**FUZZY COGNITIVE MAPPING: A CASE STUDY ON TURKISH NGOS'
SELF PERCEPTION**

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Approval of the Graduate School of Social Sciences

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Signature   :

ABSTRACT

FUZZY COGNITIVE MAPPING: A CASE STUDY ON TURKISH NGOS' SELF
PERCEPTION

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Fuzzy Cognitive Mapping is used as an effective tool to grasp complex systems. Fuzzy Cognitive Mapping, which is based on quantification of qualitative data, can be considered as a hybrid mix of quantitative and qualitative methods, and its roots can be traced back to graph theory.

The basic purpose of this study is to discuss Fuzzy Cognitive Maps in methodological terms and develop suggestions for using maps drawn within two different frameworks. By this, Fuzzy Cognitive Maps applied in similar fields will be evaluated at one level. For this purpose, the thesis will utilize the data derived from maps drawn by NGO directors in Turkey. In the case study, cognitive maps are drawn around two concepts: the reputation of civil society in Turkey and its influence power.

Due to their qualitative character, Fuzzy Cognitive Mapping is a research tool suitable for making comparative analysis. Divided into city and activity categories, the database of case study used in this thesis provided comparable data. Categorical differences are evaluated through drawing cognitive maps out of database.

Keywords: Fuzzy Cognitive Mapping, Methodology, Civil Society, Causality

ÖZ

BULANIK BİLİŞSEL HARİTALAMA: TÜRKİYE'DE FAALİYET GÖSTEREN
SİVİL TOPLUM KURULUŞLARININ ÖZALGILARINA DAİR VAKA
ÇALIŞMASI

Alkurt, Saygın Vedat
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Bulanık Bilişsel haritalar kompleks sistemleri anlamak için etkili bir araç olarak kullanılmaya başlamıştır. Niteliksel verileri rakamsallaştırabilen yapısı ile niteliksel ve niceliksel yöntemlerin hybrid bir karışımı olarak da görülebilecek Bulanık Bilişsel Haritalar, en temelde kökeni grafik teorisi dayanan bir araştırma aracı olarak tanımlanabilir.

Bu çalışmadaki temel amaç Bulanık Bilişsel haritaları yöntemsel olarak tartışarak, iki farklı kavramsal çerçevede çizilmiş haritaların birarada kullanabilirliğine ilişkin öneriler geliştirmektir. Bu sayede benzer alanlarda uygulanan Bulanık Bilişsel haritalar, tek bir düzlem üzerinde değerlendirilebilecektir. Bu amaç için Türkiye'de faaliyet gösteren sivil Toplum kuruluşlarının yöneticilerine uygulanan bilişsel haritaların verisi kullanılacaktır. Vaka olarak ele alınacak olan araştırmada bilişsel haritalar iki kavram etrafında çizilmiştir: Türkiye'de sivil toplumun itibarı ve etki gücü. Bu çalışmada bu iki kavram etrafında şekillenen kavram kümesi birleştirilerek yeniden analiz edilmiştir.

Bulanık Bilişsel haritalar, niceliksel karakteri nedeni ile karşılaştırılabilir analiz yapmaya elverişli bir araştırma aracıdır. Vaka olarak seçilen araştırmanın veritabanı, şehir ve faaliyet alanı kategorilerine ayrılarak karşılaştırılabilir veri elde edilmiştir. Elde edilen yeni veritabanlarından Bilişsel haritalar çizilerek, kategorik farklılıklar değerlendirilmiştir.

Anahtar kelimeler: Bulanık Bilişsel Haritalama, Metod, Sivil Toplum, Nedensellik

To my wife, Özge Nur KIZILOLUK ALKURT

ACKNOWLEDGEMENTS

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CHAPTER I

INTRODUCTION

The precarious nature of social reality, intricacies of the human psyche, and complexity of social structures and relations stand as barriers against the social researchers' ambition to reach conclusive judgments about how society works. However, the history of scientific development in general and of social sciences in particular, shows us that there have been various attempts to discover or lay out the laws of social change. The key question was whether social sciences "could and should "borrow" the methodology of the physical sciences, especially physics, to investigate the social and human world" (Lewis, 1983: 6). The debate around these issues resulted in formation of qualitative and quantitative research methods for understanding and explainning social phenomena.

Fuzzy Cognitive Mapping (FCM) is a research toll which stands between qualitative and quantitative research methodologies. FCM is a graphical visualization of individuals' perception of social phenomena. It is a research tool which represents perceptions, beliefs and judgments of a specific sample on a given subject. The primary objective of FCM is to systematically present how individuals relate different concepts and phenomena to each other. This thesis will focus on this research toll by critically evaluating its virtues and limitations.

Historical development of FCM can be traced back Euler's graph theory, continued with Axelrod's cognitive map application in political sciences and matured with Kosko's integration cognitive maps with fuzzy logic. Through its appropriation by and application in different disciplines in applied and social sciences, FCM became a rich tool to analyze problems investigated. Yet, application of FCM in social sciences is quite limited. Although, FCM has been used in fields such as business management, computer assisted learning and economics, still a lot of work must be done to disseminate FCM in various subfields in social sciences.

The statistical data and Fuzzy Cognitive Maps used in this study are gathered from a research project titled "Civil Topography of Voluntary Organizations in Turkey".[1] However, as a study on research methodologies in general and FCM tool in particular, current work will refer to project findings solely for demonstrative and explanatory reasons. In other words, it is the FCM methodology, not the debate regarding voluntary organizations in Turkey, lies at the heart of this thesis. The thesis presents a methodological discussion about FCM using exemplary study which focused on NGO's perception about reputation and impact.

The thesis will show that FCM as a research tool makes crucial contributions to the study of social phenomena. FCM's basic objective is to utilize explanatory and descriptive aspects of qualitative and quantitative research methods at once. However, if one has to associate FCM with either of these research traditions, because its explanatory qualities, FCM can be more associated with qualitative research tools such as 'in-depth interview'. Like in-depth interview, which will be further discussed below, FCM aims to explain how social actors evaluate problems, issues and facts that they interact with. Just like in-depth interviews FCM applications are semi-structured and flexible; and they are applied to relatively small sized samples. But, differing from in-depth interview, FCM relies on graphical visualization of relations established between concepts and it tries to quantify the qualitative data gathered from these visualizations, which are called 'maps'. This is why FCM is located in between quantitative and qualitative research traditions.

1.1. 'Quantitative' and 'Qualitative' Research in Social Sciences

The Newtonian revolution in science which located observation and induction at the heart of scientific inquiry has been an inspiration for Newton's contemporaries and next generations. A crucial aspect of the Newtonian revolution was its attention to method: uncovering of nature's secrets through use of experimental, observational

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[1] Yeğen, Mesut, "Civil Topography of Voluntary Organizations in Turkey", TÜBİTAK, Project no: 110K142, 2011. The author of this thesis worked as a researcher in this Project and particularly worked in design, gathering and analysis of fuzzy cognitive maps. The author is indebted to Prof. Dr. Yeğen for his permission to use Project material in this masters thesis.

and quantitative method through induction (Cohen, 1980: 6). Francis Bacon, Locke and Hume were among the ones to apply this specific scientific outlook to the study of social and political phenomena. But it was Auguste Comte (1798-1857) who asserted that "the social world can be studied in terms of invariant laws just like the natural world" (Ritchie and Lewis, 2003: 6). The school of thought, namely positivism, which departed from this assertion argued that only the observable phenomena could be counted as knowledge; knowledge is obtained inductively through accumulation of verified facts; and facts and values are totally distinct from each other in scientific investigation and the scientist has no involvement in generation of knowledge (Ritchie and Lewis, 2003: 6; Smith, 1983: 7).

Value neutrality, quantitative-observational data collection, and discovery of the secret laws of social world were the major objectives of positivist social scientist. The latter goal has even been shared non-positivist thinkers such as Karl Marx. In laying out his topographical notion of social totality in Preface of *A Contribution of to the Critique of Political Economy*,[2] Karl Marx was claiming that the laws of "material transformation of the economic conditions of production" could be defined "with the precision of natural science." The crude reading of Karl Marx's historical materialism turned his doctrine into a new form of positivism.

Immanuel Kant's three critiques, starting with *Critique of Pure Reason* (1781) provided the philosophical grounds for a fundamental critique of positivism. For Kant, senses and observation only cannot be the basis of knowledge; and our knowledge of the world is based also on understanding and faculties that transcend the empirical realm (Kant, 2001). Ritchie and Lewis states that the qualitative research has generally been associated with Kantian assumptions regarding the process of knowing of the world: "Those practicing qualitative research have tended to place emphasis and value on the human, interpretative aspects of knowing about the social world and the significance of the investigator's own interpretations and understanding of the phenomenon being studied" (2003: 7).

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[2] Available at http://www.marxists.org/archive/marx/works/1859/critique-pol-economy/preface-abs.htm. Last accessed on 01.12.2012.

Wilhelm Dilthey and Max Weber were the ones who brought further the interpretivist turn in social sciences. Dilther, in the 1860s and 1870s stressed the importance of 'understanding' (*verstehen*) and people's lived experiences, and the historical and social context within which these experiences are materialized (Ritchie and Lewis, 2003: 7). By Smith's (1983: 7) words, Dilthey argued that,

> whereas the physical sciences dealt with inanimate objects that could be seen as existing outside us, this was not the case for the cultural studies. Here the subject concerned the product of human minds and was therefore inseparably connected to our minds with all the attendant subjectivity, emotions and values. In this sense, interrelationships of investigator and what was being investigated was impossible to separate, and what existed in the social and human world was that we (investigators and laymen) thought existed.

Dilthey's *verstehen* sociology was further developed by Weber, who, in his studies of society particularly stressed the importance of meaning given by the agents to their actions. In a well-known passage from *The Theory of Social and Economic Organization* Max Weber (1947: 88) defined sociology as

> a science which attempts the interpretive understanding of social action in order thereby to arrive at a casual explanation of its course and effects… Action in this sense may be either overt or purely inward or subjective; it may consist of positive intervention in a situation, or of deliberately refraining from such intervention or passively acquiescing in the situation. Action is social in so far as, by virtue of the subjective meaning attached to it by the acting individual (or individuals), it takes account of the behaviour of others and is thereby orientated in its course.

However, Weber's interpretivist sociology did not totally turned its back to positivism. He tried to build "a bridge between interpretivist and positivist approaches . . . and emphasized that the researcher must understand the meaning of social actions within the context of the material conditions in which people live" (Ritchie and Lewis, 2003: 7).

Although one cannot draw a clear line that locates quantitative and qualitative research methods into positivist and post-positivist/interpretivist camps respectively, the association between positivism and quantitative methods, and between interpretivism and qualitative methods is widely accepted.

The last decades of the twentieth century, with the advent of post-modern and post-structuralist theories of the social were further strikes against the credibility of positivism in social sciences. Michel Foucault's writings on knowledge and power pointed to the 'embeddedness' of scientific knowledge in social relations of power and domination. Foucault's discourse theory emphasized that reality is not out there to be discovered, but is itself a discursive construct (Foucault, 2002). Derrida attacked the foundations of what he called Western "metaphysics of presence"; questioned the accepted hierarchies between cause and effect, content and form, speech and writing. Derrida, by his concept of *difference*, also stressed the undecidabilty and openness of language and meaning (1997). Laclau and Mouffe radicalized and politicized Foucault's and Derrida's contributions and declared the end of society ('the society is impossible') as a closed totality (Laclau, 1990). Fundamentally differing from postmodern and post-structuralist theorizing, relational sociology likewise underlined the relational character of reality and stressed the need for frozen categories of positivism (Emirbayer, 1997). All these developments and openings weakened the positivist position which largely relied on quantitative research methods and data collection, and which claimed that facts speak for themselves.

Firestone (1987: 16-7) underlines that there are several differences between quantitative and qualitative research strategies in terms of their assumptions about the world; purpose; approach; and researcher's role.

- While quantitative approach accepts the existence of reality apart from the beliefs of individuals, the qualitative approach is rooted in phenomenological paradigm which stresses reality is not independent of individuals' or collectives' definition and understanding of the reality itself.
- While quantitative approach endeavors to define the causes and consequences of social phenomena; the qualitative approach struggles to *understand* the social phenomenon from the actors' perspectives.
- The quantitative approach employs observational and experimental designs to reduce error; whereas the qualitative researcher keeps the ethnographic and participatory account of actors' perceptions and positions.

- Finally, while value neutrality and neutrality from bias is the objective of quantitative analysis; the qualitative researcher is 'immersed' in the phenomenon of interest.

Some argue that quantitative and qualitative researches are two entirely distinct and irreconcilable paradigms. There are others who insist that two methodologies are distinct, and at some instances complementary approaches (Bryman, 2006; Firestone, 1987; Smith, 1983; Neuman, 2007). Elliot (2005) stresses the contributions of hybrid methodologies using quantitative and qualitative techniques to generation of social scientific knowledge. Bryman (2006: 97), for instance, notes that there are three distinct approaches to research: quantitative, qualitative and a third one which combines the two. He notes that there are various attempts for integrating quantitative and qualitative methodologies under the labels such as 'multi-strategy', 'multi-methods', 'mixed methods', or 'mixed methodology'.

Within this context, Fuzzy Cognitive Mapping can be considered within the 'third-way' research tradition. It tries to quantify the qualitative knowledge gathered from individuals. By this, FCM tries to present itself as a systematic and reliable toolkit to *understand* actors' perceptions of social phenomena.

1.2. Organization of Chapters

As stated, FCM uses relatively small samples and limited number of maps. Depending on the number of newly emerging concepts in additional maps, a concept saturation point is defined in each investigation. The sample of this study is composed of 118 interviewees and 236 maps (2 maps per interviewee).

When compared to quantitative research, FCM provides the researcher with less detailed data and cannot satisfactorily answer "what" and "why" questions. Also, it cannot present rich information like qualitative methods do. However, in FCM, dominant perceptions of participants could be numeralized. In this sense, fuzzy cognitive maps are able to use the exploratory characteristics of the qualitative study methods (revealing the dominant thoughts within the determined context) and descriptive characteristics of quantitative study methods (formation of established causality relations from comparable scores).

As stated above, the exanplary study focused on NGOs' perception about 'reputation' and 'impact'. In this study, 'reputation' and 'impact' maps are condensed and evaluated. The two subjects were assessed within the framework of a causality map and "reputation and impact" relation was tried to be reassessed conceptually.

The first chapter of this thesis will be devoted to a literature review of FCM literature. This chapter will provide the reader with historical development, procedures, fundamental concepts and various applications of FCM.

In the second part the thesis, the data set is introduced. In this chapter, formation of databases and pre-analysis stages were discussed. The following parts of this chapter will present the calculations that will be used in the chapter on findings. This cpather also explains the cognitive maps with two centers, which were used for the first time in FCM analysis. The new database was subjected to saturation analysis.

The third chapter presents comparative findings derived from data set. Findings were discussed by starting from the most general ones and analyzed down to the categorical breakdowns. All maps were analyzed again according to these categorical breakdowns and differences in perception were revealed.

In the final chapter, virtues and limitations of the use of FCM in social sciences will be debated in a critical manner.

CHAPTER II

FUZZY COGNITIVE MAPPING

2.1. Fuzzy Cognitive Mapping and Application in Social Sciences

The "scientificty" of social scientific concepts has always been a bone of contention among social scientists. Leaving aside the positivist's ambitions for acquiring the rules of social and individual conduct and structures with "the precision of physical sciences", recent currents in social sciences admit the complexities and subtleties of social life which nullify schematic explanations and simplistic generalizations (see, Keat and Urry, 2010). Murray Gell-Mann, a Nobel Prize-winning physicist once replied one of his colleagues who made the argument that social sciences were far beneath the hard, 'pure' sciences like physics: "Really? Imagine how difficult physics would be if electrons could think." Taking self-conscious and reflexive human beings as its central concerns, social sciences investigate the "laws" related to humans or humans' social behavior. As Sharma (2008: 7) notes, the basic elements of the social sciences cannot be separated analytically; when compared to physical sciences the social sciences have less exactness and can make fewer predictions; and social sciences are less objective.

However, relative absence of exactness and objectivity does not mean abandoning the claim of scientificty at all. Social scientists from various disciplines and sub-disciplines have developed quantitative and qualitative research techniques to understand individual and social phenomena (see Lazarsfeld and Rosenberg, 1955; Ritchie and Lewis, 2003 and Scarbrough and Tanenbaum, 1998). As a methodology standing between the two techniques, Fuzzy Cognitive Mapping is a research tool designed to fathom the complexities of individuals' thought structures. It is a way to understand the way people understand, categorize, classify and relate social and individual phenomena.

In fact, FCM cannot be considered as a methodology in itself. By Ahmad and Ali's words (2003: 3), "it represents a collective term for a set of techniques which allow the researcher to obtain graphical representations of individual understanding of a particular issue or problem." The history of FCM can be traced back to mathematical graph theory. Leonhard Euler, in his article Seven Bridges of Königsberg (1736) presented the first paper in the history of graph theory. Graph theory is the study of graphs which can be described as "a non-empty finite set V of elements called vertices together with a possibly empty set E of pairs of vertices called edges."

Fuzzy Cognitive Mapping provides the researcher with graphical representations of people's perceptions of the handled topics (Çoban and Seçme, 2005: 133). The two advantages (related with technique and results) of FCM technique are explained by Ahmad and Ali (2003: 4) as such:

> For the technique, this method offers structured thought through symbolic representation, graphical representation rather than linear layout, managing a large amount of qualitative information, and can improve interview capability. For the results, this method offers a graphical picture of raters' understanding on the performance appraisal decision, information obtained is clearly communicable, can gain insight into the structure of information, and the pictures display raters' own thinking about the performance decision process.

One of the most important advantage of FCM is the elimination potential of researcher biases by the help of its quantitative characteristics. Quantitative data which FCM provides help researcher objective decisions in making categorizations.

Although FCM technique has many advantages, it also has many weaknesses. First, the technique requires highly skilled researcher who should correctly guide the respondent throughout the process and should come up with "clear maps". Second, reading maps may be quite challenging because of their complexitiy. Third, larger maps may become complex to administer. Finally, the technique is time-consuming, thus costly in terms of the cost of skilled research force employed in drawing maps (see, Ahmad and Ali, 2003: 5).

In addition to these, there is a lack of reliability researchs of FCM. The reliability of FCM is arguable because of its qualitative characteristics. In small sampe studies, repating the same form to same paticipants may cause the different results comparing the first application.

2.2. The Uses of FCM in Social Sciences: A Non-Exhaustive Evaluation

As Fuzzy Cognitive Mapping became a credible and recognized research methodology, researchers from various fields applied FCM in analyzing social, political, economic, psychological and environmental issues. This section will be devoted to an overview of application of FCM methodology in these problem areas. The purpose of this section is not to present an exhaustive literature review, but to provide the reader with a general idea regarding application of FCM methodology in different disciplines and sub-disciplines of social sciences.

