

Ranking the Social Capitals of Organizations Using ELECTER (A Case Study)

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Abstract—The current study aims at measuring the social capital at the Islamic Azad University (Comprehensive and Very Big Branches in Zone 13) in terms of Social Capital and ranking them on the basis of the obtained scores. The population includes all the academic staff and employees of the mentioned universities. The sample is comprised of 519 people selected randomly based on the formula for sample size in limited populations. Obrian et al.'s standard questionnaire has been used to analyze the data. The results of the study show that among the different branches of Islamic Azad University in zone 13, Ahar and Bonab branches rank the first.

Index Terms—Social capital, ELECTER method, university.

I. INTRODUCTION

During the past decade there has been an extraordinary outburst of research by economists, political scientists and sociologists into the definition and measurement of social capital [1].

There are at least three mainstream theoretical understandings of social capital and its origins widely in use. Understanding the social capital is based on a theory proposed by Bourdieu and Coleman [2]-[4]. Social capital is mainly considered as a form of capital like physical, financial, and intellectual capital. Rational actors invest in a specific social relationship in the same way as they do in a specific financial asset because they expect the greatest possible return, although not necessarily in the form of money, but in other forms of capital (e.g. the social capital). In this expanded understanding of economic value, social networks are profitable like any other forms of the capital. As with other investments, trusting others involves a calculation regarding risk versus potential gain[5]. The second understanding of the social capital is from societal perspective in which social capital originates from participation in the voluntary associations and an informal face-to-face interaction e.g. in shopping centers, at bus stops, or in public libraries[6], [7]. In this way, trust, reciprocity, and networks are built. The third theoretical understanding of social capital pertains to the institutional perspective where the social capital is created by incorrupt universalistic public institutions, institutions that provide the same benefits to all e.g. the judicial system, public schools, health and social services, and public libraries [8].

Putnam et al.'s definition of social capital is the “features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating co-ordinated actions. In identifying the key components of social capital as networks of civic engagement, social trust and norms of generalized reciprocity [1].

Generally speaking, social capital is regarded as an important dynamic element of any social and cultural system. And university, as a social organization, could be used for transferring social capital throughout the society via beliefs, values and norms, and as a means of creating social trust towards the academia. Given that university and in general the higher education system is a center for creating and developing social capital, inefficiency of the mentioned systems reflects their failure in improving the economic, social, political and cultural developments. The role of university in the development of any nation is undeniable. Therefore, universities need to increase the social capital of their staff and employees to form norms, social networks, as well as mutual cooperation and trust which will foster their scientific achievements. Given the fact that understanding the current situation is a prerequisite for the improvements that follow, we have to get some background knowledge of the present conditions of social capital to be able to evaluate and measure it. The measurement of social capital and its indices need the methods that not only take into account the aspects of the social capital but also measure its extent. The use of multi-layer decision-making methods helps researchers to obtain accurate and logical results. Taking into consideration the above mentioned issues, the present study sets out to measure and rank the comprehensive and very big branches of Islamic Azad University (IAU) in Zone 13 in terms of social capital indices. In this regard, the main indices of social capital including trust, cooperation, job-related relationships, the acceptance of differences and neighborhood relationships, life values, family relationships and volunteer activities were defined and then used as input for the decision-making model.

II. THE REVIEW OF THE LITERATURE

Ample research has been carried out on the social capital. Wallis et al.'s study of the social economics and social capital incorporates is considered as a critical evaluation of the mainstream social capital literature from a social economics perspective. They argue that various strands within the social economics tradition share a common concern with the “disembedding” of social context from mainstream economics [1]. Varheim's study puts emphasis on the public libraries where he believes that the social

