances of success in intersocietal selection. Even among societies with relatively close values of these parameters, other parameters can be different. Ultimately, all modern societies are part of the single world system of societies and, regardless of qualitative differences among them, are subject to the process of intersocietal selection.

[iv] In particular, none of them takes into account such dimensions of stratification as the degree of favorability of the social external environment for the existence of society and the degree of favorability of relations with the social external environment.