As a research and analysis tool, fuzzy cognitive mapping was used in environmental development studies; educational sciences; computer sciences; economics; sociology; and political science. It is used to understand the complex systems; analyze relations; develop scenarios; and make decisions and policies. In environmental development studies, FCM was used to figure out the stakeholder perception on environmental problems of a specific field. FCM also used in organizational studies to discover the interaction between organizations and individuals. In educational science application of FCM, researchers tried to explore hidden implications of learners' understanding. Cognitive mapping is frequently in computer sciences. As the exemplary case discussed below, FCM used in web model development to solve a variety of problems in a pattern recognition. Initial use of cognitive maps in political science was Axelrod's "The structure of decision: The Cognitive Maps of Political Elites", which will be discussed below.

Özesmi can be considered as one of the leading figures who introduced FCM methodology in Turkey. As an environmental engineer (and Greenpeace Mediterranean Executive Director between 2008 and 2012) he used FCM for developing environmental models and solutions. "Modeling ecological or

environmental problems is a challenge when humans are involved," Özesmi and Özesmi (2004: 43) state, and underline that they identified four types of problems: the way human actions affect the ecosystem; absence of scientific but presence of local knowledge regarding ecosystem; wicked environmental problems, and mandatory of voluntary public involvement. Departing from these problem areas Özesmi and Özesmi (2004) examines different stakeholder perceptions in an environmental conflict and try to develop participatory environmental development plans. Likewise, Isak et. al. (2009) investigate the possibility of using FCM as a tool in nature conservation. Isak et. al. (2009) underlines the importance and advantages of clarifying stakeholders' perception of environmental issues in developing solution strategies regarding these problems.

Agents' contribution to collective and collaborative decision-making and problem solving is one of the most crucial issues of managerial sciences. Decision-making and problem solving requires a clear understanding of perceptions of individuals whose contribution is required. Clarification of agents' comprehension of dynamics and elements of a process or problem is essential in developing decision making and problem solving/problem structuring processes. According to many researchers, Fuzzy Cognitive Maps provide us with powerful tools to understand a problem and establish connections between its different aspects. For instance Kok (2009) argued that as a "semi-quantitative" method, FCM cam be used in scenario development and studied the issue of deforestation in Brazil.

Likewise, Xirogiannis et. al. (2004) emphasized the efficiency of fuzzy cognitive maps in designing and developing a knowledge management methodology tool. Özdağoğlu (2010) explores the possible interaction between cognitive mapping methodology and Analytic Network Process (ANP). Damart (2008: 1) finds cognitive maps useful in "organizing the participation of multiple decision-makers in the varying contexts of the problem structuring process." Ahmad and Ali's (2003) article on cognitive mapping methodology in management research focuses on the use of cognitive maps in the study of decision-making processes. After noting that there are three general categories of research approaches (exploratory, descriptive and casual) Ahmad and Ali notes their agenda as an exploratory one which is

particularly "helpful in breaking broad, imprecise problem statements into smaller and more precise sub-problem statements" (2003: 1). Cognitive mapping, for Ahmad and Ali (2003: 4), has two advantages, one is concerned with the technique and the other is with the results.

For the technique, this method offers structured thought through symbolic representation, graphical representation rather than linear layout, managing a large amount of qualitative information, and can improve interview capability. For the results, this method offers a graphical picture of raters' understanding on the performance appraisal decision, information obtained is clearly communicable, can gain insight into the structure of information, and the pictures display raters' own thinking about the performance decision process.

Billsberry et. al.'s (2005) article which applies FCM methodology to person-organization (P-O) fit theory. P-O fit theory problematizes the fit between individuals and organizations, and studies the relationships between individual traits and adaptation to an organization. Blisberry et. al. (2005) proposes that members' own sense of their P-O fit is crucial for clarifying the concept. The researchers state that "that storytelling and causal mapping techniques are suitable for exploring organizational members' sense of fit" (2005: 555). Fairweather and Hunt, in their interesting study "Can the farmers map their farm system?" (2011) seek answer to following questions: "How do farmers perceive and under-stand their farm system? Are they sufficiently aware of their farm system that they are able to represent it in the form of a map?" They conclude that, despite its limitations, cognitive maps allow us to get information about farmers' perception of their farm systems. This, according to the authors, "can benefit farmers and other stakeholders concerned with the management of farms and their economic and environmental performance" (2011: 1).

Fuzzy Cognitive Mapping is also used in education sciences. Cole et. al. (2000: 1) proposes to use FCM "as a tool for creating metaknowledge and exploring hidden implications of a learner's understanding." Hossain and Brooks (2008) use FCM to

determine stakeholders' perceptions of educational software adoption across UK secondary schools.

Kaya et. al. (2010) problematizes the content of entrepreneurial web page contents and tries to present an ideal web-page model for entrepreneurs through using Fuzzy Cognitive Mapping. The researchers stress that fuzzy cognitive maps are integral to quantify the qualitative knowledge and subjective phenomena. In Kaya et. al.'s case, the 'immeasurable' is the relevant participants' personal evaluations regarding websites of firms operating in hardware and software business to business (B2B) markets. The participants are asked to list and relate what they expect from websites of B2B enterprises. The researchers applied cognitive maps to 18 participants who are experts (mainly academics in engineering departments) in either software (9 maps) or hardware (9 maps) fields (2010: 339). 18 variables and 18 connections emerged in hardware sector maps. Among 18 variables, 5 elements are depicted as central factors by the researchers: 'online support', 'management info', 'product info', 'social responsibilities' and 'intranet/extranet'. In software maps, 18 variables and 22 connections were established. Among 18 variables, 6 elements are depicted as central factors by the researchers: 'communication info', 'online services', 'product info', 'announcements and other activities', 'references', and 'social responsibilities'. The researchers underline that the application of FCM methodology helped them to draw a distinction between expectations from software and hardware sector enterprises in terms of web site configuration.

Çoban and Seçme (2002) focus on the possible socioeconomic outcomes of privatization in Turkey through using FCM methodology. The researchers applied cognitive maps to 14 workers and officers of a state enterprise which was planned to be privatized. Çoban and Seçme underlined that both groups (workers and officers) defined close number of variables; but also noted that the officers defined more connections between the variables when compared to the workers; which pointed out that the officers are far more involved with the privatization issue (2002: 11). Central variables in maps of two different groups were 'production volume' (officers) and 'new investments' and 'unemployment' (workers) (2002: 11).

2.3. Graph (Network Theory) and History of Cognitive Maps:

As it has been briefly stated above, roots of the cognitive maps are based on the work of Leonhard Euler, Seven Bridges of Königsberg, published in 1736, in other words, on the graph theory. Graph theory is based on the graphical representation of the mathematical structures which allow the modeling of bilateral relations of the objects (Bollobas, 1998). Variables are represented with circles (nodes, concepts, dots) whereas relations are represented with lines (edges, connections or links).

There are different kinds of graph in graph theory:

    a. *Undirected graphs:*

Systems, in which relations between variables are not represented numericaly, are represented by undirected graphs. First applications of the cognitive maps were made by undirected graphs.
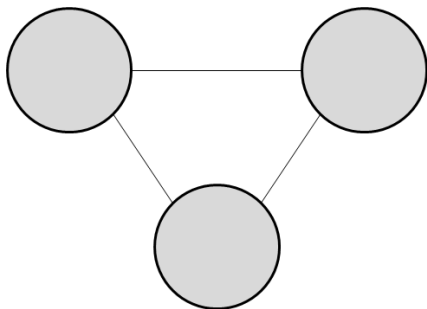
Figure 1. Undirected Graph

    b. *Directed Graphs:*

Harary et al. introduced directed graphs in 1965 (Harary et al., 1965). The most basic characteristics distinguishing this graph type from the multigraphs is that concepts are not allowed to have self relations.
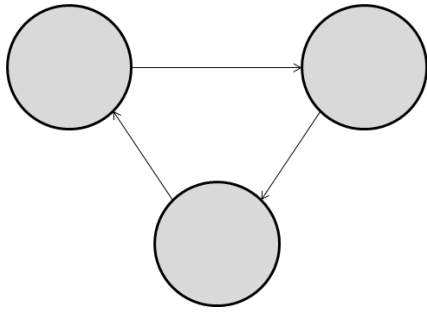
Figure 2. Directed Graphs

c. *Mixed Graphs:*

Harary and Palmer introduced mixed graph systems in 1966. Both directed and undirected relations can exist within these systems (Harary and Palmer, 1966).
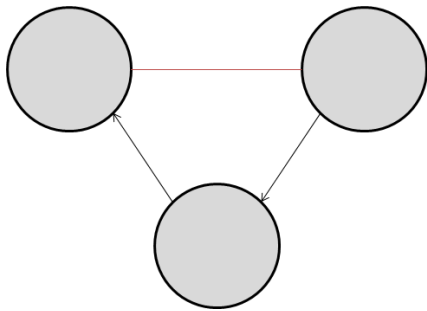
Figure 3. Mixed Graphs

d. *Multigraphs (Pseudographs):*

Relations in multigraphs can be bi-directional in addition to allowing a concept to establish a self-loop (Harary 1995).
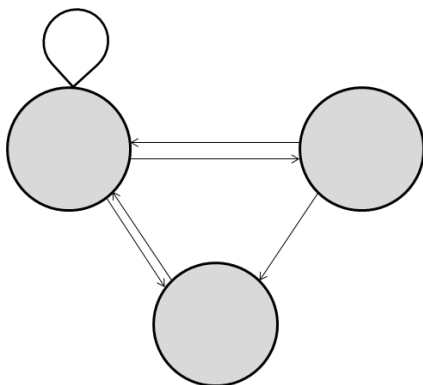
Figure 4. Multigraph

Weighted Graphs:

Each edge is represented with a weight in weighted graphs. These weights can be negative/positive real numbers. Also, weighted graphs have bi-directional relation and self-loop qualities (Béla, 1998). The most appropriate graphs for the fuzzy cognitive maps are weighted graphs. A simple weighted graph sample can be demonstrated as it follows:
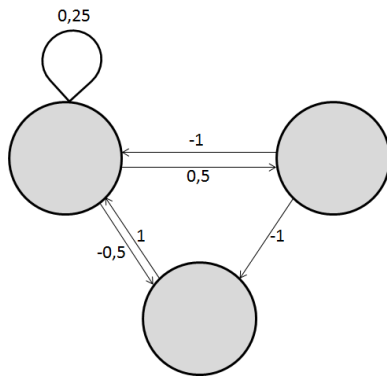
Figure 5. Weighted Graphs

First applications of the cognitive maps in social sciences area is seen in political scientist Axelrod's study, "The structure of decision: The Cognitive Maps of Political Elites" published in 1976. Axelrod tries to reveal the decision making processes of political elites by using causality maps. Axelrod makes such a definition for fuzzy cognitive maps in his book:

> The basic elements of the proposed system are quite simple. The concepts a person uses are represented as points, and the causal links between these concepts are expressed as arrows between these points

Many studies were made using cognitive maps regarding individuals' perception of social systems were made after Axelrod. Kosko adapted these cognitive systems to artificial neural network simulations by giving real numbers to Axelrod's relations [-1, 1]. Thanks to this, fuzzy cognitive maps were determined to be new told for decision making processes (Kosko, 1986). Kosko coded this graph representation within adjacency matrix in order to allow analysis of weighted graphs.
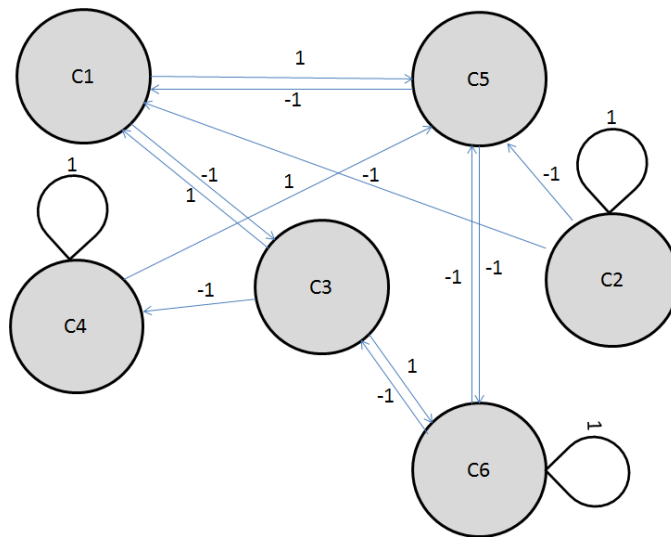
$$\begin{array}{c c c c c c c} & \text{C1} & \text{C2} & \text{C3} & \text{C4} & \text{C5} & \text{C6} \\ \text{C1} & 0 & 0 & -1 & 0 & 1 & 0 \\ \text{C2} & -1 & 1 & 0 & 0 & -1 & 0 \\ \text{C3} & 1 & 0 & 0 & -1 & 0 & 1 \\ \text{C4} & 0 & 0 & 0 & 1 & 1 & 0 \\ \text{C5} & -1 & 0 & 0 & 1 & 0 & -1 \\ \text{C6} & 0 & 0 & -1 & 0 & -1 & 1 \end{array}$$

Figure 6. A Sample of Adjacency Matrices

Nodes are represented with C in this coding whereas edges are represented with numbers in [-1, 1] scale. While N is concept (node) number in the matrix size of the matrix for these weighted multigraphs can be calculated as nXn.

2.4. Centrality, Outdegree, Indegree and Density Calculations

In his article "Fuzzy Cognitive Maps" published in 1984, Bart Kosko suggested calculations regarding the analysis of the matrices forming fuzzy cognitive maps. These calculations will be used in findings section.

Density is the connection index that shows the maximum possible connections that concepts can have. It is assumed that concepts can self-loop, so the maximum possible connections are calculated as N^2. If it is assumed that concepts cannot self-loop, the formula maximum possible connections calculated as N*(N-1). In the formula below, D is the density index value and C is the number of connections.

Equation 1. Density Calculation

$$Density = \frac{Number\ of\ connections}{Number\ of\ possible\ connections^2}$$

Outdegree values of the concepts represent absolute values of the sum of connections that emanate from a given concept. They are calculated as shown in Equation.2 (Kosko, 1986).

Equation 2. Outdegree Calculation

$$od(v_i) = \sum_{k=1}^{N} \bar{a}_{ik}$$

Indegree values of the concepts represent absolute values of the sum connections that enter a given concept. They are calculated as shown in Equation.3 (Kosko, 1986).

Equation 3. Indegree Calculation

$$id(v_i) = \sum_{k=1}^{N} \bar{a}_{ik}$$

Centrality represents the extent to which a given concept has "traffic", that is, it reflects how much connection it is transmitting and receiving. It is calculated by summing of outdegree and indegree values of a given concept, as shown in Equation.4 (Kosko, 1986).

Equation 4. Centrality Calculation

$$c_i = td(v_i) = od(v_i) + id(v_i)$$

Kosko's calculations were used in the analysis that will be detailed in next chapter. Generally speaking, these calculations are significant for taking picture of the relations and comparative preassesment of the matrices. Thus, in the next chapters, before qualitative comparison, the calculation tables will be given.

CHAPTER III

METHODOLOGY

Fuzzy cognitive mapping is a graphic representation and analysis method which aims to investigate subjective judgments, beliefs, and perceptions on a specific topic, through the formation of causal associations between concepts related to that topic. It provides the researcher with cognitive models about the research topic in the form of mapped representations and associations. One of the most effective methods of evaluating and tracking of perception is to portray how people perceive that organization; to analyze with what words, concepts, events, etc. they associate the reputation of that organization.

In the research part of the study, managers of 118 non-governmental organizations acting in Istanbul, Ankara and Izmir in disability, environment, youth and women areas were interviewed and it was asked by means of cognitive maps to assess the reputation and impact of non-governmental organizations in Turkey.
Fuzzy Cognitive Mapping approach was preferred for this study in order to investigate people's cognitive understanding of reputation and impact of NGO's.

3.1. Sampling and Sample Characteristics

The basic criteria to obtain data quality in determining the sampling of the fuzzy cognitive mapping stage of the study and to make the organizations that are interviews represent the activity area in the right manner is the activity levels of the organizations. Cases to participate in the study were chosen within the framework of the following criteria, respectively:
- Having a web site or not and the currency of the web site, if any
- Scanning numbers in Google search engine
- Having conducted three activities in last one year
- Being in the news in local or national press within last one year
- Having branches or not

Interviews were made with the directors of the organizations participating in the study or active members of the organizations were interviewed if directors could not be reached. Organizations participating in the study were reached by means of phone calls and interviews were conducted in their offices. Sound recordings were taken during map applications and these records were used while reassessing the maps.

Table 1. Scope vs. City

Category * City Crosstabulation					
Count					
		City			
		Ankara	İstanbul	İzmir	Total
Category	Environment	17	15	4	36
	Disability	12	16	3	31
	Youth	10	12	3	25
	Women	12	12	2	26
Total		51	55	12	118

36 out of 118 the organizations, with which applications were made, acts in environment area whereas 31 of them acts in disability area, 25 of them acts in youth area and 26 of them acts in women area. Also, 55 of the interviews were made in Istanbul whereas 51 of them were made in Ankara and remaining 12 of them were made in Izmir. Non-governmental organizations acting in different activity areas in amounts close to each other in away to make comparative analyses were chosen in each of these cities. (See Table 1.)

Table 2. Scope vs. Sex

Category * Sex Crosstabulation				
Count				
		Sex		Total
		Male	Female	
Category	Environment	23	13	36
	Disability	19	12	31
	Youth	16	9	25
	Women	2	24	26
Total		60	58	118

Genders of the civil society active member of managers who participated the study were distributed equally. It can be said that especially the female member population of the organizations acting in women area made this distribution close to equal (See Table 2).

Table 3. Education Distribution of the Sample

Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undergraduate Education	53	44,9	47,3	47,3
	Master Degree	25	21,2	22,3	69,6
	Doctorate	12	10,2	10,7	80,4
	High School	10	8,5	8,9	89,3
	Secondary School	4	3,4	3,6	92,9
	Two-year Degree	4	3,4	3,6	96,4
	Primary School	2	1,7	1,8	98,2
	Other	2	1,7	1,8	100,0
	Total	112	94,9	100,0	
Missing		6	5,1		
Total		118	100,0		

Table 4. Education vs. Scope

Education * Category Crosstabulation						
% within Category						
		Category				
		Environment	Disability	Youth	Women	Total
Education	Doctorate	16,7%		12,5%	13,0%	10,7%
	Primary School	2,8%	3,4%			1,8%
	High School		24,1%	8,3%	4,3%	8,9%
	Secondary School		13,8%			3,6%
	Other	2,8%	3,4%			1,8%
	Undergraduate Education	38,9%	41,4%	62,5%	52,2%	47,3%
	Master Degree	33,3%	10,3%	12,5%	30,4%	22,3%
	Two-year Degree	5,6%	3,4%	4,2%		3,6%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

It was observed that a very important part of the employees of non-governmental organizations acting in these areas have had undergraduate and postgraduate education. It can be said that the employees of the non-governmental organizations acting in youth area had the highest education rate and disability category had the lowest education rates among these 4 themes (See Table 3, Table 4).

