Social Disintegration Index and Its Applications

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Abstract. This article presents the calculation methodology of the social disintegration index (SDIx) and an analysis of its applications. Social disintegration is interpreted as a lack of integration, and the Social Disintegration Index is calculated as a value supplementing the average of various social integration indicators to the figure of one. This index allows comparison of groups and societies according to the elasticity of relations between their members and can be compared to Social Network Index (SNI) or Social, Cultural and Civic Integration Index (SCCII). Another application of SDIx is in suicide analysis. In this case, Social Disintegration Index may be used to validate Emile Durkheim's theory of suicides. And, finally, the SDIx may be applied to the construction of certain models of human behavior. In this case, we presume that social disintegration means behavioral changes which, in their turn, are determined by the changes in stimuli (typical situations) and mentalities.

Keywords: Social Disintegration Index · Social integration · Behavior · Suicides · Stimulus-reaction model · Mentalities

1 Introduction

The processes of social disintegration can be studied by using two main approaches. Firstly, processes which destroy social cohesion can be identified, sorted and analyzed. According to Robert Fedderke and Johannes Kushner, social disintegration refers to such dimensions as conflict and instability, breakdowns in political and civil rights, crime and violence, growing divisions between rich and poor, and eroding levels of citizens' satisfaction with their lives [1]. On the other hand, social disintegration can be regarded as a lack of integration, and so the focus can be on the analysis of indicators which reflect social integration. This paper adopts the latter approach.

Social networks play an important role in both social integration and disintegration processes [2]. The Berkman–Syme Social Network Index (SNI) [3, 4] assesses participation in 12 types of social relationships. These include relations with spouse, children, parents, parents-in-law, other close family members, close neighbors, friends, workmates, schoolmates, fellow volunteers, members of groups without religious affiliation, and religious groups. One point is assigned for each type of relationship for which respondents indicate that they speak (in person or on the phone) to person in that relationship at least once every two weeks. Social Network Index allows researchers to categorize individuals into four levels of social connection: socially

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isolated (individuals with low intimate contacts—not married, fewer than six friends or relatives, and no membership in community groups); moderately isolated; moderately integrated; and socially integrated. SNI is mainly used to study the impact of social connectedness on health [5, 6].

Wong and Tezli [7] considered nineteen variables for the creation of an index to measure the social, cultural, and civic integration of immigrants. These variables included volunteering, voting in elections, sense and extensiveness of trust in people, experience of discrimination, and others. Eight variables remained using the statistical technique of factor analysis, and these eight constituted Social, Cultural and Civic Integration Index (SCCII).

The methodology presented in the paper differs from the other ones in that it includes a formula which allows to range the countries by level of social disintegration. The Idea of SDIx has emerged in the process of investigation of the role of social disintegration for suicides. Emile Durkheim is credited to be the first to demonstrate that the suicide rate provided a measure of social disintegration [8, 9]. On the other hand, some researchers argue that a close study of Durkheim's evidence supports the opposite conclusion and that the incidence of self-destructive behaviors such as suicide is often greatest among those with high levels of social integration [10]. Which of the opinions can be empirically confirmed or denied? To put it in other words, does correlation between suicides and social disintegration exist? We couldn't apply any of the existing social integration indexes to solve the problem, so created a new one. Other SDIx applications were considered later too. Both the SDIx formula (1) and the formula for typical behavior studies (2) are introduced for the first time; therefore, they can be improved. On the other hand, in its current form, the formula (1) can already be applied successfully to range the countries and to study relationship between social disintegration and suicides.

2 Social Disintegration Index

The focus of this section of the article is the analysis of the behavior, as it is the changes in behavior that best reflect social integration or disintegration. The main form of behavior reflecting social integration is participation in common activities. The range of such activities can be rather extensive, starting with a friendly chat over a cup of coffee and ending with an armed battle behind the barricades. The study of different aspects of these activities requires application of different indicators. Two types of social integration indicators can be distinguished: simple and complex. The simple indicator allows examination of one particular aspect of social integration, for example: participation in city festivals, communication with neighbors, etc. In social surveys, this aspect of social integration is studied with the help of dichotomous questions (yes/no). Meanwhile, complex indicators comprise two or more simple indicators. In social surveys, this aspect of social integration is studied with the help of such questions as "*which of the activities listed below do you participate in*".

Let's say that the society comprises N members, N'part of which participates in the common activity n. In this case, the social integration indicator can be calculated as a ratio of the indicator n and N' of people participating in common activities. For

example, if a third of residents of a certain city participate in city festivals, a quarter participate in political actions, while one in six residents regularly goes to sports clubs, the social integration indicator calculated with the help of these three indicators will be equal to 0.25 (1/3 + 1/4 + 1/6 divided by 3). The value supplementing this indicator to 1 shall be called the Social Disintegration Index, which is calculated according to this formula:

$$SDIx = 1 - \frac{\sum_{i=1}^{n} N_i'}{n} \tag{1}$$

As shown by the formula, the Social Disintegration Index varies within the range [0; 1]. It is equal to a 0, where all members of the society analyzed participate in the activities reflecting social integration, and it is equal to 1 where nobody participates in these activities.