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capital is created. His paper reports the quantitative macro-level results concerning whether public library expenditures can contribute to the explanation of the social trust patterns in the OECD countries. However, to be able to ascertain this, numerous qualitative studies are needed to reveal the mechanisms that generate the generalized trust. Preliminary qualitative interviews suggest that this approach can be fruitful [8]. Ferri et al. attempt to measure the social capital in the entrepreneurial context. His examination of the social capital literature thus far, although not exclusively, has noted the emergence of several common themes that associate the issues of measurement with lack of empirical consensus on an accepted definition of social capital [9]. Van Oorschot et al.'s concern is that whether the welfare state reduces the inequalities in social capital. They aim to analyze whether social capital inequalities are smaller in more extensive welfare states. The results of their study show no effect of welfare on social capital inequality [10]. In his study, Oxbo attempts to delineate the concepts of social inclusion, social cohesion, and social capital. The paper uses Sen's concepts of commodities and capabilities to develop a framework to understand the related concepts of social capital, social cohesion, and inclusion [11]. Falzer concentrates on the developing and using social capital in public mental health. His paper lays the groundwork for a rapprochement [12]. Huvila et al. deal with the social capital in the second life. They investigate whether the second life communities foster and nurture the social capital, whether the social capital within the second life is related to the social capital outside the virtual world, whether some characteristics affect the likelihood of the users having social capital, and whether some existing measures of social capital can be modified and used to study social capital in Second Life. Second Life is an environment that fosters the emergence of social capital. Residents who consider themselves producers have higher levels of social capital than those who consider themselves non-producers. Having social capital within the Second Life is unrelated to having social capital outside the virtual world. The consistency of the instrument proved to be excellent aid for measuring social capital within Second Life and good outside the virtual world [13]. The purpose of Pors' study on the globalization, culture and social capital in terms of library professionals on the move was to connect and conceptualize different stories and experiences of library professionals who have chosen to take up positions in other countries. They were asked to reflect on their experiences. The paper is not empirical in a traditional sense which implies that there are no findings based on the data. It, further, introduces and discusses the concepts and applies them to material based on experiences. Pors claims that the presented theoretical frameworks are useful in relation to contextualizing the diverse experiences. It is also indicated that the concepts of social capital are closely related to the concepts concerning national or regional cultural characteristics [14]. The results of the study by Bowey and Easton on social capital processes show that the members of the group create and maintain net social capital among themselves in a variety of ways both social and economical and then use that net social capital outside the group in dealing with other organizations, profit and non-profit [15].

Webb attempts to measure social capital and knowledge networks. He seeks to propose a research approach and methods for the knowledge-based development (KBD) researchers and practitioners exploring the social capital and knowledge networks of a city. The results of his study show that the described practical research approach and methods can be used at the city region level [16]. Pearse's study on the "social capital theory of resistance to change" aims to generate a substantive grounded theory of organizational change and leadership, particularly by focusing on the manifestation and management of resistance to change, or what has been more broadly conceptualized as organization inertia. The findings of his study show that when analyzing the process of church transition from a programme-based to a cell based design, the concept of the "sense of community" was developed. This concept underscored the manifestation of organization inertia in the churches that were engaged in the process of change [17].

III. METHODOLOGY

This study is an applied research which is descriptive in nature. The population included all full-time, part-time and hourly-paid academic staff, as well as the employees who work in the comprehensive and very big branches of Islamic Azad University (IAU) in zone 13. Altogether, there are 3786 members of academic staff and employees in the mentioned universities. In order to determine the social capital components, AHP was used. A group of 8 experts including two sociology lecturers, two social science lecturers and four management lectures were selected.

Through the use of $\alpha = 0.05$, $P = \frac{1}{2}$, $e = 0.04$ and formula 1, the number of participants in the sample was 519. Taking into account the definition of population, to select the sample, the relative random stratified method was used.

$$n = \frac{N \cdot z_{\frac{\alpha}{2}}^2 \cdot p \cdot q}{e^2 (N - 1) + z_{\frac{\alpha}{2}}^2 \cdot p \cdot q} \quad (1)$$

Table I shows the number and frequency of the selected sample.

TABLE I: THE NUMBER AND RATIO OF POPULATION TO THE IAUS IN ZONE 13

iau branch	no. of academic staff & employees	ratio (out of total)	ratio (out of sample)
tabriz (a_1)	1834	0.481	250
bonab (a_2)	369	0.099	51
maragheh (a_3)	310	0.080	42
miyaneh (a_4)	259	0.068	35
ahar (a_5)	315	0.083	43
marand (a_6)	300	0.079	41
shabestar (a_7)	399	0.110	57
total	3786	1	519

In order to organize the theoretical basis through reviewing the related literature, we used the research cards. Furthermore, Ogburn et al.'s [18] questionnaire was used to

measure social capital and its eight aspects. The data was analyzed in two stages. First, the index weight was measured using AHP group method (the experts were asked for their opinion about the indices). In order to eliminate the likelihood of the non-homogeneity of the social capital scores obtained for some branches of IAU which would affect the accuracy of the ranking, ELECTER method was used to grade IAU branches. The data was collected via questionnaires, and then the index weight and university rank were determined. Following are the results of the study.