3.2. Steps of Field Research and Analysis of FCM

In this study, cognitive maps are assumed as a graphic visualization of the respondent's cognition of a system which can describe that system in terms of two fundamental elements:

- **Positive or negative causality** between concepts
- **Magnitude of the associations** between concepts

On a cognitive map, a positively marked arrow from A to B means that concept A increases / positively influences concept B; a negative such arrow depicts a causal connection where A decreases / negatively influences B.

Observe Figure 17. Lines between the concepts represent causality, the tips of the arrows represent the direction of the cause-effect relation, and the (+) or (-) signs over the lines represent the negative / positive quality of the causal relation. Associations also have a magnitude: A causes a 1-unit decrease or negative influence in B; C causes a 0.5-unit increase of positive influence in A.
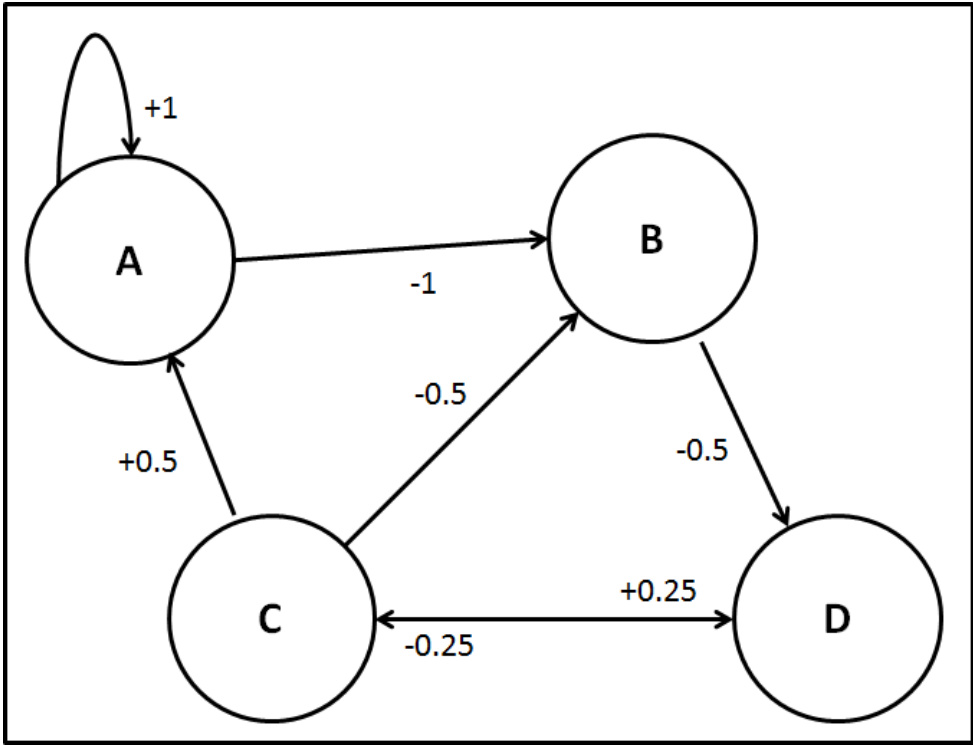

Figure 7. Concepts & Relations

FCM has far more representative power than an ordinary survey. Furthermore, as saturation analysis also demonstrates, FCM analysis has the capacity to saturate with small-n samples.

The FCM approach allowed this research to reveal basic positive and negative drivers of reputation and perception of impact of NGO's. Through the study of

reputation using FCM, tracking and longitudinal comparison of reputation becomes possible. As FCM reveals commonly positive and negative associations with reputation, repeating the study in regular intervals allows "reputation tracking": The strengthening or weakening of already revealed drivers, the appearance of new drivers can be tracked through time and comparisons between time frames becomes possible.

Each map was analyzed independently from one another; the steps below describe the analysis of the maps of a single location.

1) A list of all concepts used in 118 maps was created.

2) The master list was processed and recoded, where concepts which had synonymous or very close meanings were brought together (Aggregation).

3) All concept data coded using the new code as adjacency matrices, together with the demographic data, were entered using MS Excel 2010, in the form of matrices.

4) Accumulation analysis of the concepts was completed to portray concept saturation. (Saturation occurs when the number of new concepts introduced in each new map begins to decrease and approaches)

5) FCM indices (outdegree, indegree, centrality, density)[3] were calculated, using FCMapper[4]. Indices of each category in each city were separately assessed.

6) Decisions for aggregation and reduction of the concepts were made, in order to produce the social cognitive maps of the whole sample.

7) Social cognitive maps were drawn (using FCMapper and Pajek[5]) and interpreted.

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[3] For a single concept, "outdegree" tells us the intensity of associations that go *out* of that concept to other concepts. "Indegree" is the opposite, telling us about associations *entering* that concept from others. "Centrality" is the sum of the two, which informs us about the total "traffic" of relations in and out of the concept. "Hierarchy index" informs us how "democratically" the associations are spread, that is, the commonality of either one-way or multi-way connections.

[4] FCMapper is a software for FCM analysis developed by Michael Bachhofer and Martin Wildenberg. See http://www.fcmappers.net/joomla/

[5] Pajek is an open-source software for visualizing network-matriced data.

8) In analyzing the maps, first, main factors/concepts influencing reputation was determined and tabulated.

9) Reputation and Impact maps were condensed in order to interpret comparatively.

10) Finally, some of these concepts were mapped and compared in between cities and scope of organizations.

3.3. Map Condensation

Reputation and impact maps obtained in the research stage were combined around a single map in order to be assessed together.

Concepts, which are same or which are considered to have very close meanings with the researcher's decision as semi subjective, were gathered around a single concept provided that their current relations were preserved.

If we are to describe the procedure that is applied:
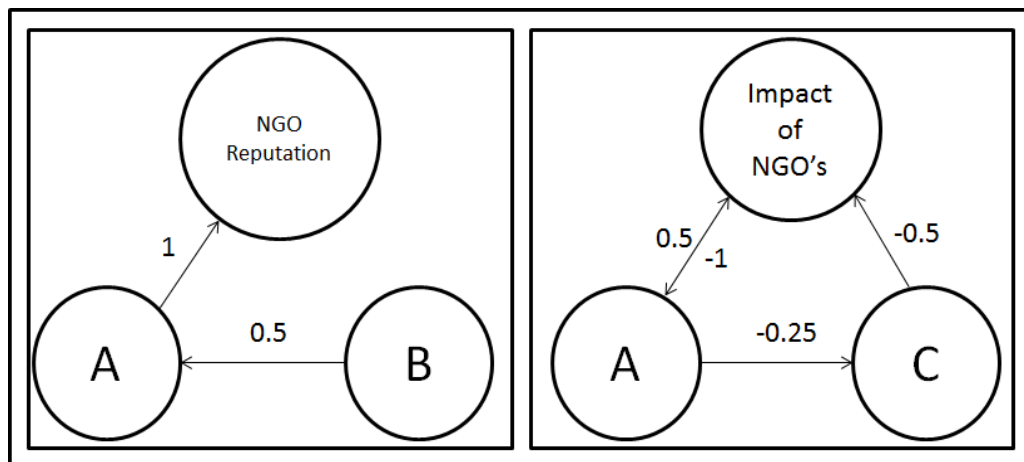
Figure 8. Concept Condensation I
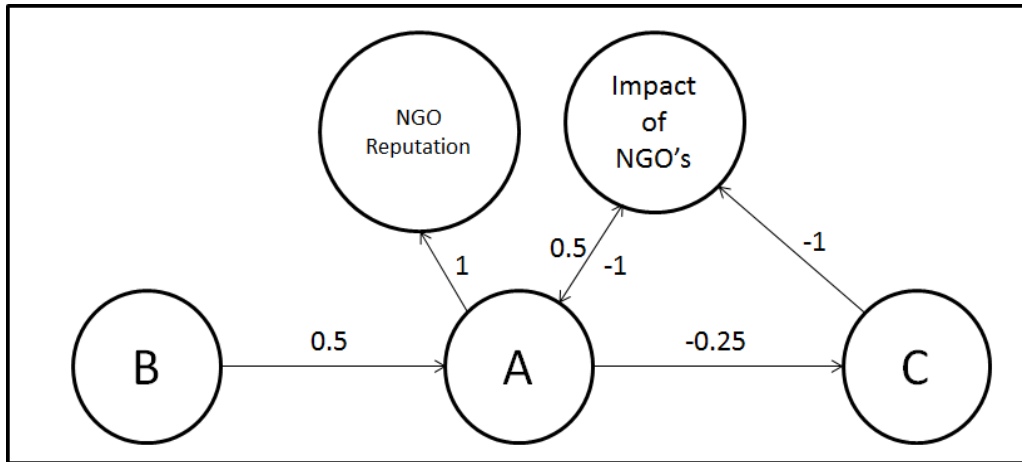
Figure 9. Concept Condensation II

Figure 8 describe two concept maps regarding which combination procedures were not conducted. There are two variables other than the central concepts in two concept maps formed with NGO Reputation and Impact of NGOs' central concept. There are 2 relations in NGO Reputation map whereas there are 4 relations in Impact of NGOs map. Results of the combination procedures were described in Figure 9. A total number of 5 concepts and 6 relations exist in the map with two centers that was created.

These combination procedures added the following to the analysis.

•   Relations established by the A concept with the two central concepts were placed in the same level.

•   B and C concepts are not in a relation in Figures 8 which is subjected to assessment separately. However, it was observed that they had a relation through A concept.

Concept maps before and after the combination are given below:

	Reputation Map	Impact Map	Condensed Map
1	NGO Reputation	Impact of NGO's	NGO Reputation
2	EU Integration Process	EU Integration Process	Impact of NGO's
3	Activeness	Out of Purpose Activities	Activeness
4	Out of Purpose Activities	Enlightening	Ataturkism
5	Ataturkism	The Limits of Scope	Being Pro-democracy
6	Being Independent	Guilt Tripping	Replacing the State
7	The limits of Scope	Economic Problems	Lack of Interest in Education
8	Being Pro-democracy	Incredibility	Economic Advantage
9	Replacing the State	Lack of Mission & Vision	Juxtaposition of Differences
10	Lack of Interest in Education	Capacity of Public Sector	Addressing to Youth
11	Economic Advantage	Pursuit of Self-Interest	Credibility
12	Economic Problems	Protecting from Bad Habits	Rights Oriented
13	Juxtaposition of Differences	Lack of Internal Democracy	Charity Oriented
14	Addressing to Youth	Institutional Capacity	Participation of Target Group
15	Administrative Capacity	Disinterestedness of the Media	Acting in Line with Principles
16	Credibility	Commitment to National / Moral Values	Unstability
17	Rights Oriented	Lack of Motivation	Monitoring and Evaluation
18	Charity Oriented	Lack of qualified Staff	Following the Public Sector
19	Participation of Target Group	Passiveness	Support of Opinion Leaders
20	Passiveness	Political Polarization	Not Being Laic
21	Acting in Line with Principles	Being a political	Not Being Objective
22	Unstability	Being Populist	Lack of Focus
23	Lack of Cooperation	Professionalization & Being Project Oriented	Leadership
24	Monitoring and Evaluation	Sectorization	Being Transparent
25	Following the Public Sector	Lack of Social State	Lack of Communication & Closeness
26	Support of Opinion Leaders	Effective Communication	Being Nation-wide
27	Not Being Laic	Socialization	International Activities
28	Disinterestedness of the Media	Transparency	Lack of cooperation among NGO's
29	Commitment to National / Moral Values	Lack of International Activities	Participant Number
30	Not Being Objective	Lack of Solidarity	Efficient Use of Resources
31	Lack of Qualified Staff	Lack of Support from Opinion Leaders	Creativeness
32	Lack of Focus	Solidarity	Enlightening
33	Leadership	Administrative Capacity	Guilt Tripping
34	Not being populist	Being activist	Capacity of Public Sector
35	Being populist	Presence of Qualified Staff	Protecting from Bad Habits
36	Socialization	Expert Knowledge	Institutional Capacity
37	Lack of cooperation among NGO's	Founding Universities	Political Polarization
38	Being Transparent	Being Closed to Differences	Sectorization
39	Not-being Transparent	Lack of Independence	Lack of Social State
40	Being Nation-wide	Pressures / Laws / Obligations	Effective Communication
41	Lack of International Activity	Lack of Scientific Approach	Being activist
42	International Activities	Lack of Communication & Disconnectedness	Founding Universities
43	Lack of Communication among NGO's	Lack of Concrete Outputs	EU Integration Process
44	Expert Knowledge	Disinterestedness of Public Sector	Lack of Support from Opinion Leaders
45	Lack of Scientific Approach	Insensitiveness of Society	Ineffectiveness
46	Participant Number	Social Benefit	Out of Purpose Activities
47	Efficient Use of Resources	Producing Concrete Outputs	Advocacy
48	Creativeness	Ineffectiveness	Being Closed to Differences
49	Solidarity	Lack of Participation	Being Independent
50	Lack of Support from Opinion Leaders	Social Needs	Lack of Independence
51	Ineffectiveness	Cooperation with Public Sector & Stakeholders	Pressures / Laws / Obligations
52	Advocacy	Lack of Institutionalization	Bad Examples
53	Being Closed to Differences		Being Ideological
54	Lack of Independence		The limits of Scope

#		
55	Pressures / Laws / Obligations	Lack of Concrete Outputs
56	Bad Examples	Producing Concrete Outputs
57	Effective Communication	Disinterestedness of Public Sector
58	Being Ideological	Insensitiveness of Society
59	Lack of Concrete Outputs	Lack of Institutionalization
60	Producing Concrete Outputs	Economic Problems
61	Disinterestedness of Public Sector	Incredibility
62	Insensitiveness of Society	Lack of Participation
63	Lack of Institutionalization	Volunteerism & Altruism
64	Incredibility	Administrative Capacity
65	Lack of Participation	Lack of Communication & Disconnectedness
66	Volunteerism & Altruism	Lack of Mission & Vision
67	Lack of Communication & Disconnectedness	Passiveness
68	Lack of Mission & Vision	Lack of Cooperation
69	Cooperation with Public Sector & Stakeholders	Cooperation with Public Sector & Stakeholders
70	Administrative Weaknesses	Administrative Weaknesses
71	Lack of Internal Democracy	Lack of Internal Democracy
72	Pursuit of Self-Interest	Pursuit of Self-Interest
73	Lack of Motivation	Disinterestedness of the Media
74	Professionalization & Being Project Oriented	Commitment to National / Moral Values
75	Social Benefit	Lack of Motivation
76	Lack of Qualified Members	Lack of Qualified Staff
77		Being a political
78		Being populist
79		Professionalization & Being Project Oriented
80		Social Benefit
81		Socialization
82		Transparency
83		Lack of International Activities
84		Expert Knowledge
85		Lack of Scientific Approach
86		Lack of Qualified Members
87		Solidarity
88		Social Needs

3.4. Saturation Analysis

Knowing averagely how many new concepts were used in each new maps is important in terms of determining whether or not the data of the study reached saturation (Özesmi & Özesmi, 2004). Özesmi determines this conceptual saturation limit as one new concept for each interview. Starting from this purpose, it became a necessity to know conjecturally how many new variables were added to the database during each interview. Other than the given central concepts, 88 concepts were obtained when reputation and impact maps of 118 non-governmental organizations interviewed during the study are combined.

The number of new added concepts varies according to the quality of the interview and how much of a relation the participant established with the subject in question. Because of this difference in single maps, how many new concepts each interview will averagely add to the database can only be understood by calculation through randomly changing the place of these interviews. Monte Carlo simulation is a powerful analysis method to predict it. Monte Carlo simulation is a computation algorithm that was invented by Stanislaw Ulam in late 1940s to simulate the distribution of neutron that diffuses from a nuclear bomb (Metropolis, 1987). It relies on repeated random sampling to compute their results. Monte Carlo simulation can be explained as an assessment of empirical process of actually drawing lots of random samples and observing their behaviors (Mooney, 1997). This simulation was used in order to see how many new concepts each new interview will add to the database. Firstly, every variable for each case was coded to a seedbank. Using Estimates v.8.2. software samples were mixed randomly for 200 times and how many new concepts emerged after each new interview was calculated after conducting this shuffling procedure.
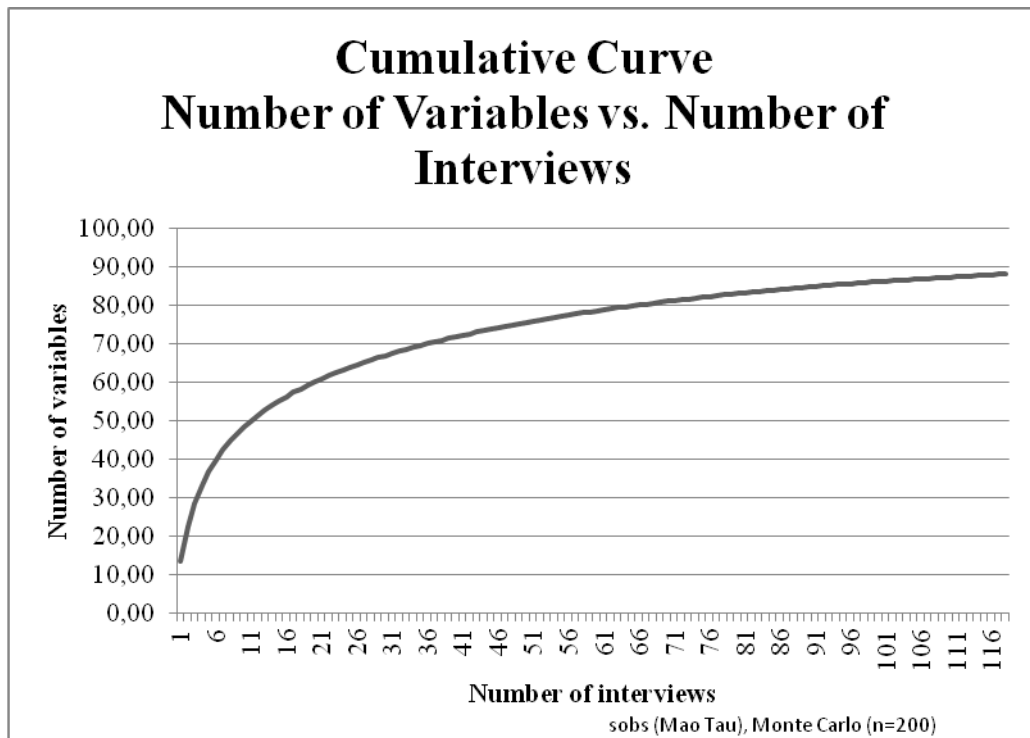
Figure 10. Saturation Analysis - Cumulative Curve