We will now calculate the social disintegration index in different European countries on the basis of the 1999–2000 data of the European Values Study [11]. The survey was chosen because some of its results have been published by Halman [12] and can be compared with the results of two previous (1990 and 1981) and two subsequent (2008 and 2017) studies. Social integration will be measured using 25 simple indicators combined with 3 complex indicators.

One of the main indicators reflecting social integration is the number of people doing unpaid voluntary work. In the EVS questionnaire, this aspect of social integration is studied with the help of question 5(b): *Which, if any, are you currently doing unpaid voluntary work for? Social welfare services for elderly, handicapped or deprived people; religious or church organizations; education, arts, music or cultural activities; trade unions; political parties or groups; local community action on issues like poverty, employment, housing, racial equality; third world development or human rights; conservation, the environment, ecology, animal rights; professional associations; youth work (e.g. scouts, guides, youth clubs etc.); sports or recreation; women's groups; peace movements; voluntary organizations concerned with health; other groups.*

Another form of social integration is participation or readiness to participate in political actions. In the EVS questionnaire, this aspect of integration is reflected in question 51: *Now I would like you to look at this card. I'm going to read out some different forms of political action that people can take, and I'd like you to tell me for each one, weather you have actually done any of these things, whether you might do it or would never, under any circumstances, do it.*

A Singing a petition; B Joining in boycotts; C Attending lawful demonstrations; D Joining unofficial strikes; E Occupying buildings or factories.

Social integration can also be measured by how often people spend time together. In the EVS questionnaire, this aspect of social integration is studied with the help of question 6: *I'm going to ask how often you do certain things? Spend time with friends; Spend time with colleagues; Spend time in church, mosque or synagogue; Spend time in clubs and voluntary associations;*

The survey results are presented in Table 1: Column *N'1* provides the share of respondents whose answer to question 5(b) was 'Yes' to at least one of the listed

voluntary activities. Column *N'2* provides share of respondents whose answers to the question 51 was "Have actually done". Column *N'3* provides the share of respondents whose answer to at least one of the activities listed in question 6 was "Every week". Column SDIx provides the countries' disintegration indexes calculated according to formula (1); column Suic. R provides the suicide mortality rate (per 100 000 population) in those countries in the same year. Several countries have not been including into the table, the data on which has not been found at the World Health Organization Database [13].

Table 1. Social disintegration indexes, social integration indicators and suicide rates in 28 European countries in year 2000. Sources: European Values Study Database; Loek Halman. The European Values Study: A Third Wave. World Health Organization Database.

Country	*N'1*	*N'2*	*N'3*	SDIx	Suic.R
Russia	0.07	0.08	0.16	0.90	39
Lithuania	0.12	0.09	0.15	0.88	44
Hungary	0.14	0.05	0.18	0.88	32
Ukraine	0.12	0.08	0.20	0.87	30
Romania	0.14	0.06	0.20	0.87	13
Poland	0.12	0.07	0.23	0.86	15
Estonia	0.16	0.07	0.21	0.85	27
Bulgaria	0.15	0.07	0.27	0.84	17
Latvia	0.18	0.10	0.23	0.83	32
Belarus	0.18	0.06	0.29	0.82	35
Slovenia	0.25	0.11	0.28	0.79	30
Germany	0.19	0.18	0.25	0.79	13
Portugal	0.12	0.15	0.36	0.79	5
Croatia	0.23	0.11	0.38	0.76	20
Austria	0.28	0.17	0.26	0.76	20
Czech Republic	0.30	0.20	0.21	0.76	16
France	0.23	0.29	0.24	0.75	17
Iceland	0.32	0.19	0.25	0.75	11
Italy	0.25	0.23	0.28	0.75	7
Malta	0.28	0.13	0.34	0.75	6
Greece	0.31	0.20	0.27	0.74	3
Finland	0.37	0.16	0.28	0.73	23
Belgium	0.32	0.28	0.26	0.71	21
Ireland	0.28	0.20	0.40	0.71	12
Denmark	0.33	0.27	0.29	0.70	14
Netherlands	0.31	0.26	0.34	0.70	9
Great Britain	0.43	0.24	0.33	0.67	7
Sweden	0.54	0.33	0.31	0.61	13

The table shows that the highest social disintegration indexes are reported in Eastern Europe, with the lowest indexes in Northern and West Europe. These regions largely differ in both social capital and development of civil society too [14]. The next step of the survey is the study of the SDIx dynamics and its relation to other indexes applied to compare society's and, in the basis of results obtained through comparison, seek for the most efficient methods for enhancement of social integration.