TABLE II: THE MATRIX OF PAIR GROUP COMPARISONS

	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	C ₇	C ₈
C ₁	1	1.6188	5.2033	7.1965	5.43326	7.9372	4.2627	7.2494
C ₂	0.6176	1	5.492	6.4282	5.6805	6.7263	2.749	6.976
C ₃	0.19215	0.1821	1	3.0861	1.513	3.9148	0.1726	4.5086
C ₄	0.13892	0.1555	0.324	1	0.1926	1.513	0.1555	1.2599
C ₅	0.18401	0.176	0.6608	5.1925	1	3.4641	0.312	6.049
C ₆	0.1259	0.1486	0.2554	0.6608	0.2885	1	0.1613	1
C ₇	0.2346	0.3636	5.7931	6.4282	3.2031	6.1981	1	6.6315
C ₈	0.1379	0.1433	0.2217	0.7937	0.1652	1	0.1507	1
Total	2.63108	3.7879	18.9503	30.786	17.47616	31.7535	8.9638	34.6744

TABLE IV: PRIMARY DECISION-MAKING MATRIX

	C1	C2	C3	C4	C5	C6	C7	C8
A ₁	2.791	3.975	3.306	3.723	2.639	4.077	2.594	4.156
A ₂	2.974	4.347	3.577	3.755	2.698	4.049	2.530	3.578
A ₃	2.916	3.648	3.743	4.235	2.864	3.804	2.839	3.401
A ₄	3.098	3.702	3.646	4.172	3.786	3.824	2.582	3.228
A ₅	3.421	4.052	4.110	3.388	3.111	3.464	2.670	3.351
A ₆	3.145	3.742	3.487	4.135	3.043	4.092	2.713	3.315
A ₇	2.786	4.246	3.312	3.895	3.739	3.666	2.681	3.067

Table III shows the relative weight of the indices after normalizing the matrix of pair group comparisons.

TABLE III: RELATIVE WEIGHT OF INDICES

C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	C ₇	C ₈	Total
0.032	0.25	0.07	0.03	0.08	0.02	0.17	0.02	1
0.155	526	9158	1973	6938	7107	2618	679	

The incompatibility of the pair group comparisons measured as $0.072 < 0.1$ which indicates the compatibility among them.

B. Ranking of Universities Using ELECTER

ELECTER method was used to grade the universities. The primary decision-making matrix was built using the index mean of each university. Table IV shows the primary decision-making matrix.

TABLE V: TOTAL MATRIX

	A1	A2	A3	A4	A5	A6	A7
A ₁	-	0	0	0	0	0	0
A ₂	1	-	1	0	0	0	0
A ₃	0	0	-	0	0	0	1
A ₄	1	0	0	-	0	0	0
A ₅	0	0	0	1	-	1	0
A ₆	1	0	1	0	0	-	0
A ₇	1	0	0	0	0	0	-

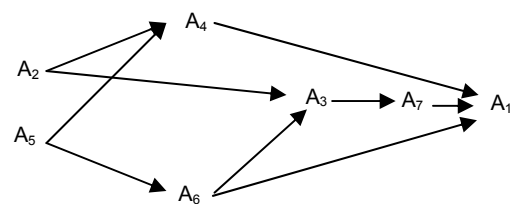
Having the decision-making matrix, first all scales were eliminated. Then, all harmonized/disharmonized sets as well as the harmonized/disharmonized effective matrix were calculated. And finally, the total matrix, as presented in

A. Index Weight Determination

To determine the weight of indices, the collected data via questionnaires (answered by the group of 8 experts) were compared in pair and the mean was calculated. Table II illustrates the pair group comparison matrix (the main indices of social capital including trust, cooperation, job-related relationships, the acceptance of differences and neighborhood relationships, life values, family relationships and volunteer activities are shown respectively with C₁, C₂, ..., C₈).

Table V, was calculated and the rank of the universities was determined.

As it is illustrated in Table 5, digit 1 represents the preference of the horizontal columns to the vertical ones. According to the results of the total matrix presented in Table 5, the rank of the IAUs in Zone 13 is as follows.



$$A_2 = A_5 > A_4 = A_6 > A_3 > A_7 > A_1$$

IV. CONCLUSION

To analyze the data, the relative weight of indices was calculated using AHP group method (the experts were asked for their opinions about the indices). ELECTER method was used for ranking the universities. The results of the study show that Bonab and Ahar branches of IAU have the first rank, then comes Miyaneh and Marand branches in the second rank; Maragheh branch is the third, and Shabestar branch is the fourth. Finally, Tabriz branch of IAU is the fifth. It is recommended that those branches that get lower

social capital scores should try to make use of the experiences of the higher score universities to increase their social capital. Moreover, factors affecting the social capital should be the main concern of the future studies. In other words, they should deal with these factors to be able to make decision on their priority which would contribute to the future plans to increase the social capital of the universities.

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