Averagely 1 concept was used in the first map and the new number of variables added to the database increased exponentially according to the number of interviews that were made. 37. Number of variables (number of concepts) exceeded 70 when the participants came for interview whereas this number exceeded 80 after the 70th interview. Number of variable added to the database after 118th interview reached 88 (See Figure 10.).
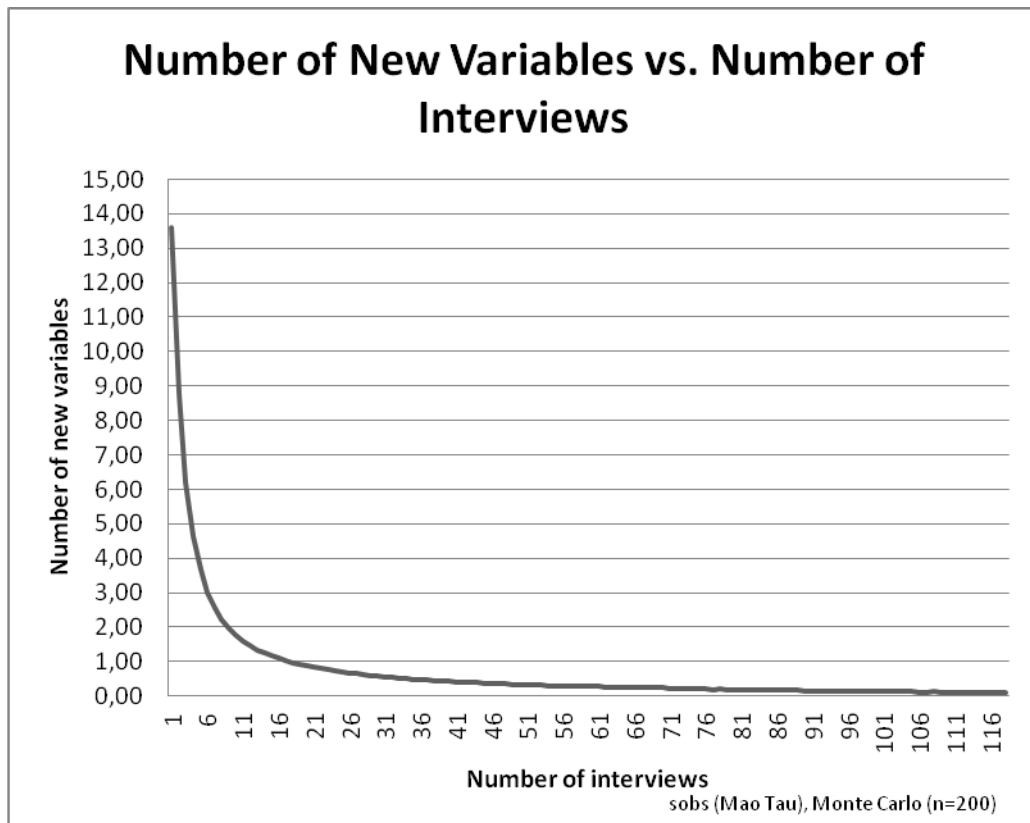
Figure 11. Saturation Analysis - Newly Added Variables

Reading the cumulative table reversely will be useful in terms of seeing how many new concepts were added averagely in each survey. While averagely 13.6 new concepts were added in the first interview that was made this number decreased to 3 new concepts after 6th interview. After 17th interview number of concepts that were added after each interview decreased below 1 and only 1 new concept was added to the database in last 10 interviewed that were made. At this point, where the new concepts became rare to this extent, it is assumed that concept density of the fuzzy cognitive maps reached consuming points. This results in conclusion suggesting that the study reached data saturation.

CHAPTER IV

COMPARATIVE FINDINGS

In this part of the study, the data which obtained in field work analyzed and the perception maps resulting from the interview made with NGO manager will be discussed. Fuzzy cognitive maps are useful for collecting both the qualitative and quantitative data. Concept map drawing procedure requested from the participant thanks to a concept placed in the center within a determined context can actually be discussed as a discourse work. Also, the statistical analyses are also allowed since the relations of concepts with other concepts are numeralized inside a determined scale. Thanks to this quality of the cognitive mapping, the method has both exploratory and descriptive qualities.

At this stage of the study, participants were asked to draw maps by taking into consideration the current situation of Turkey regarding the following subjects:

1 – "Reputation of NGOs in Turkey"
2 – "Impact of NGOs in Turkey"

At this stage, maps, first being the reputation, will be considered separately and two subjects will be integrated with each other and the relationality between two subjects will be tried to be revealed.

4.1. Condensed Reputation and Impact Maps

At this stage of the study, Reputation and impact maps that were applied will be integrated and analyzed. In the first map, a total number of 88 concepts were obtained by combining the concepts that are identical and collecting them within the framework of a single concept.

Table 5. Summary of Aggregated Reputation – Impact Map

Density	%12,5
Total Nr. Factors	90
Total Nr. Connections	999
Nr. Transmitter	12
Nr. Receiver	0
Nr. Ordinary	78
Nr. Self Loops	19
Nr. Regular Connections	980

These 88 concepts and 2 central concepts established a total number of 999 relations, 19 of which are relations established with self. Concept density of the integrated map was calculated as 12%.

Table 6. Indice Table of Aggregated Reputation - Impact

Concepts	Outdegree	Indegree	Centrality
NGO Reputation	6,78	423,33	430,11
Impact of NGO's	2,75	300,90	303,65
Economic Problems	87,91	19,58	107,48
Lack of Communication & Disconnectedness	59,57	40,56	100,13
Lack of Institutionalization	57,35	28,04	85,39
Insensitiveness of Society	58,19	26,08	84,27
Lack of Participation	36,35	25,61	61,96
Lack of cooperation among NGO's	43,82	16,14	59,96
Pursuit of Self-Interest	44,88	13,74	58,62
Passiveness	37,14	20,15	57,29
Lack of Independence	40,45	13,16	53,61
Pressures / Laws / Obligations	41,85	7,36	49,21
Lack of Mission & Vision	36,80	11,37	48,17
Social Benefit	32,23	15,95	48,17
Lack of Concrete Outputs	27,86	18,19	46,05
Incredibility	28,37	15,61	43,97
Disinterestedness of the Media	28,94	14,95	43,89
Transparency	32,35	10,56	42,91
Out of Purpose Activities	32,46	8,37	40,84
Lack of Scientific Approach	29,35	8,58	37,93
Administrative Weaknesses	30,05	7,48	37,53
Lack of Internal Democracy	26,23	10,14	36,37

Reputation – when perception maps with high level of impact are examined, it is seen that economic problems is the concept used by the participants the most. It is seen that the other most relational concepts are lack of communication, indifference/insensitivity of the society and lack of participation. Generally, it can be said that the civil society considers its people and the current situation as negative. When the most relational 20 concepts among 88 concepts are examined, it is seen that the only concept that established positive relations with effect and reputation concepts is "providing social contribution".

Conceptual variety is significant among these. If we are to interpret this with a more general framework, non-governmental organization managers explain why non-governmental organizations do not have a good reputation among the society and why they have weak impact with both economic and humane factors. In this case, a

perceptive consensus is not formed in the determined areas among all non-governmental organizations.   It is seen that trying to explain the reputation and impact of the non-governmental organizations conducting activities in Turkey only by means of relations they have with the government and the legal legislation or social structure.
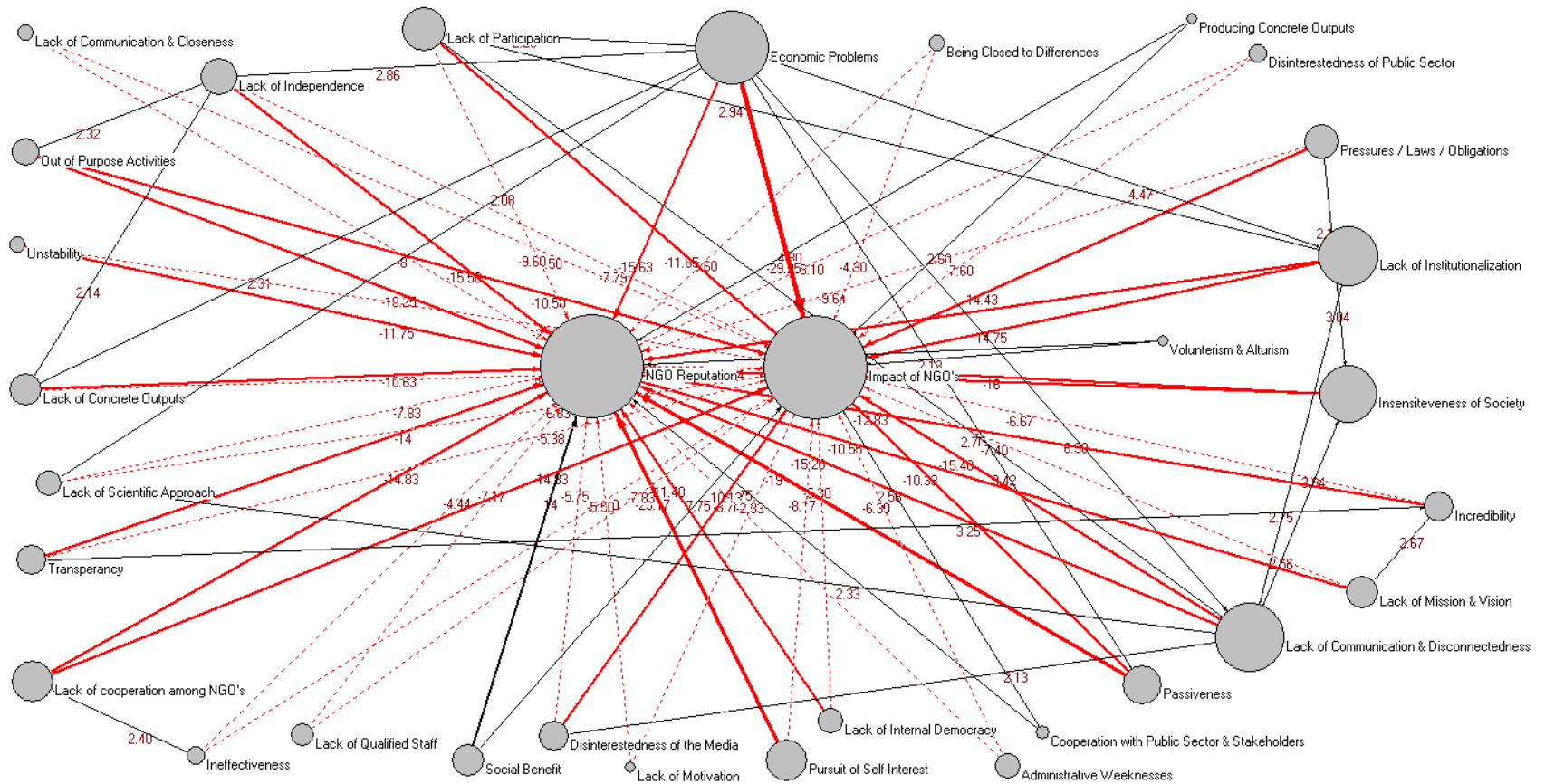
Figure 12. Aggregated Reputation – Impact Map

When the integrated map is examined a picture similar to centralization table is revealed. The most relational positive concept affecting the central concept is "providing social contribution". Non-governmental organizations think that non-governmental organizations also have the quality to provide social benefit in addition to internal and external problems they cause. It is seen that the cooperation mate with shareholders and the public positively affect both the reputation perception and the impact perception.

The concepts which establish the densest relation with the central concepts are obtaining personal interests and economic problems. A big majority of the non-governmental organizations think that other organizations are not transparent and democratic, they act for individual interests, they are not institutionalized and they conduct activities other than the purposes they are founded for. In other words, internal factors are shared but they intend to set apart their own institutions in terms of internal factors.

4.2. City Comparison: NGO Reputation Maps

Three separate databases were formed in the study in order to asses by comparisons the interviews made in three cities, namely Ankara , Istanbul and Izmir and the analyses were repeated and 20 concepts in each city were placed in tables according to centralization points (See. Table 11.).

It can be said that perception difference varying according to cities are significant. Even if the concepts that are at leading positions are all at high ranking in all three cities in total, the concepts with which lower relations are established reveals the differentiation in perception. In the most general sense, Istanbul NGOs correlate disrepute with economic reasons and communication reasons whereas Ankara seems to have political tendencies within the same context. In a more dominant way when compared to the other cities, Izmir stated that non-governmental organizations went out of their purpose. Also, lack of communication in Izmir is less relational when compared to other two cities. Similarly, non-governmental organizations in Izmir came to the foreground with concepts of providing personal interest and managers' weaknesses. Non-governmental organizations acting in Istanbul considers the most relational concept as communication problem of NGOs and the ones acting in Ankara considers economic problems as the most relational concept while the ones in Izmir considers out of purpose activities as the most relational concept.

Table 7. Indice Table of Ankara, İstanbul & Izmir's Aggregated Reputation Map

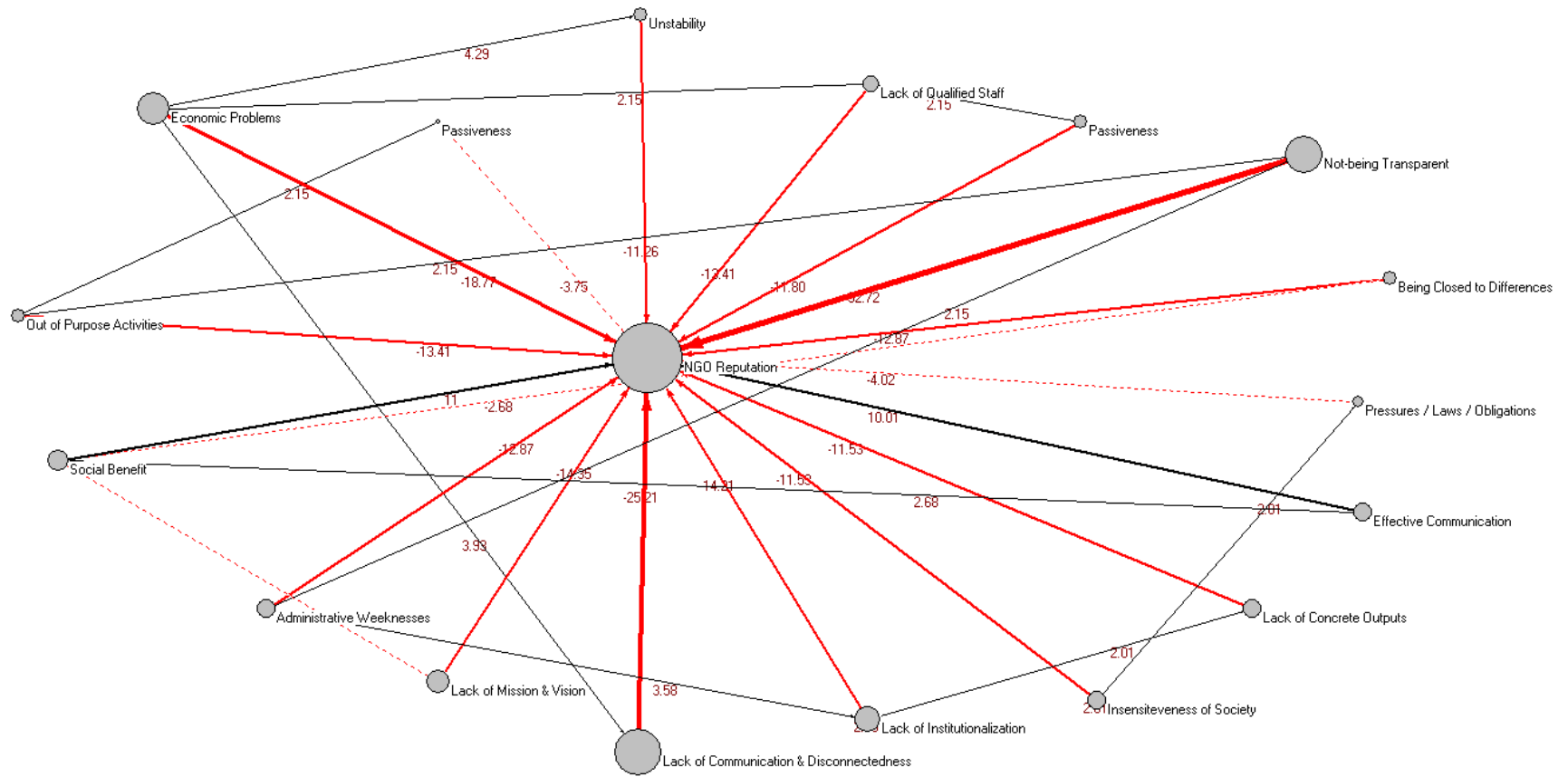| İstanbul		Ankara		İzmir	
Concepts	Centrality	Concepts	Centrality	Concepts	Centrality
NGO Reputation	452,18	NGO Reputation	482,93	NGO Reputation	409,15
Lack of Communication & Disconnectedness	68,05	Economic Problems	72,32	Out of Purpose Activities	60,97
Transparency	54,03	Lack of Communication & Disconnectedness	66,21	Pursuit of Self-Interest	57,77
Economic Problems	46,06	Passiveness	56,01	Transparency	54,08
Lack of Institutionalization	37,42	Pursuit of Self-Interest	48,59	Administrative Weaknesses	53,48
Lack of Mission & Vision	34,06	Not-being Transparent	46,47	Lack of cooperation among NGO's	44,25
Lack of cooperation among NGO's	32,36	Incredibility	42,98	Lack of Participation	43,27
Lack of Internal Democracy	29,85	Lack of Mission & Vision	32,39	Economic Problems	40,56
Pursuit of Self-Interest	29,22	Lack of cooperation among NGO's	32,14	Lack of Institutionalization	39,33
Social Benefit	28,52	Lack of Independence	30,70	Producing Concrete Outputs	33,93
Effective Communication	28,07	Lack of Institutionalization	29,31	Lack of Independence	33,76
Administrative Weaknesses	26,40	Administrative Weaknesses	28,92	Being Closed to Differences	32,78
Insensitiveness of Society	25,39	Social Benefit	28,44	Unstability	28,27
Lack of Concrete Outputs	25,35	Insensitiveness of Society	27,86	Lack of Internal Democracy	27,45
Lack of Qualified Staff	24,40	Lack of Qualified Staff	27,76	Bad Examples	26,63
Being Closed to Differences	20,87	Lack of Internal Democracy	26,05	Lack of Communication & Disconnectedness	26,22
Unstability	20,65	Out of Purpose Activities	23,04	Lack of Concrete Outputs	25,81
Out of Purpose Activities	20,01	Lack of Participation	22,23	Social Benefit	25,81
Lack of Participation	19,40	Unstability	22,15	Credibility	25,40
Passiveness	18,77	Lack of Scientific Approach	21,25	Effective Communication	25,13
Being Ideological	18,33	Being Ideological	21,25	Activeness	24,17