The formula (1) can be improved in two basic ways. Firstly, the range of social integration indicators can be expanded. Obviously, the higher the number of social integration indicators included into the analysis, the more accurate the social disintegration index is. On the other hand, the higher the number of indicators distinguished, the more doubts can arise with respect to the significance of a certain indicator. Secondly, the formula (1) interprets all indicators as being equivalent, which is definitely not always the case. For example, one can assume that the social integration of people fighting side by side behind the barricades is stronger than that of people who discuss political news over a cup of coffee. In this case, the introduction of coefficients of social integration indicators is necessary, however, this problem requires a separate study.

3 Suicides as Disintegration

The scholarly literature marks out social, economic, psychological, physiological reasons for a suicide [15, 16]. To our opinion, the concept of disintegration is crucial for understanding causes of suicides. We chose two kinds of disintegration to analyze in this paper: disintegration of the nations and disintegration of the individuals. The first kind of disintegration means the loss of national identity and/or political independence by the nations resulting from military intervention or from adverse historical circumstances, the second means social disintegration.

Disintegration of the nations was mainly responsible for the dynamics of suicides in the West in the twentieth century – that is the threat for the existence of some nations resulting from adverse historical circumstances. Austrians, Estonians, Hungarians and Czechoslovakians were leading the suicide rates before the Second World War. All these nations had serious problems with political independence and national identity. When Austro-Hungarian monarchy, one of the most powerful monarchies in Europe, fell – Austria became a small state, having to deal, apart from everything else, with all the economic, social and moral consequences of losing the war. However, this state soon found its own place in new Europe and was no longer on the list of the leaders in suicides. Hungarians got their independence in 1919, after a struggle of more than three centuries for their unified sovereign state, just to lose it again in 1945. Estonia's fight for an independent state was also full of dramatics. Czechoslovakia – a political neologism born in 1919, was not able to perceive either its identity, or its historical prospects in time. Unsteadiness of this creation was proved by the split in 1993.

Lithuania, Russia, Byelorussia and Latvia were leading in suicides at the end of the twentieth century. Unexpected to some, Lithuania's leadership in this context is more than comprehensible: during the last two centuries (according to some authors, ever since the times of Vytautas the Great) Lithuania has enjoyed its independence for approximately 30 years only. Latvia's way to independence was no easier. Byelorussia

did not even dream of creating their independent state. Russians experienced and are still experiencing all the consequences of the falling empire.

There is a feature common to the dynamics of suicides among the nations that have fought for their independence which may be named as an overdue effect: most people commit suicides not during their struggle for independence, but after the declaration of independence. This fact is common almost among all nations that have gained their independence in the twentieth century: Hungary, Finland, Baltic States and Iceland. This phenomenon might be explained by at least two groups of reasons. On one hand, the fight for independence is an important factor unifying the nation, however dramatic and full of losses it might be. When the struggle is over this factor disappears and the nation experiences a certain existential vacuum. Old goals are reached, and the new ones are not formed yet. Respectively, the risk of suicides increases, and its number grows.

Let's come back to the role of social disintegration for suicides. Our study has revealed that suicide is linked with social disintegration. Pearson correlation coefficients between *N'1, N'2, N'3* and the suicide rates are equal to correspondingly −0.921, −0.901 and −0.581 (all correlations are significant at the 0.01 level). The correlation coefficient between SDIx and suicide rates is equal to 0.611 (correlations is significant at the 0.01 level). This means that social disintegration does play an important role in the causes of suicide. This *inter alia* means that the more people communicate, the less inclined they are to suicide.

4 Mentalities and Behavior

The S-R (stimulus-response) model which is widely applied in behavioral sciences, enables explanation of some behavioral variants, but does have deficiencies as well. First of all, response is given only in such cases where there is a stimulus, i.e. the formula expressing this model should be as follows: *if there is S, then there is R.* Moreover, different people respond differently to the same stimuli and some people do not respond to them at all. In this study, we will presume that different responses are determined by different features of mentalities (M). For instance, only those people in whose life feature of mentality such as *godliness* plays a bigger or smaller role, make the sign of the cross when walking past the altar of a church. If we mark the altar as S1, godliness as M1 and the sign of the cross as R1, we can express the dependency existing between these variables as follows: *if there are S1 and M1, then there is R1*. The formula of this behavioral model would be as follows.

$$If\ Sn\ and\ Mn,\ then\ Rn \tag{2}$$

Let's consider each part of this formula in more detail. Objects or phenomena perceived through the five senses often trigger responses. For example, when a person meets his/her acquaintance on the street, he/she says 'hello', and when a person sees an animal which poses a threat to his/her life, he/she runs or takes evasive action, etc. However, in the majority of cases the reason behind every human behavior lies in the world of imagination rather than in the world perceived through the five senses;

therefore, if we want to explain this group of stimuli, we need to analyze imagination contents, the main ones of which are archetypes and symbols [17]. Both of these manifest themselves in *typical situations.* If the concept of a stimuli is likely to define the biological aspect of human behavior, then typical situations describe the social aspect of that human behavior.

The most frequently mentioned traits or mentalities include duty, consciousness, empathy, love of one's homeland, hatred towards people of a different race (religion), etc. As the features of mentality are expressed in concepts, we should create a thesaurus of different features of mentality characteristic of the analyzed society. The mentalities of specific groups or individuals comprising the society would be part of this thesaurus.

Responses constitute the only one element of human behavior which is available for empirical observation and measurement. Typical behavior plays an exceptional role among different types of responses. There are two main sources of typical behavior of members of a society: statistical data and results of social surveys. Statistics includes data on various aspects of the social, economic, cultural and political life (participation in cultural events and political campaigns, consumption of goods and services, etc.). Findings of social surveys supplement these data with information about the attitudes, values, beliefs, behavior of members of a society.

Society is a system where people are distinguished for certain features of mentalities, behave in certain typical ways in certain typical situations. All the elements of this system are interlinked: changes in typical situations lead to mentality and behavioral changes, mentality changes alter typical situations and behavior. Typical behavior constantly changes. The main objective of research is to explain these changes. What kinds of changes in the area of typical situations and mentalities lead to changes in typical behavior?

Suicide is a variant of typical behavior. The findings of our studies confirmed that social disintegration has an impact on suicides. Therefore, what mentality traits encourage or, on the contrary, suppress social disintegration? Moreover, how are these traits related to suicides? The EVS surveys give at least a partial answer to these questions.

Question 80 of the EVS is aimed to find out which part of the population is ready to do something to improve the conditions of various social groups in their countries, and questions 81 is intended to find out the reasons to do something to help the elderly people and is formulated as follows: *There can be several reasons to do something to help the elderly people in your country. Please tell me for each reason I am going to read out, if they apply to you or not. A Because you feel you have a moral duty to help; B Because you sympathize with them; C Because it is in the interest of society; D Because it is in your own interest; E To do something in return.*

These reasons to do something to help the elderly people are features of mentalities which take the form of typical behavior in typical situations. One of these features, namely a moral duty is related to suicide: the correlation coefficient between the Suic. R. and a part of the population, whose main reasons to do something to help the elderly people is a duty, is equal to −0.616 (correlation is significant at the 0.01 level). Actually, this confirms Kant's views that suicides are the loss of duty to self and to society [18].

5 Discussion

The three SDIx applications distinguished in the paper can be treated as three phases of the same process. Firstly, the SDIx enables the ranking of various countries according to the level of social disintegration. Depending on the indicators used in the formula (1), the same country's position in the ranking may change, but, regardless, the ranking allows both similarities and differences existing among various countries to be analyzed. In the next phase of research, we will be able to look for a relationship between the Social Disintegration Index and other indexes that reflect social processes, such as the Global Index of Religion and Atheism, the Corruption Index, etc. The paper highlights the relationship between the SDIx and suicide rates. The third phase analyses the reasons for changes in social indicators. The paper discusses two groups of drivers behind these changes – typical situations and mentality features and reveals the relationship between duty and suicide.

The final purpose of typical behavior research is to develop a model which is able to explain changes in typical behavior. The process of developing such a model primarily depends on theoretical approaches which are the basis for different models. Let's consider two of them.

Pitirim Sorokin classified societies according to their cultural mentality, which can be "ideational", "sensate" or "idealistic" (a synthesis of the two). According ti him, major civilizations evolve from an ideational to an idealistic, and eventually to a sensate mentality. He suggested that in the twentieth century the sensate Western society began to fall apart. There was, among other things, a disintegration of its legal, moral, esthetic values which, from within, control and guide the behavior of individuals and groups [19]. Some aspects of this process can be measured with the help of SDIx.

von Bertalnfy argued against robotatization of man, toward a humanization of science in his book *Organismic Psychology and Systems Theory* [20]. The main purpose of the author was to outline the place of psychology in modern science and briefly to review a new Natural Philosophy which appears to be emerging. According to Bertalanfy, in order to understand the processes which take place in society, that society should be viewed as a system in which symbols play an important role. In this case, formula (1) can be used to explore symbols as stimuli for common activities.

6 Conclusion

In its current form, the Social Disintegration Index can be applied successfully to rank the states by level of social disintegration, as well as for analyzing the relationships between social disintegration and suicides. In order to apply this index to create or investigate human behavior models, it will be necessary to adopt additional assumptions and define the concepts used in developing such a model.

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