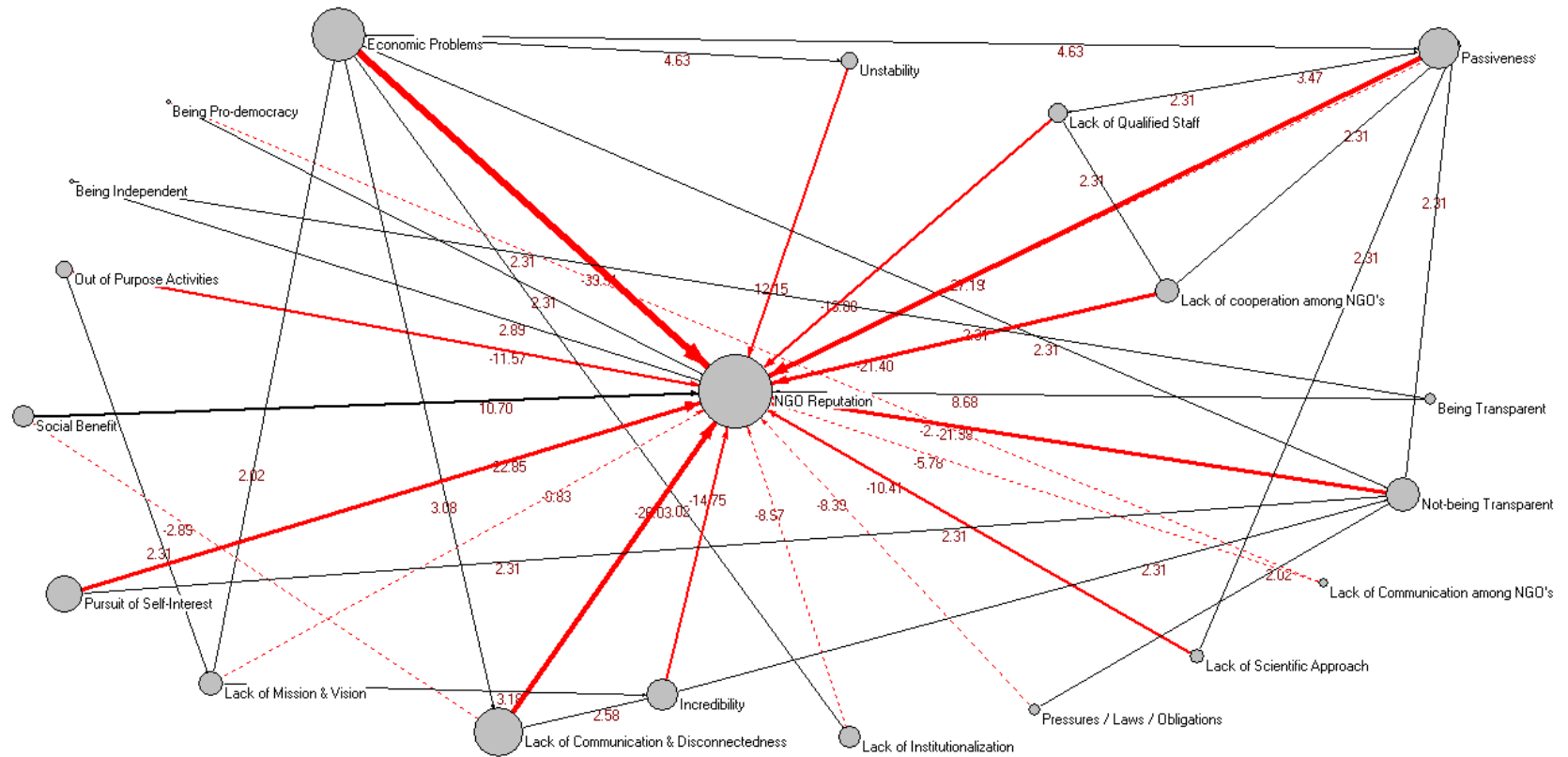**Figure 13. Aggregated Istanbul Reputation Map**

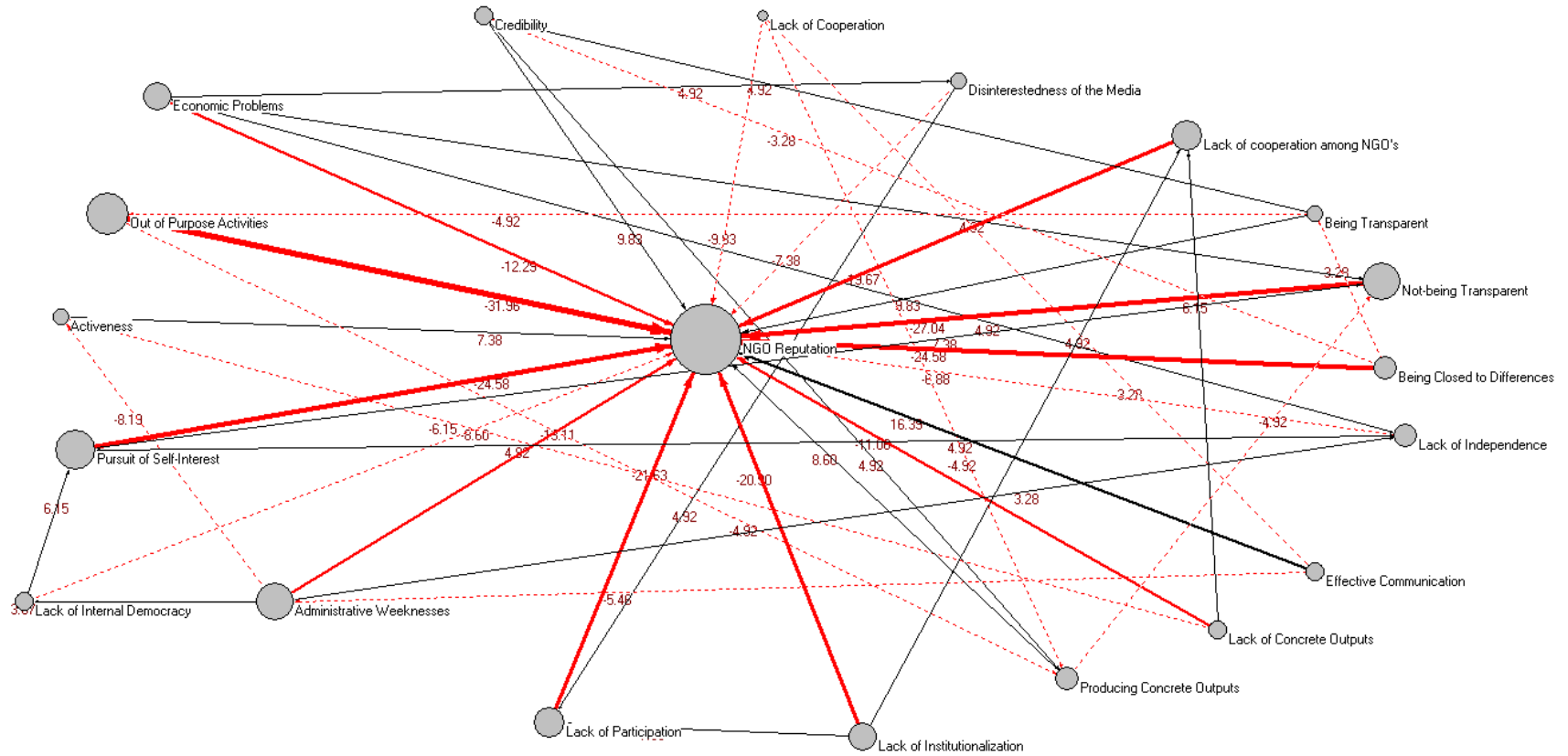**Figure 14. Aggregated Ankara Reputation Map**

Figure 15. Aggregated Izmir Reputation Map

However, this can be stated clearly while three cities are being compared. Even if they have differences, there is not a perceptive rift between these three cities. First concepts coming to mind in terms of reputation and the relationality of these concepts differ between three cities. At this point, rather than the general tendencies of the cities, the similarities and slight diversity of them can be mentioned.

The most significant finding obtained when the maps of three cities are compared is as it follows: Economic problems are on the foreground in the reputation perception of NGO managers in Ankara and Istanbul. In addition to economic problems, it is seen that the concepts, which affect the reputation in the most negative manner in Istanbul maps, are not being transparent and lack of communication. There were two concepts affecting the reputation positively in Istanbul: Effective communication and social benefit of NGOs.

It can be said that there were similar results in Ankara, however, as a difference; passivity and lack of communication between NGOs in Ankara were determined to be relational negative concepts. Positive concepts are volunteering/devotion and participation of the target audience in addition to the ones in Istanbul.

Different from the other cities, communication subject has not been mentioned as negative in Izmir maps. While providing personal interest is considered as an important negative factor in terms of reputation the concept of being reliable, which may be perceived as its exact opposite, has been different than the other cities.

4.3. Activity Area Comparison: NGO Reputation Maps

Difference between non-governmental organizations in 4 relevant activity areas is actually one the most important issues in this study. For this reason, integrated maps divide into activity area breakdowns and environment, women, handicapped people and youth categories and new databases are formed.

Firstly, the most relational concept of the non-governmental organizations acting in relation to handicapped people within the contest of the reputation of civil society is that these organizations are used in accordance with personal interests. This is significantly different than the organization acting in other areas. Secondly, the organizations acting in relation to handicapped people made critics about the transparency issues. Transparency concept appears as a concept shared with other areas. Other important concept separating the non-governmental organizations acting in relation to handicapped people from other organizations in terms of civil society perception is economic problems. This concept is positioned more centrally in the organizations acting in environment, women and youth subjects. Another central though for the organizations acting in relation to handicapped people is that non-governmental organizations in Turkey are not reliable.

If we are to make general assessment, dominant thoughts of the non-governmental organizations acting in relation to handicapped people in terms of reputation is established on the trinity of trust - transparency - personal interest. It will be more meaningful to accept this thought as a criticism to the internal and democratic operation of the organizations.

When we consider the institutions acting in environment, it is seen that the concepts that were most central were economic problems, transparency and lack of communication. It will not be wrong to say that environment, women and youth organizations have a larger target audience compared to handicapped people organizations thanks to their activity areas. For these reasons, the organizations acting in these areas appear as a dominant variable in terms of reputation and access to target audience. Specialty knowledge for environmental organizations seems to

be a larger need compared to other areas. One of the thoughts distinguish environmental organizations from other organizations is the insufficiency of sufficient staff.

Thirdly, the concept, regarding which the organizations acting in relation to youth were positioned as the most central in terms of civil society reputation, was lack of communications and disconnection. While this is similar to other 4 categories the most important concept distinguishing the youth organizations from these categories is passivity. In other words, youth organizations tend to relate the reputation of non-governmental organizations in Turkey or disrepute with being passive. Different from the organizations acting in relation to handicapped people, youth category positions the transparency and personal interest concepts related to trust as less central.

Finally, lack of internal democracy comes to the foreground when we compared organizations related to women with the other organizations. In addition to that, lack of mission and vision and out of purpose activities are in a more central position compared to other categories.

Table 8. Indice Table of Scope Categories Aggregated Reputation Maps

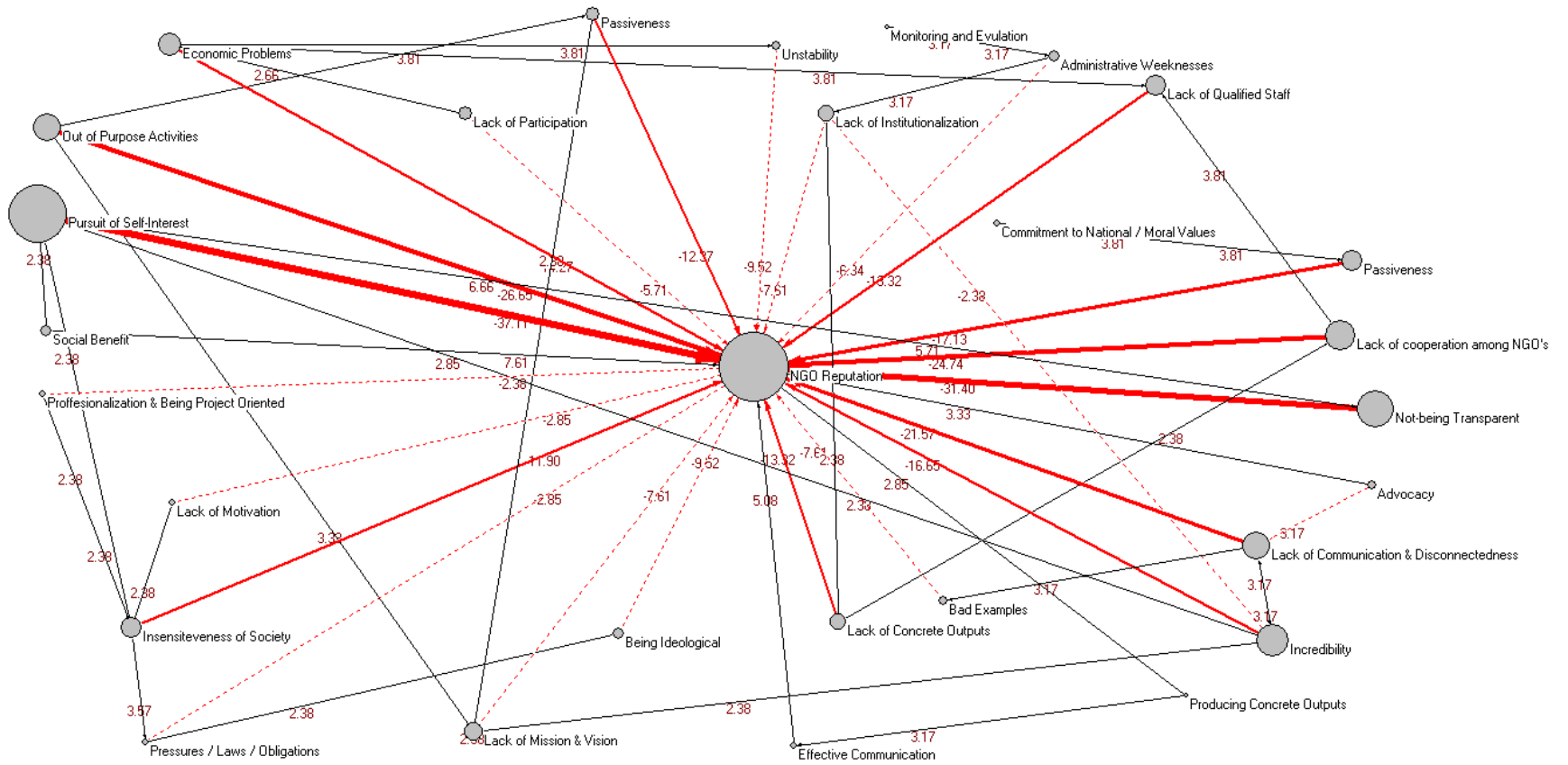| Disability		Environmental		Youth		Women	
Concepts	Centrality	Concepts	Centrality	Concepts	Centrality	Concepts	Centrality
NGO Reputation	422,10	NGO Reputation	461,14	NGO Reputation	447,83	NGO Reputation	354,93
Pursuit of Self-Interest	83,19	Economic Problems	66,65	Lack of Communication & Disconnectedness	55,89	Lack of Communication & Disconnectedness	80,33
Not-being Transparent	52,50	Not-being Transparent	53,54	Passiveness	51,99	Economic Problems	50,56
Incredibility	47,74	Lack of Communication & Disconnectedness	52,05	Economic Problems	51,01	Lack of Institutionalization	39,83
Lack of cooperation among NGO's	44,15	Effective Communication	40,88	Not-being Transparent	49,78	Lack of Internal Democracy	38,88
Lack of Communication & Disconnectedness	40,92	Lack of Qualified Staff	33,19	Lack of cooperation among NGO's	36,88	Lack of Mission & Vision	36,20
Out of Purpose Activities	39,30	Administrative Weaknesses	31,39	Incredibility	35,24	Not-being Transparent	34,47
Economic Problems	31,75	Social Benefit	31,07	Lack of Institutionalization	33,19	Out of Purpose Activities	30,02
Insensitiveness of Society	30,85	Lack of Concrete Outputs	29,30	Pursuit of Self-Interest	32,57	Administrative Weaknesses	29,50
Passiveness	29,79	Lack of Participation	27,92	Lack of Mission & Vision	31,65	Unstability	27,86
Lack of Qualified Staff	28,55	Lack of cooperation among NGO's	27,72	Social Benefit	29,50	Being Closed to Differences	26,95
Lack of Mission & Vision	27,60	Unstability	26,47	Administrative Weaknesses	26,22	Lack of Independence	26,88
Lack of Institutionalization	24,58	Passiveness	26,39	Leadership	23,97	Social Benefit	25,58
Lack of Concrete Outputs	22,84	Lack of Institutionalization	25,49	Volunteerism & Altruism	23,85	Pursuit of Self-Interest	23,14
Unstability	20,05	Being Ideological	25,05	Pressures / Laws / Obligations	22,74	Lack of Participation	23,00
Lack of Participation	19,10	Lack of Internal Democracy	24,93	Lack of Scientific Approach	21,51	Passiveness	20,35
Lack of Scientific Approach	17,76	Lack of Independence	24,91	Being Closed to Differences	18,30	Insensitiveness of Society	20,09
Administrative Weaknesses	17,13	Being Transparent	24,58	Lack of Concrete Outputs	18,29	Lack of cooperation among NGO's	19,39
Social Benefit	17,13	Insensitiveness of Society	24,43	Disinterestedness of the Media	17,62	Being Independent	19,26
Being Ideological	16,65	Being Closed to Differences	21,23	Effective Communication	17,21	Pressures / Laws / Obligations	17,55
Lack of Internal Democracy	15,46	Incredibility	20,19	Lack of Qualified Staff	17,21	Being Independent	15,16

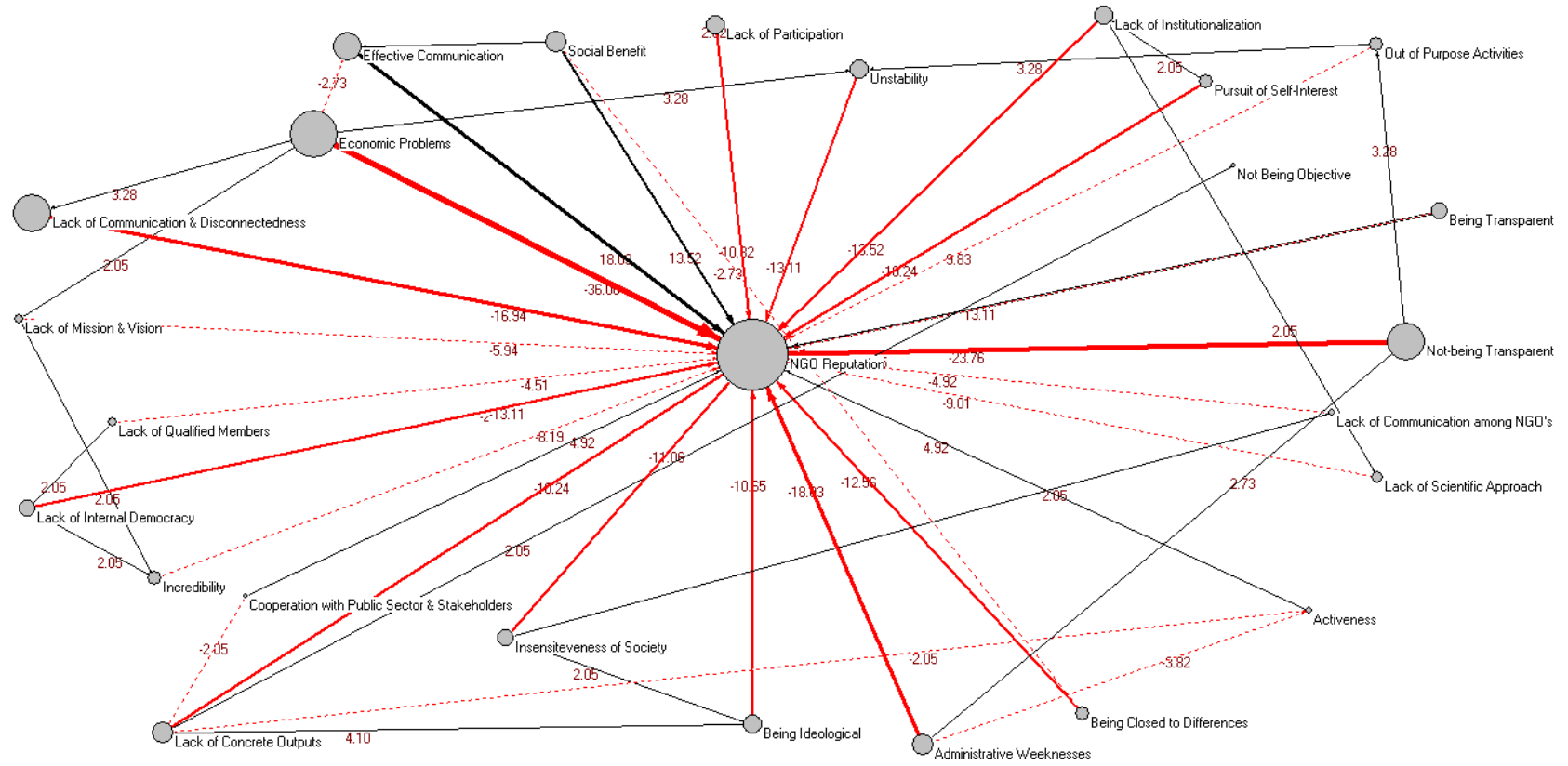**Figure 16. Aggregated Disability NGO's Reputation Map**

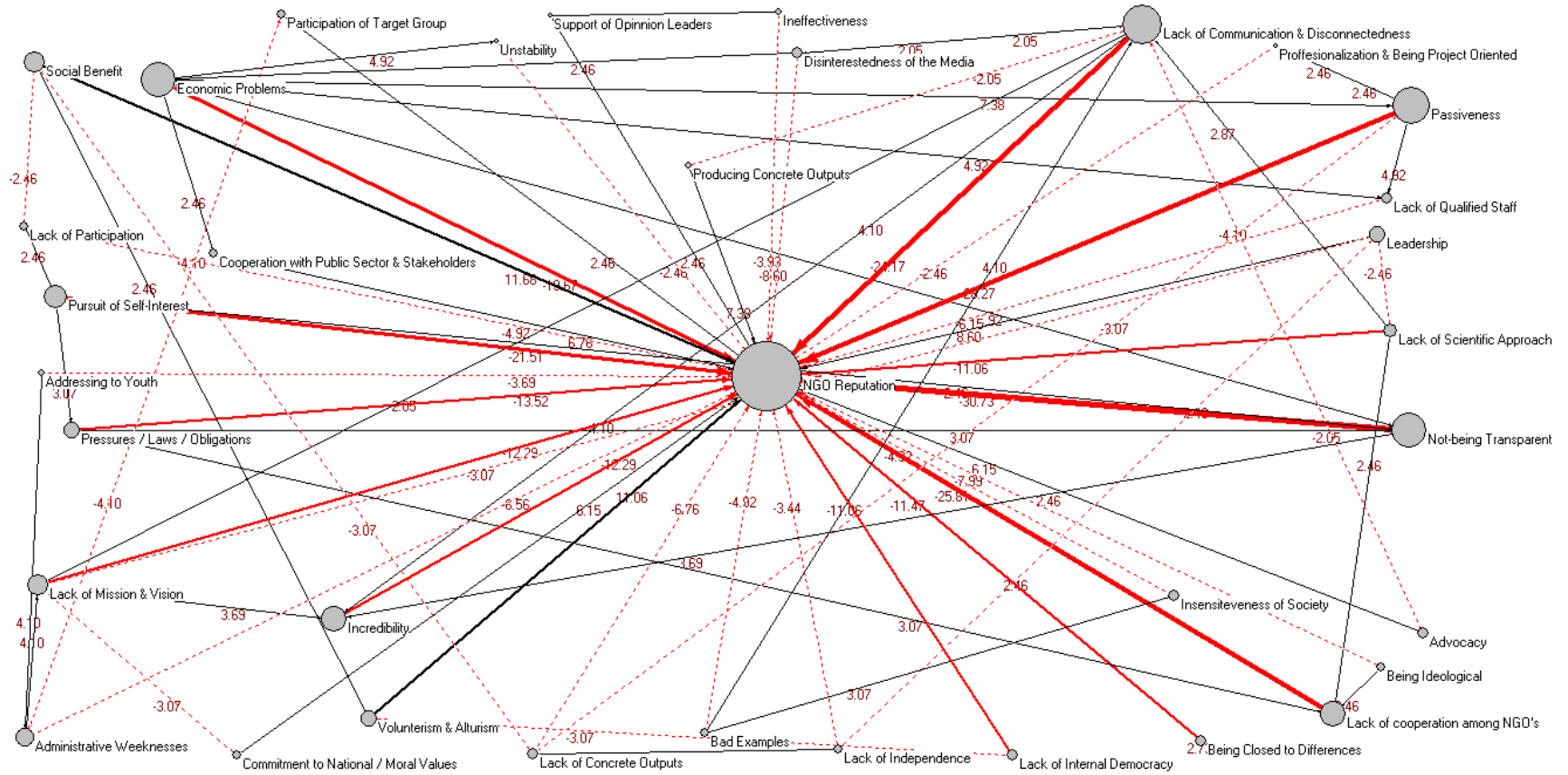**Figure 17. Aggregated Environmental NGO's Reputation Map**

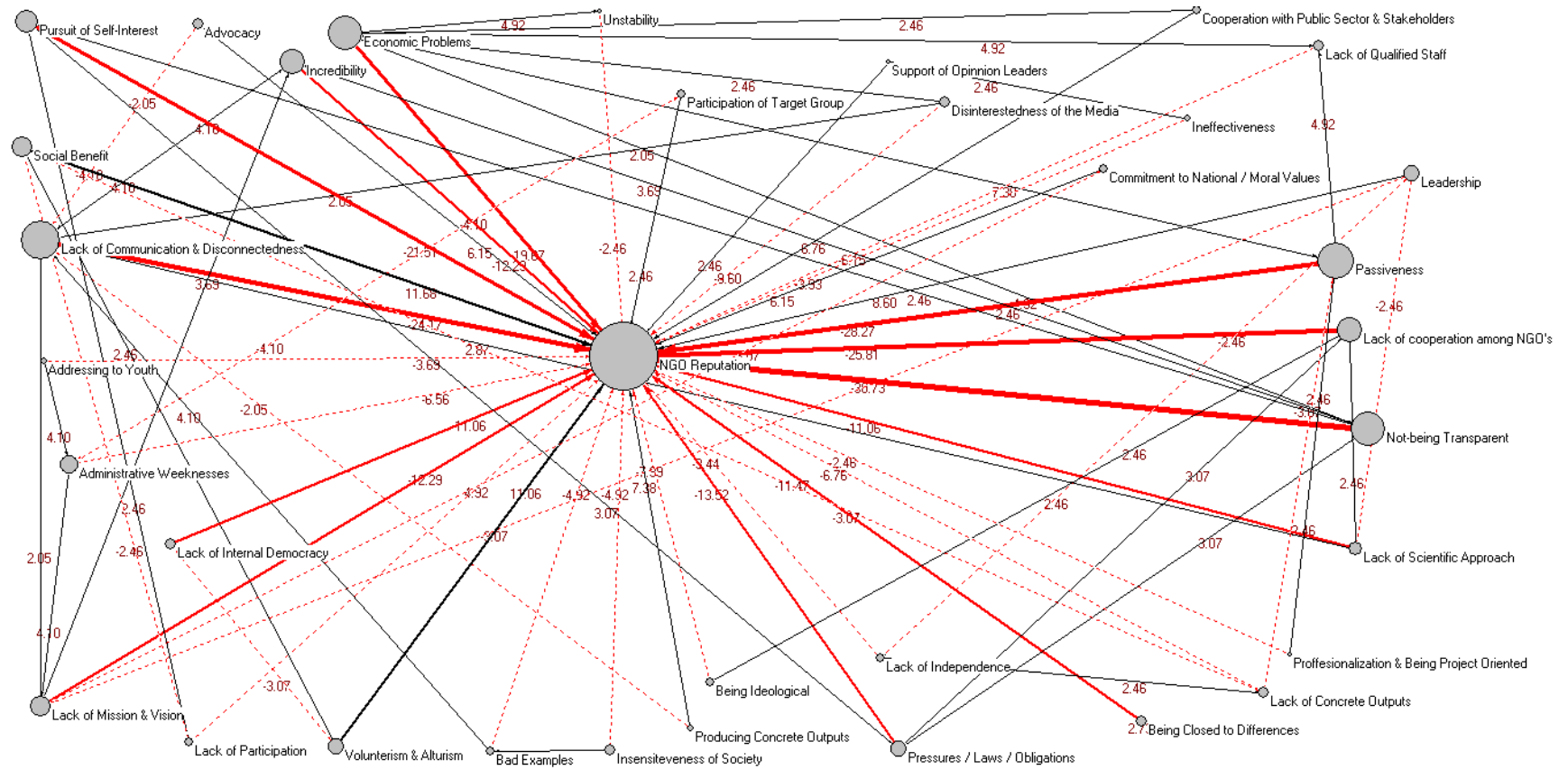**Figure 18. Aggregated Youth NGO's Reputation Map**

Figure 19. Aggregated Women NGO's Reputation Map

Reputation of non-governmental organizations in Turkey is low in the eye of the society supporting the shared opinion of the organizations acting in different areas. A large part of the concepts formed within the context of the relation maps that were created is negative concepts. The question how and in which area these negative relations were established gain importance at this point. When the relation maps are examined, it is seen that organizations acting in different areas highlight different concepts.

Firstly, according to the organizations acting in relation to handicapped people the concept which adversely affects the reputation of civil society the most in Turkey is using the organizations for personal interest. It is seen that the personal interest concept is also related to indifference/insensitivity of the society and the organizations' not being transparent. Personal interests decrease the reputation of the civil society in Turkey while making a positive contribution to organizations' not being transparent and insensitivity of the society for the civil society.

The most important concept affecting the reputation in environmental organizations was determined as the economic problems. Economic problems are a relational concept in addition to the relation they have with reputation. Economic problems are considered as a reason for lack of communication and inconsistency.

When we consider the youth organizations, it is seen that factors which adversely affect the reputation the most are transparency, passivity and lack of communication. Not being transparent is a factor that positively affects economic problems in the eye of youth organizing and it also increases the distrust in NGOs. Also, passivity is positively affected by the economic problems.

Reputation perception of the women organizations resembles the youth category the most. Concepts, which affect the reputation of non-governmental organizations in Turkey the most, are determined to be transparency, passivity and the lack of cooperation between NGOs. Personal interest is in a positive relation with not being transparent concept. Not being transparent concept is also associated with not being reliable. When we consider the positive relations affecting the reputation, it is seen

that women organizations resemble again the youth category. Devotion and voluntarism are perceived as rare positive factor affecting the reputation of civil society in Turkey.

4.4. City Comparison: Impact of NGO's Maps

Mapping application works was analyzed by being divided into categories of cities and activity areas and maps were created in order to describe the mentalities of the civil society organizations acting in Turkey. This analysis and mapping allows making comparative analyses on impact of the non-governmental organizations in Turkey according to different categories. Firstly, the breakdowns of the impact maps will be given and secondly their breakdowns in terms of disability, environment, women and youth will be given.

When we consider this in the most general framework, it is seen that the perception of NGOs in Izmir is different from other cities in terms of impact. Organizations acting in Istanbul and Ankara shows the economic problems for the reason why the impact of non-governmental organizations is low whereas organizations in Izmir considers the lack of participation and lack of institutionalization as the reason for this. Economic problems are twice the second most central concept in terms of centralization points for the organizations in Istanbul and Ankara. Organizations in Istanbul and Ankara determined that indifference of the society and communication problems are the basic reasons for the low level of impact. It is seen that the out of purpose activities come to the foreground when we consider Izmir.

If we are to make a general assessment, it can be said that civil society organizations in Ankara and Istanbul sees the impact of the non-governmental organizations in Turkey from a similar point of view and the organizations in Izmir are outside this framework.

Table 9. Indice Table of Ankara, İstanbul & Izmir's Aggregated Impact Map

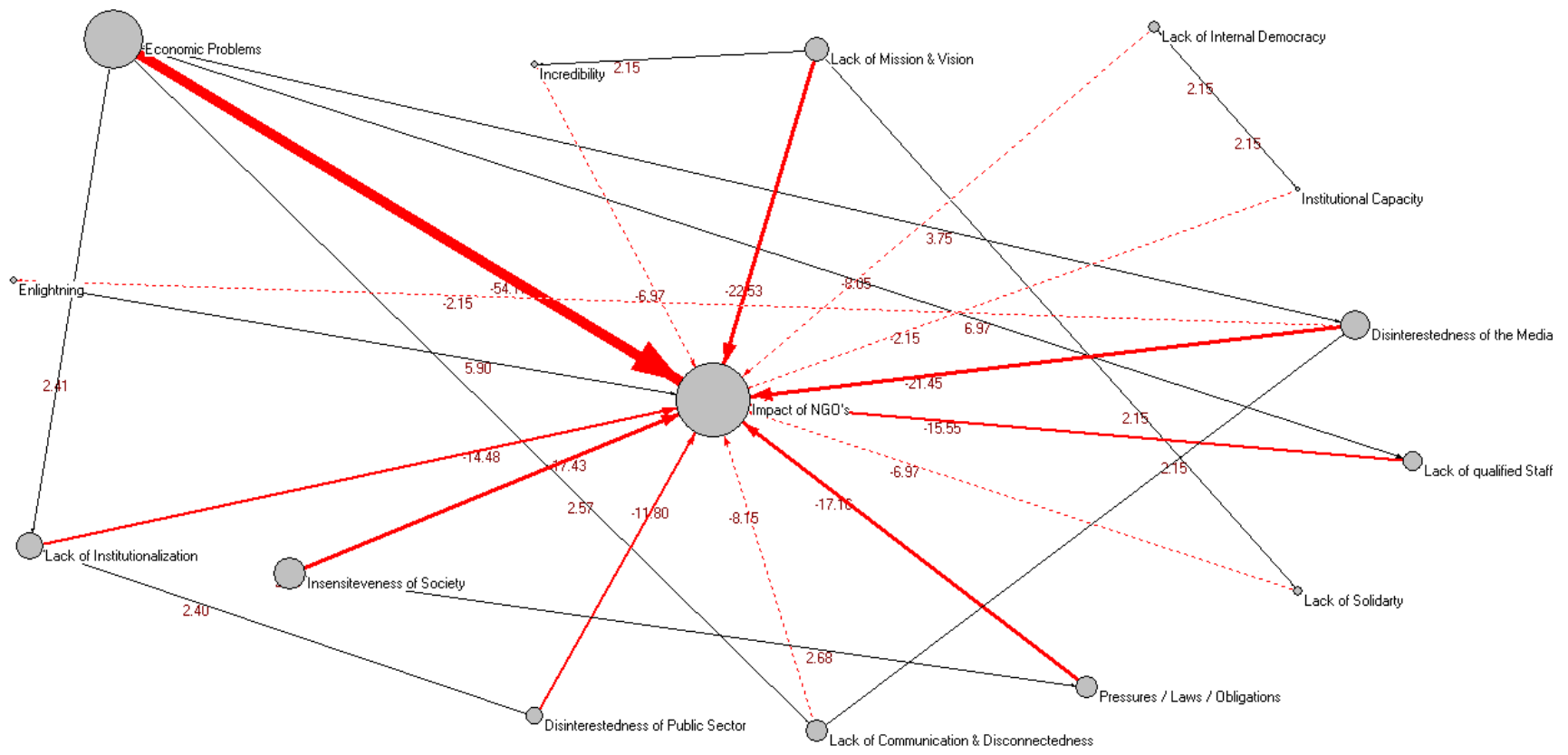| İstanbul		Ankara		İzmir	
Concepts	**Centrality**	**Concepts**	**Centrality**	**Concepts**	**Centrality**
Impact of NGO's	332,30	**Impact of NGO's**	318,95	**Impact of NGO's**	262,14
Economic Problems	80,45	**Economic Problems**	107,92	**Lack of Participation**	64,00
Insensitiveness of Society	41,88	**Lack of Communication & Disconnectedness**	58,09	**Lack of Institutionalization**	62,69
Disinterestedness of the Media	40,44	**Insensitiveness of Society**	43,83	**Lack of Communication & Disconnectedness**	49,00
Lack of Institutionalization	36,03	**Disinterestedness of the Media**	37,68	**Out of Purpose Activities**	48,68
Lack of Mission & Vision	34,18	**Incredibility**	36,44	**Economic Problems**	45,48
Pressures / Laws / Obligations	30,81	**Pressures / Laws / Obligations**	33,74	**Insensitiveness of Society**	33,80
Lack of Communication & Disconnectedness	28,35	**Lack of Participation**	33,49	**Lack of cooperation among NGO's**	28,89
Lack of qualified Staff	28,28	**Out of Purpose Activities**	32,97	**Ineffectiveness**	27,66
Lack of cooperation among NGO's	24,67	**Lack of Institutionalization**	32,30	**Lack of Concrete Outputs**	24,58
Disinterestedness of Public Sector	24,58	**Passiveness**	31,10	**Lack of Scientific Approach**	23,11
Lack of Participation	17,08	**Disinterestedness of Public Sector**	23,79	**Disinterestedness of Public Sector**	19,67
Out of Purpose Activities	16,90	**Ineffectiveness**	23,33	**Being a political**	19,42
Pursuit of Self-Interest	16,63	**Enlightening**	21,98	**Social Benefit**	17,21
Lack of Independence	16,63	**Lack of cooperation among NGO's**	21,93	**Being Closed to Differences**	16,96
Lack of Internal Democracy	15,55	**Lack of qualified Staff**	21,69	**Transparency**	16,72
Social Benefit	14,93	**Social Benefit**	19,28	**Lack of Independence**	16,59
Lack of Scientific Approach	13,58	**Pursuit of Self-Interest**	19,09	**Administrative Weaknesses**	14,75
Lack of Solidarity	11,89	**Institutional Capacity**	17,14	**Incredibility**	13,52
Enlightening	11,53	**Lack of Mission & Vision**	16,39	**Enlightening**	12,29
Administrative Weaknesses	9,25	**Lack of Scientific Approach**	14,11	**Lack of Internal Democracy**	11,06

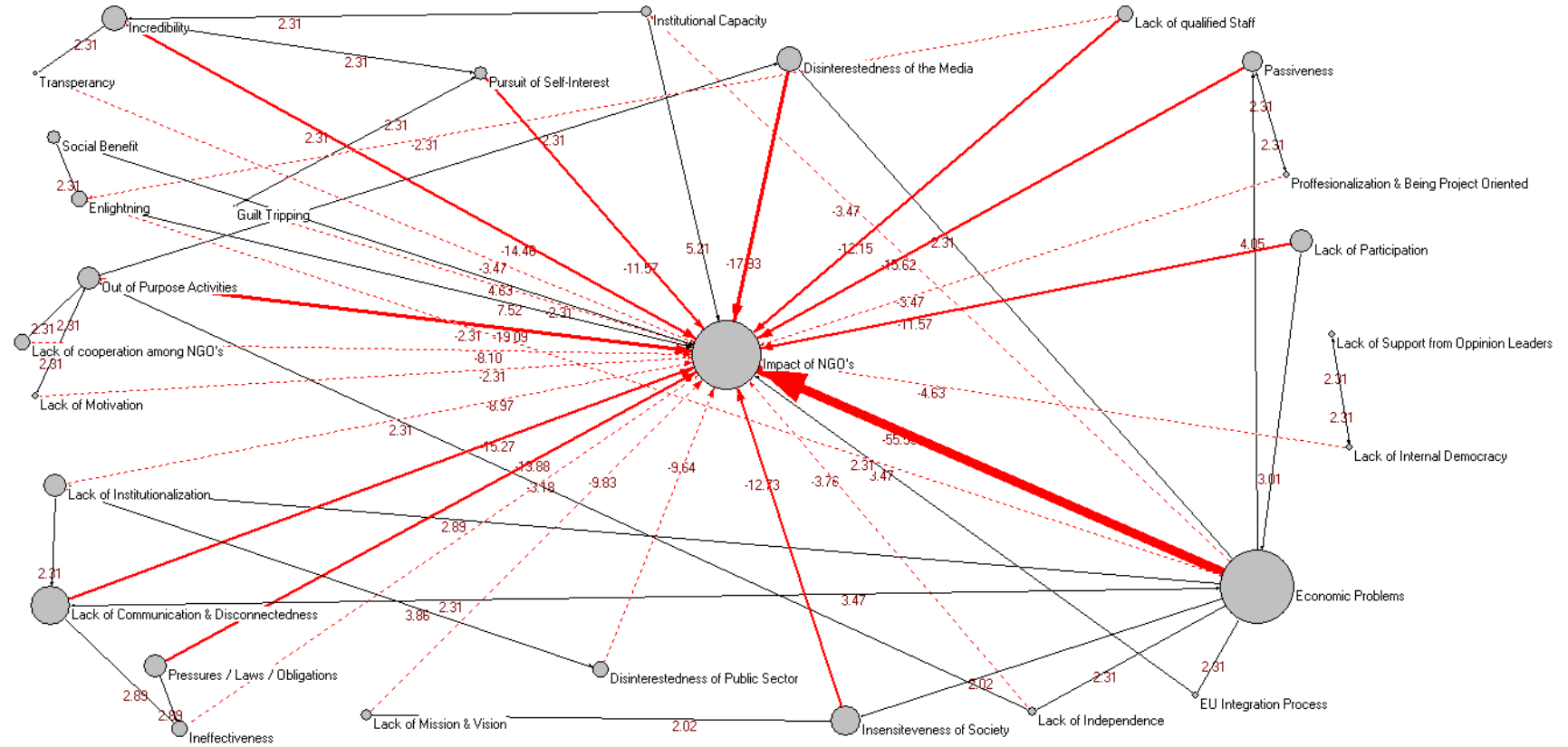**Figure 20. Aggregated Istanbul Impact Map**

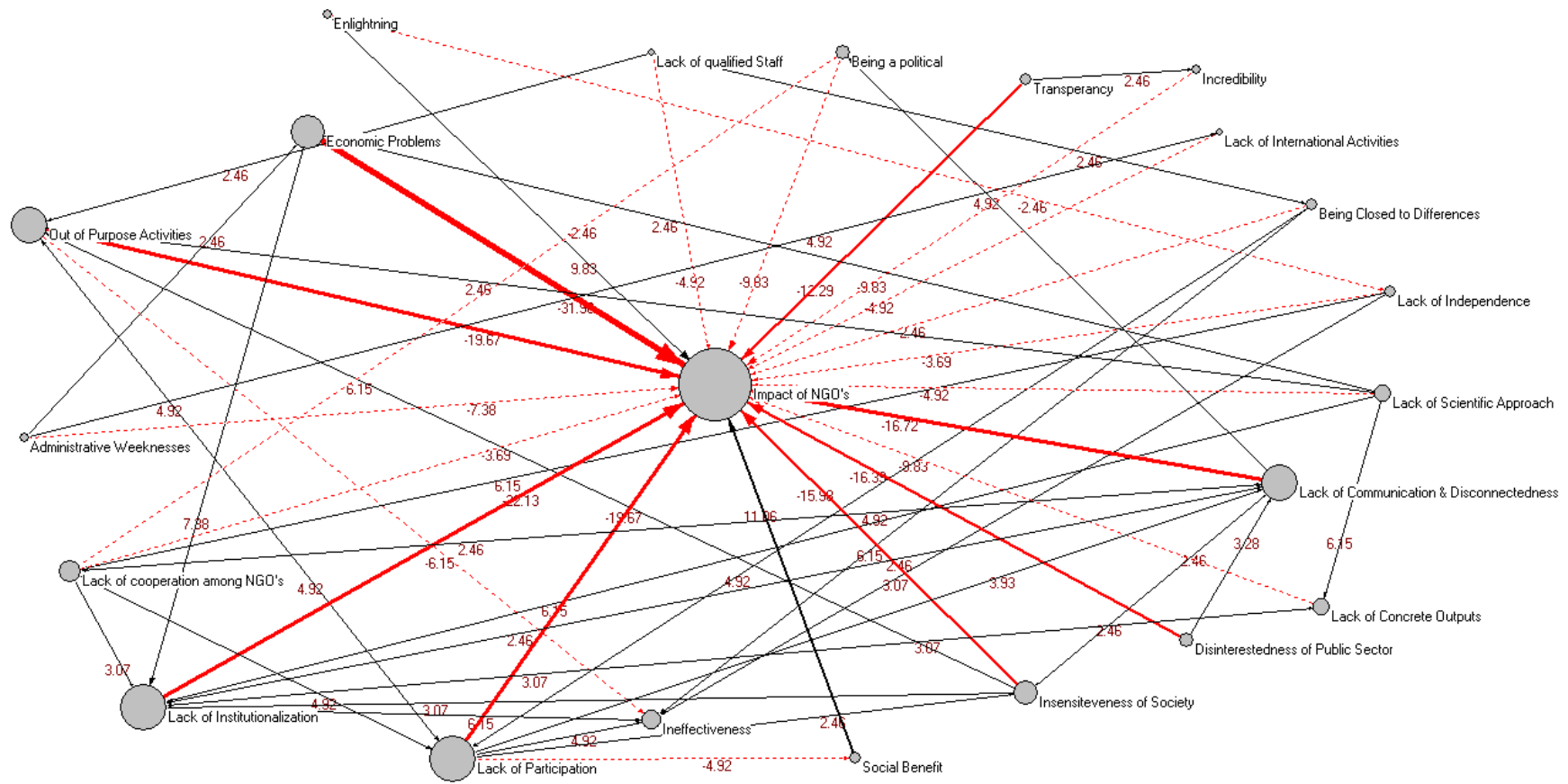**Figure 21. Aggregated Ankara Impact Map**

Figure 22. Aggregated Izmir Impact Map

If we are to make a general assessment regarding maps of three cities, we may suggest that impact of non-governmental organizations in Turkey among the society is weak. Within the framework of this concept, a large part of the factors in concept maps created to describe the current situation are factors that adversely affect the impact. There are two concepts which are determined to be positive: NGOs' providing social benefit, creating awareness in the society and their institutional capacities. These three concepts have a weak relation with the central concept, however, it is concluded that the civil society was perceived positively, even if just a bit.

Economic problems in terms of the impact of NGOs were determined to be significantly dominant in Istanbul organizations. The concept which established the second densest relation with the central concept is the indifference of media. It is seen that the only factor increasing the impact of the civil society is civil society creating awareness throughout the whole society. Even if laws and politic oppressions are determined to be efficient factors, it will not be realistic to define them among the most determinant factors in terms of impact.

Ankara map has tracks similar to Istanbul. It was seen that the factor which determines the impact in the densest manner is economic problems. It is determined to be central when the economic problem factor is considered outside the relation it established with the central concept. Economic problems are considered as one of the important reasons for NGOs' passivity, lack of participation in NGOs, dependency of NGOs and lack of communication with NGOs. When the concepts that established positive relations with impact concept, which is the central concept in Ankara maps, it is seen that the institutional capacity comes to the foreground differently from the other cities.

Thirdly, it is possible to encounter dominant concepts of two other cities in Izmir maps. Economic problems in Izmir organizations were determined to be the concept which establishes the densest relation with the central concept. Institutionalization and lack of communication are among the concepts which adversely affect the central concept. Regarding the organizations in Izmir, NGOs' creating awareness

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among the society and making a social effect are the factors which are considered to be affecting the impact of civil society positively in Turkey. Creating awareness among the society is adversely affected by dependency. Similarly, lack of participation in NGOs adversely affects NGOs' making social benefits.

4.5. Activity Area Comparison: Impact of NGO's Maps

When we consider the perception maps regarding the impact of non-governmental organizations in Turkey by their activity areas, it is seen that the shared concept is economic problems. Economic problems are positioned in the center in all the areas other than the women organizations. Central concepts in women organizations are indifference of the media and lack of communication/disconnection.

Organizations acting in environment positioned economic problems in a central place within the context of impact similar to disability and youth areas. Differently from other categories, legal oppressions and laws are an obstacle for the civil society to be effective on the society in Turkey. This concept which has a significantly high value in environmental organizations can be read as a reflection of the activist character of the environmental organizations which characteristics are distinguishing them from other organizations.

After the economic problems, the most central concepts affecting the impact of civil society organizations for organizations acting in disability area are lack of communication, disconnection and the insensitivity of the society. There were no concepts that established a positive relation with impact among the 20 most central concepts established by the organizations acting in disability area. It can be concluded form this point that the disability category is the category which considers NGOs' current impact in the most negative manner.

Youth organizations are the category which positions the social benefit concept in the most central manner. In other words, youth organizations are the organizations which are the closest to the idea suggesting that non-governmental organizations in Turkey have an impact because of their impact. In addition to these, the category in which not being institutionalized affected the impact adversely is youth category.

Women organizations are distinguished from other organizations in the assessment of impact. Women organizations consider the fact that the non-governmental organizations' impact is weak in Turkey as a problem of communication.

Indifference of the media, lack of communication/disconnection and lack of cooperation between NGOs were discussed individually as problems of communication and were positioned in very central places. Indifference of the society has high points of centralization in women organizations similar to the environmental organizations while lack of institutionalization also has high points of centralization in woman organizations similar to the youth organizations.

Table 10. Indice Table of Scope Categories Aggregated Impact Maps

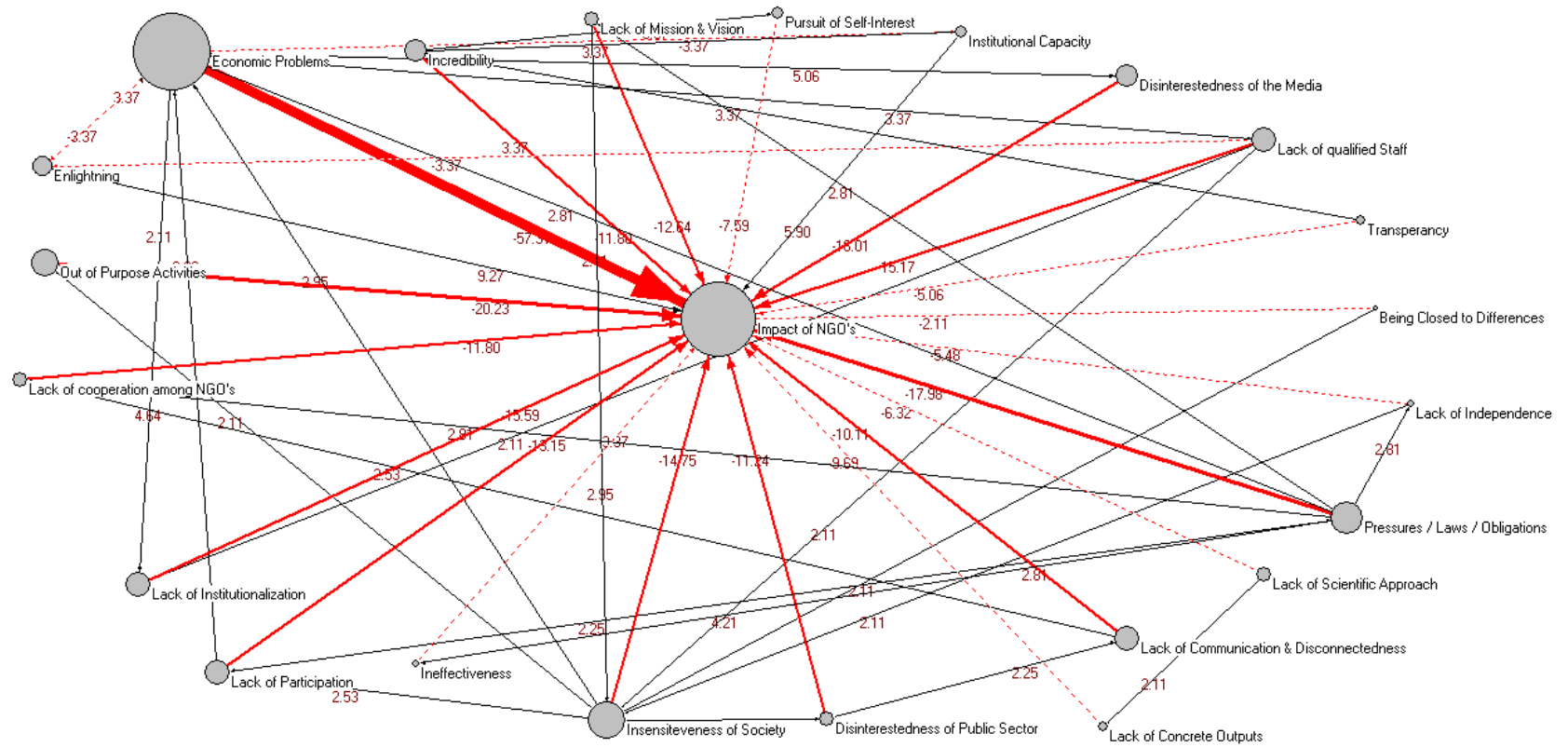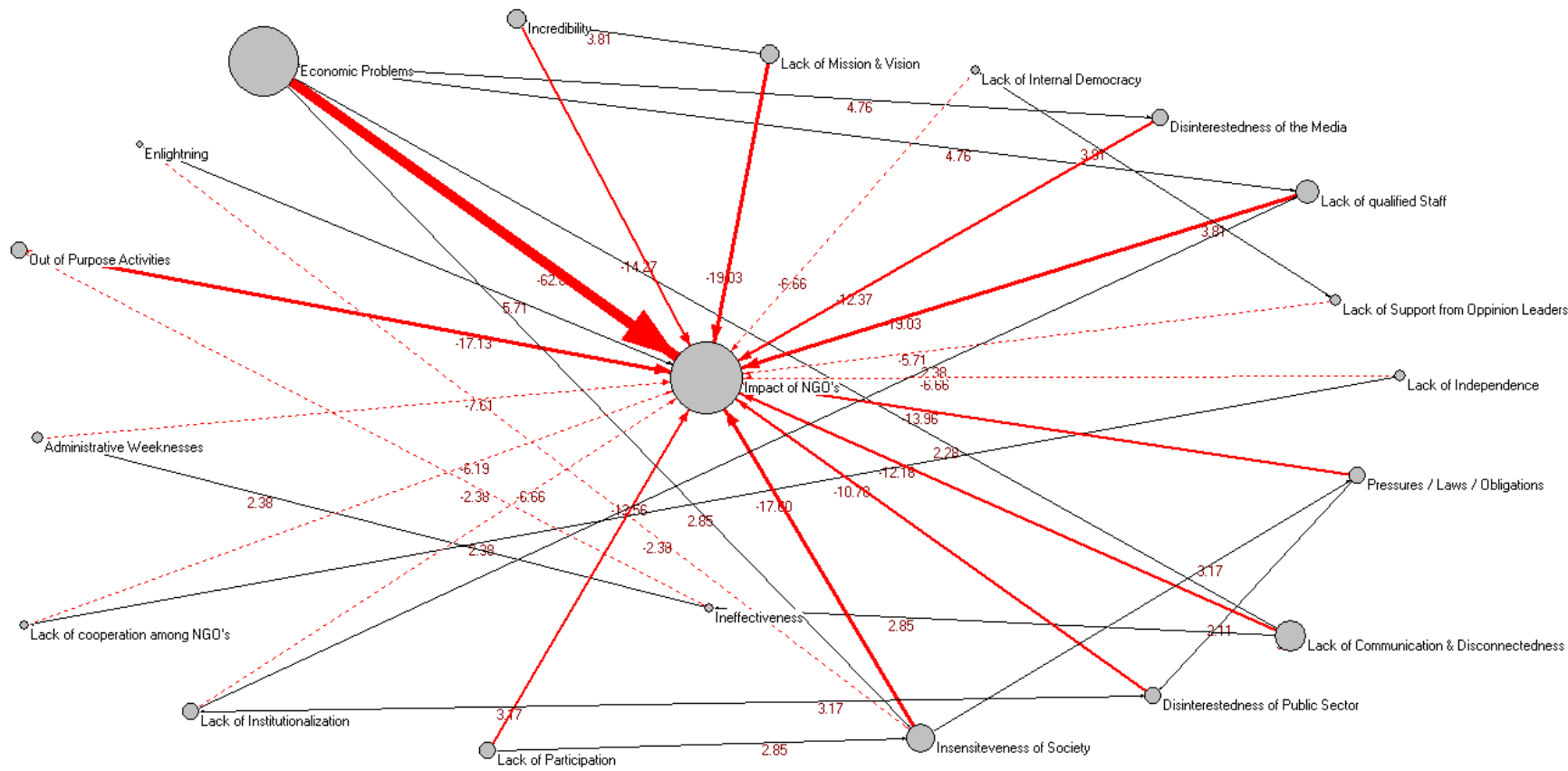| Environment		Disability		Youth		Women	
Concept	Centrality	Concept	Centrality	Concept	Centrality	Concept	Centrality
Impact of NGO's	336,67	Impact of NGO's	326,88	Impact of NGO's	346,21	Impact of NGO's	278,06
Economic Problems	104,06	Economic Problems	98,05	Economic Problems	90,82	Disinterestedness of the Media	68,95
Insensitiveness of Society	50,87	Lack of Communication & Disconnectedness	44,44	Lack of Institutionalization	56,54	Economic Problems	64,45
Pressures / Laws / Obligations	43,17	Insensitiveness of Society	38,41	Lack of Communication & Disconnectedness	42,60	Lack of Communication & Disconnectedness	59,13
Out of Purpose Activities	37,76	Lack of qualified Staff	34,10	Insensitiveness of Society	38,11	Lack of Institutionalization	44,34
Lack of Communication & Disconnectedness	34,30	Lack of Mission & Vision	26,65	Social Benefit	33,04	Insensitiveness of Society	39,24
Lack of Participation	33,35	Incredibility	25,06	Lack of cooperation among NGO's	32,45	Lack of cooperation among NGO's	34,98
Lack of qualified Staff	32,79	Lack of Participation	24,87	Passiveness	30,56	Lack of Participation	33,52
Lack of Institutionalization	31,83	Out of Purpose Activities	24,27	Lack of Participation	27,53	Disinterestedness of Public Sector	31,77
Disinterestedness of the Media	29,89	Pressures / Laws / Obligations	24,21	Pressures / Laws / Obligations	27,27	Lack of Mission & Vision	20,80
Incredibility	28,66	Disinterestedness of Public Sector	23,05	Out of Purpose Activities	25,96	Pressures / Laws / Obligations	20,42
Enlightening	25,57	Lack of Institutionalization	22,60	Disinterestedness of the Media	24,19	Lack of Independence	20,42
Lack of cooperation among NGO's	21,35	Disinterestedness of the Media	21,70	Lack of Mission & Vision	24,07	Lack of Scientific Approach	20,39
Lack of Mission & Vision	21,35	Lack of Independence	17,60	Ineffectiveness	22,52	Enlightening	19,86
Social Benefit	20,51	Lack of Support from Opinion Leaders	16,75	Disinterestedness of Public Sector	22,03	Pursuit of Self-Interest	19,29
Lack of Scientific Approach	20,23	Administrative Weaknesses	16,46	Incredibility	20,85	Ineffectiveness	19,29
Disinterestedness of Public Sector	19,72	Pursuit of Self-Interest	14,27	Lack of Motivation	20,06	Out of Purpose Activities	18,15
Institutional Capacity	17,81	Lack of Internal Democracy	14,27	Lack of International Activities	19,67	Administrative Weaknesses	17,30
Pursuit of Self-Interest	16,86	Lack of cooperation among NGO's	13,80	Lack of Internal Democracy	18,88	Social Benefit	14,37
Passiveness	14,38	Lack of Concrete Outputs	13,80	EU Integration Process	17,90	Lack of International Activities	14,18
Lack of Concrete Outputs	13,70	Passiveness	13,32	Lack of Scientific Approach	17,29	Lack of Solidarity	14,18

Figure 23. Aggregated Environmental NGO's Impact Map

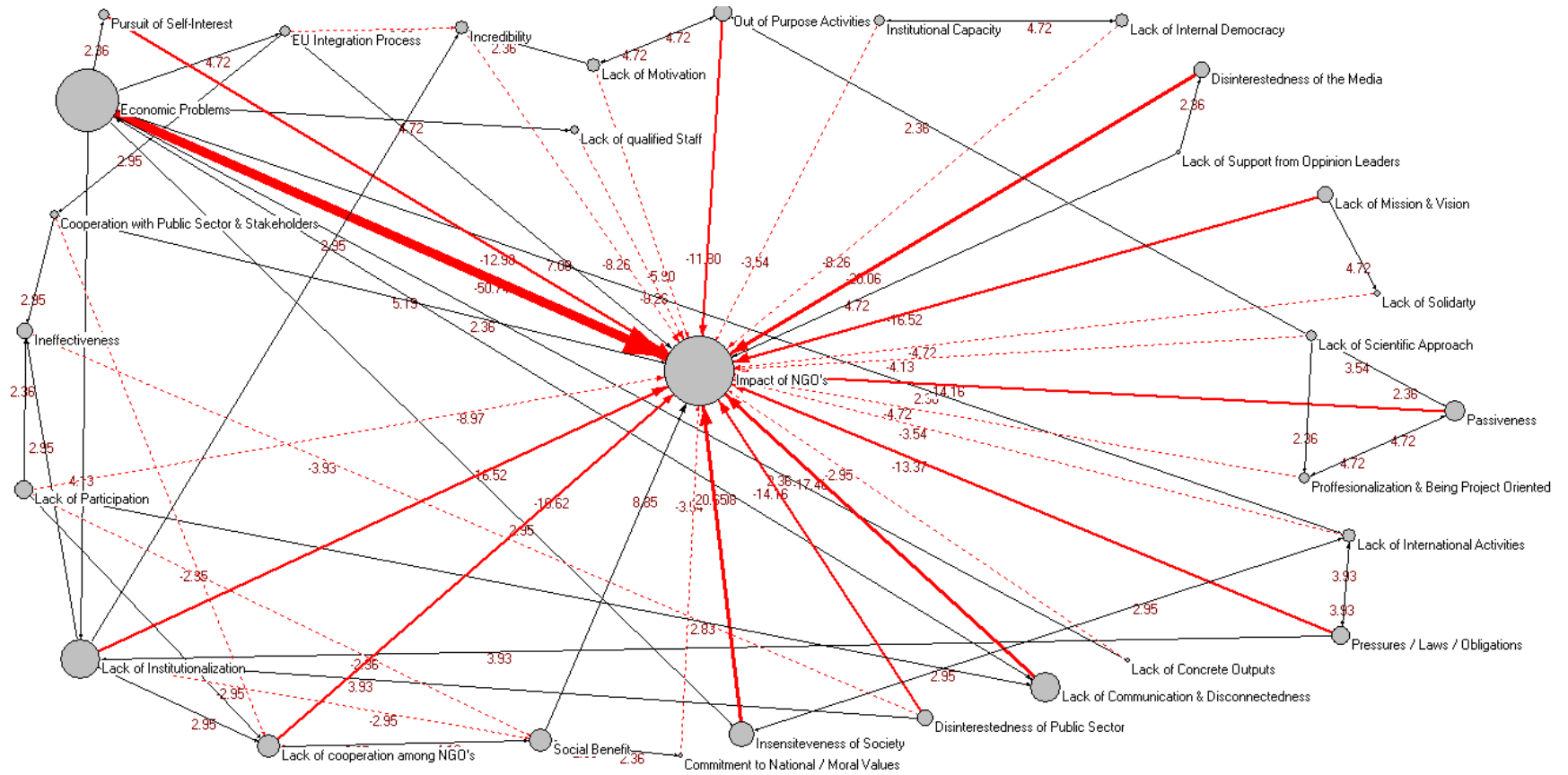**Figure 24. Aggregated Disability NGO's Impact Map**
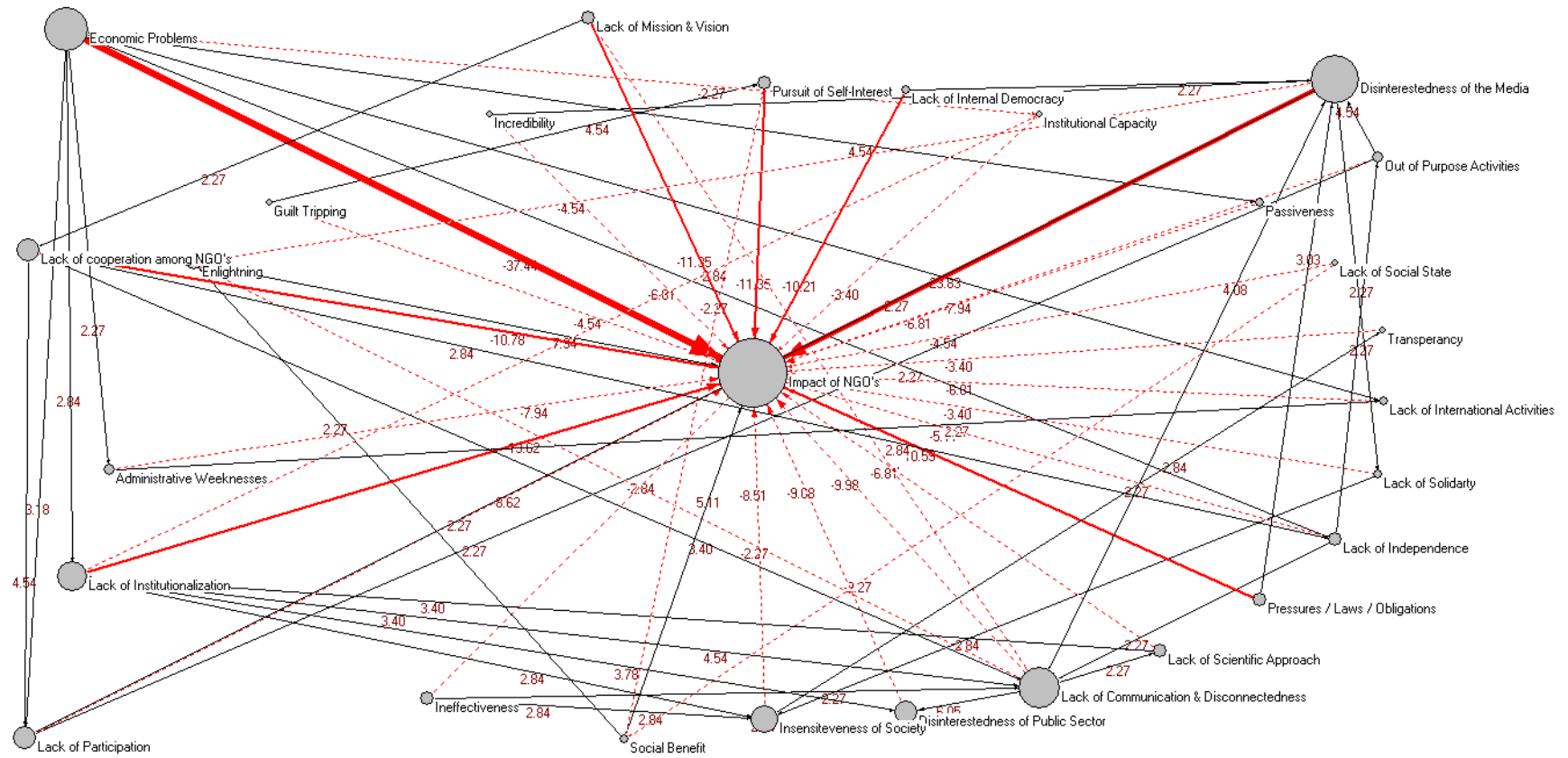
Figure 25. Aggregated Youth NGO's Impact Map

Figure 26. Aggregated Women NGO's Impact Map

When the cognitive maps of environmental organizations regarding impact of the civil society are considered, it is seen that economic problems are a dominant concept. While it strongly and adversely affects impact, it affects lack of institutionalization, low level of participation, insensitivity of the society, not being transparent, lack of expert staff and indifference of the media in a positive manner.

It is observed in the perception maps of the nongovernmental organizations acting in disability area within the context of impact that the economic problems are the most basic factors preventing non-governmental organizations from being effective. Lack of vision/mission and lack of quality staff are also determined as the concept decreasing the impact of the non-governmental organizations. Non-governmental organizations acting in disability area established only one positive relation with the impact of non-governmental organizations and that is with the concept of civil society creating awareness among the society.

When we considered youth organizations it is seen that the concepts, which adversely affect the impact the most after the economic problems, is related to the communication area. Indifference of the media, lack of communication and closeness concept are determined to be concepts which established a dense relationship with the central concept.

Economic problems have a very central position in women organizations similar to the remaining three categories. Economic problems also positively affect concepts of passivity, management weaknesses, lack of participation and dependency.

If we are to make a general assessment, civil society seems to be ineffective in Turkey regarding four activity areas included to the study. Even if there is perceptive difference in terms of impact of the civil society in Turkey, the general perception is similar and the economic problems are determined to be the most basic factor. Even if it is very rare, it is seen that NGOs provided social contribution and created awareness among the society. The subjects, which were discussed the most after economic problems, are insensitivity of the society and the media to civil society and non-governmental organizations' lack of communication strategies.

CHAPTER V

CONCLUSION

The main purpose of this study is to outline the main border on application of Fuzzy Cognitive Maps to social sciences. To perform this task, Turkish NGOs reputation and impact data is rendered. Basically this study has two folds.

Firstly, I proposed how to combine two different maps into one unifying map and then drawing the map of reputation and impact map with approximating categories like region and scope for a superior analysis. Consequently, this means welding of two thematically distinct maps into a single comprehensive conceptual framework with an all-inclusive map. Surely, this method also proposes a model in terms of dealing with such problems. Nevertheless, that all-inclusive map would allow us to foresee the new set of relations.

Secondly, reputation and impact maps are re-drawn with relevant sub-categories and indices calculations are fulfilled. Following that the maps are delineated and structured in comparative manner.

Application of FCM in various fields will definitely be conducive in terms of progression of this research tool. The advantages of FCM in comparison to other research tools were discussed in previous chapters. One of the concerns regarding the credibility of FCM is about its reliability. There is no single FCM applied to the same sample twice. Thus, such a study would be quite helpful for the refinement of FCM research tool. Another concern is about the lack of a FCM study done with time series. FCM research tool could be a very useful asset for tracking and extracting numerical data on change of the perception regarding the certain factual phenomenon. Researches in the fields of tracking and extracting numerical data would definitely help the perfection of FCM.

Another useful extension for FCM is application Monte Carlo simulation and it is necessary for calculating the conceptual saturation. The application of Monte Carlo simulation would help a lot in terms of predicting how many new concepts will emerge in the next interview. However, one should never forget that alongside the conceptual saturation the relational saturation is decisive. Employing the relational saturation in Monte Carlo simulation would come very handy to figure out the strength and mount up of combined maps in each interview. The researches in this field are very likely going to change about pre-conditioning of conceptual saturation. Finally, FCM may provide data for artificial neural network simulation. Almost in every FCM study one can easily notice the application of artificial neural network simulation. As this thesis study claims utilization of artificial neural network simulation to FCM would definitely aid the integrity of FCM.

The two major contribution of this study can be stated as the conduct of condensation technique for unifying bi-fold FCM applications into single conceptual map. Following the condensation, the numbder of concepts decreased to 88, which was formerly 76 for reputation and 54 for impact maps. In other words, 42 shared concepts were gathered in a shared map. At the same time, the density decreased to 12,5% which was formerly 10,3% for reputation and %12,6 for impact maps.

When two maps are examined by being integrated it was observed that the concepts of economic problems and lack of communication became closer to each other in terms of centralization. When two contexts are considered together, economy and lack of communication gains value in rates close to each other.

The second possible contribution of this study is comparative analysis of Fczzy Cognitive maps which drawn in reputation and impact themes. Fuzzy Cognitive Mapping allows comparative analysis. Thus, the data which was taken from exemplary study separated into city and scope of activity categories to observe the categorical perception differences. Maps drawn in different contexts were separated according to city and activity areas and comparative analyses were made between them.

To summarize the results, for city distribution of impact maps, Istanbul NGOs correlate disrepute with economic reasons and communication reasons whereas Ankara seems to have political tendencies within the same context. In a more dominant way when compared to the other cities, Izmir stated that non-governmental organizations went out of their purpose.

Secondly, about reputation of non-governmental organizations in Turkey is low in the eye of the society supporting the shared opinion of the organizations acting in different areas. A large part of the concepts formed within the context of the relation maps that were created is negative concepts. Dominant thoughts of the non-governmental organizations acting in relation to handicapped people in terms of reputation are established on the trust - transparency - personal interest. It will be more meaningful to accept this thought as a criticism to the internal and democratic operation of the organizations.

Thirdly, there are different perceptions about impact of NGOs between city categories. In the most general framework, it is seen that the perception of NGOs in Izmir is different from other cities. Organizations acting in Istanbul and Ankara shows the economic problems for the reason why the impact of non-governmental organizations is low whereas organizations in Izmir considers the lack of participation and lack of institutionalization as the reason for this. Economic problems are twice the second most central concept in terms of centralization points for the organizations in Istanbul and Ankara.

To make a general assessment about the different perception about impact of NGOs within scope of organizations, civil society seems ineffective in Turkey regarding. Even if there is perceptive difference in terms of impact of the civil society in Turkey, the general perception is similar and the economic problems are determined to be the most main factor. Even if it is rare, it is seen that NGOs provided social contribution and created awareness among the society.

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APPENDICES

A. AN EXAMPLE OF NGO REPUTATION MAP

C. TEZ FOTOKOPİSİ İZİN FORMU

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü   ☐

Sosyal Bilimler Enstitüsü   ☐

Uygulamalı Matematik Enstitüsü   ☐

Enformatik Enstitüsü   ☐

Deniz Bilimleri Enstitüsü   ☐

YAZARIN

Soyadı :
Adı   :
Bölümü :

TEZİN ADI (İngilizce) :

TEZİN TÜRÜ :   Yüksek Lisans   ☐   Doktora   ☐

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir.   ☐

2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir.   ☐

3. Tezimden bir bir (1) yıl süreyle fotokopi alınamaz.   ☐

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: