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Interpretive-Structural Modeling of the Affecting Factors on the Spatial Injustice in Iran

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Abstract

Spatial justice as a new term focuses more on cities, so it is important to address the national scale. Spatial injustice refers to the imbalanced distribution of valuable political, social and economic power, wealth, infrastructures and opportunity resources. From a political geography point of view, spatial injustice can be a threat to the national integrity, national & domestic security and creation of critical areas in the state. The main goal of this paper is Identification and categorization of factors affecting the spatial injustice in Iran. This paper tries to find an answer to the research main question: What are the most important factors affecting spatial injustice in Iran? This study is practical regarding its purpose and in terms of data collection is survey descriptive. Moreover, its data collection is from the questionnaire. First, the dimensions and spatial injustice indicators are distinguished based on the review of the literature, content and comparative analysis of related researches, and interviews with experts. Then using the methodology of modern analytical-interpretive structural modeling (ISM), the relationship between the indicators is determined and analyzed. Finally, the type of variables according to their influence and reception on other variables was identified using MICMAC analysis. Results show that the most important foundations of spatial injustice in Iran based on Interpretive-Structural Modeling Are Inequality in the distribution of power, wealth and opportunities and Theoretical weakness about the spatial justice domain of knowledge.

Keywords: Spatial Injustice, Interpretive-Structural Modeling, Iran, Political Geography.

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1.Introduction

For centuries, from the time of Aristotle, Homer, and Plato, humanity has interested itself in justice. This interest has ranged over justice in both a formal sense as law, and in an informal sense as the unwritten moral foundation of economic, social, and political exchanges and relations. Different notions of justice have emerged in diverse settings: under Islam and Christianity, in Africa, Asia, and Europe, under the capitalist and precapitalist organization. Within the familiar contemporary Western scene, specialists in jurisprudence have a particular interest in the background and associations of formal juridical notions of justice.

Among those interested in less legalistic specifications of justice, that is, in social or distributive justice, it is political philosophers who have been primarily responsible for the prodigious literature (Pirie,1983:465).

A comprehensive perception of spatial justice requires an understanding of the mutual relation between politics and space and their dynamic mechanisms, which pave the way for proposals of spatial justice in political geography. Spatial justice finds objectivity in political geography; in other words, it finds an operational facet. In political geography, the concept of justice has moved away from the objective level and has reached a subjective level (Hafeznia and Ghaderi Hajat,2016:32).

The philosophy of addressing spatial justice in political geography, is rooted in state revival because spatial imbalance results from unequal accessibility to power, wealth and resources on different scales. Unequal distribution of civil and revenue allotments may increase the inequality and gap between political units in different contexts. In this situation, politicians could prevent disintegration by codifying strategies to reduce poverty and promote spatial justice to promote national security.

Spatial injustice is an important feature of spatial organization in Iran, which is formulated on a core-periphery structure from the local to the national scale. The most important foundation of spatial injustice is the inequality of participation in power, which leads to inequality in access to opportunities. Inequality in power emerges when social control is at the disposal of a limited number of citizens. This provides the basis for the formation of dual social structures and the pattern of relations in society is formed in two

forms of winners and losers. Ultimately, this polarization will cause seclusion. The socio-spatial gap is the consequence of the lack of adequate attention to the real capabilities of individuals and geographic spaces. Besides, when ordinary efforts do not make the necessary changes to improve conditions, the losers of the community will organize in the form of protest movements and geographic space will be tens.

Due to the importance of spatial justice in national solidarity and integration, characterizing the root factors in spatial injustice is an important aspect of the domain of political geography. The object of this article aims to characterize the factors affecting spatial Injustice in Iran based on Interpretive-Structural Modeling.

Numerous studies attempted to explain Regional inequality, not even spatial injustice, has dealt with its root cause. However, much of the research up to now has been focused more on the distribution of urban utilities rather than on the factors influencing spatial injustice on the national scale. However, far too little attention has been paid to Identifying and Prioritizing Factors Affecting on Spatial Injustice in Iran.

2. Methodology

In terms of objective, the current paper is developmental and applied, which aims to identify the foundations of spatial injustice in Iran, using the Interpretive-Structural model. Using descriptive and library resources will identify the factors influencing spatial injustice. And then, by using elite terms and Interpretive-Structural model and MICMAC software, the factors will be categorized and prioritized.

2-1. Interpretive-Structural Modeling

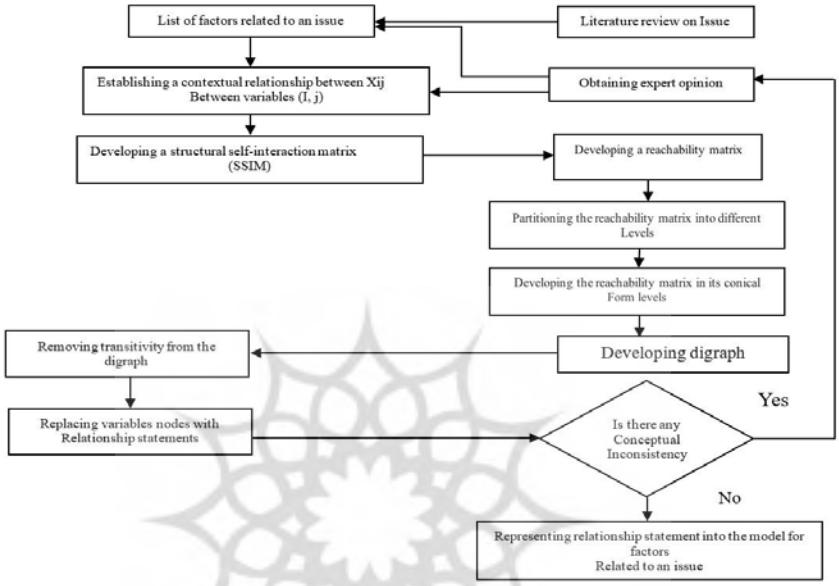
The first proposes ISM in 1973. Warfield, J.N (1973a;1974a; and 1 976) has developed a powerful methodology for structuring complex issues. Drawing upon discrete or finite mathematics, Warfield has produced a mathematical language applicable to many complex issues, provided that they can be analyzed in terms of sets of elements and relations. The term "Interpretive structural modeling" (ISM) is used here to refer to the systematic application of some elementary notions of graph theory in such a way that theoretical, conceptual, and computational leverage is exploited to efficiently construct

a directed graph, or network representation, of the complex pattern of a contextual relationship among a set of elements (David,1975:397).

Interpretive structural modeling (ISM) is a well-established methodology for identifying relationships among specific items, which define a problem or an issue. This approach has been increasingly used by various researchers to represent the interrelationships among various elements related to the issue (Rajesh Attri and Vivek,2013:3).

The methodology of ISM can act as a tool for imposing order and direction on the complexity of relations among elements of a system. Figure.1 clearly shows the flow diagram for the methodology adopted for the ISM. The methodology of ISM is an interactive learning process. The ISM can be judiciously employed for getting better insights into the present case of strategic information modeling. The ISM methodology is interpretive from the fact that the judgment of the group decides whether and how the variables are related. It is structural too, as based on the relationship; an overall structure is extracted from the complex set of variables. It is a modeling technique in which the specific relationships of the variables and the overall structure of the system under consideration are portrayed in a digraph model. ISM is primarily intended as a group learning process, but it can also be used individuals working alone (Sharma and et al,1995:288). Used ISM methodology for modeling of knowledge management in engineering industries (Pandey, Suresh, and Ravi,2005:93-108). and applied the ISM methodology for energy conservation in the Indian cement industry. They identified a relationship between direct and indirect key variables (Chellappan, and Natarajan,2010:183-190). Has employed ISM methodology to develop a hierarchy of actions required to achieve the future objective of waste management in India. Vendor selection criteria, the interrelationship of criteria and their levels were analyzed (Pandey and et al,2005:93-108) using the ISM methodology.

Figure (1): Flow Diagram for Preparing the ISM Model



(**Source:** Rajesh Attri and Vivek,2013: 4)

2-2. Characteristics of ISM

The important characteristics of ISM are as follows:

a) This methodology is interpretive as the judgment of the group decides whether and how the different elements are related.

b) It is structural based on the mutual relationship; an overall structure is extracted from the complex set of elements.

c) It is a modeling technique, as the specific relationships and overall structure are portrayed in a digraph model.

d) It helps to impose order and direction on the complexity of relationships among various elements of a system.

e) It is primarily intended as a group learning process, but can also be used by individuals.

Transitivity also allows some of the cells of the reachability matrix to be completed by inference the reachability matrix then consists of some entries from pairwise comparisons and some inferred entries. The Interpretive

Structural Modelling (ISM) approach has been employed to develop the structural relationship among different factors of competitiveness to enable the Small and Medium Enterprises (SMEs) management to take strategic decisions (Rajesh and et al,2007:423).

2-3. Procedural Steps of ISM

The steps for implementing ISM are as follows:

STEP 1: Variables affecting the system under consideration are listed, which can be objectives, actions, and Individuals, etc.

STEP 2: From the variables identified in step 1, a contextual relationship is established among variables concerning which pairs of variables would be examined.

STEP 3: A Structural Self-Interaction Matrix (SSIM) is developed for variables, which indicates pairwise Relationships among variables of the system under consideration.

STEP 4: The reachability matrix is developed from the SSIM and the matrix is checked for transitivity. The transitivity of the contextual relation is a basic assumption made in ISM. It states that if a variable A is related to B and B is related to C, and then A is necessarily related to C.

STEP 5: The reachability matrix obtained in Step 4 is partitioned into different levels.

STEP 6: Based on the relationships given above in the reachability matrix, a directed graph is drawn and the transitive links are removed.

STEP 7: The resultant digraph is converted into an ISM, by replacing variable nodes with statements.

STEP 8: The ISM model developed in Step 7 is reviewed to check for conceptual inconsistency and necessary Modifications are made.

2-4. Sampling Method

Delphi method same as ISM modeling needs to receive analysis information from experts. Because the aim was not to generalize the results for choosing Delphi and ISM, purposeful sampling is used. Conditions of experts' selection are theoretical mastery, practical experience, willingness and ability to participate in research and accessibility. An important point in determining the number of experts is to ensure the consistency of the different perspectives of the research. Considering the criteria's, finally, 20

experts from geography sciences, economic sciences, and development in the universities and related research centers had been considered.

2-5. Content Validity

This model is, an optimal deployment method to recognize and analyses the connection between dimensions and Criteria. Questionnaire Content validity in this research refers to the level in which a tool reflects the desired specific content. Based on Lawshe method to create Content validity in the questionnaire, after lecture review of subject, the scope and content of the questionnaire is compiled, Content panel members were asked to rate the appropriateness of each item by choosing one of three "essential", "useful but not necessary" or "unnecessary" options. After that, based on equation (1) Content validity proportion is calculated, and then if (P>0.05) CVR=0.8 it is adequate (Lawshe,1975:567).

$$CVR=(N_e-\frac{N}{2})\div(\frac{N}{2})=0.8 \Rightarrow CVR=(18-\frac{20}{2})\div(\frac{20}{2})=0.8$$

N_e: Number of elites who chose the necessary

N: total

Reliability:

For measuring, the reliability of the ISM questionnaires was Re-sent to 3experts who could be accessed again, and finally, the correlation of responses reported for both stages by the experts was 0.785 indicating the acceptable reliability of the questionnaire.

3. Theoretical Formwork

David Harvey is one of the main Anglophone neo-Marxist protagonists who revolutionized urban theory in the early 1970s. In a remarkable re-deployment of his critical method, Harvey's Social Justice and the City (1973) set forward a provocative test. If the discipline of geography was to become a social science, then geographers needed to be able to account for those spatial processes which constituted and exacerbated urban inequality. If they couldn't then this raised profound questions about how the construction of cities (as a set of institutional, conceptual as well as physical structures) impeded the development of urban societies. Social Justice and the City contributed significantly to the development of Marxist urban

theory in Anglophone western economies because of the revolutionary manner in which Harvey addressed urban social injustice. His neo-Marxist structural analyses contribute to understanding and solving problems experienced in multicultural western urbanisms, for example, the alleged existence of "no-go areas" such as parts of South all in London may be representative of contemporary forms of class struggle. Ethnic and religious minorities in the UK often experience racial discrimination and harassment in housing and employment which has contributed to the development and growth of British "ghettos".

According to him, ``a just distribution justly arrived at":(1) The distribution of income should be such that (a) the needs of the population within each territory are met, (b) resources are so allocated to maximize interterritorial multiplier effects, and (c) extra resources are allocated to help overcome special difficulties stemming from the physical and social environment. (2) The mechanisms (institutional, organizational, political, and economic) should be such that the prospects of the least advantaged territory are as great as they possibly can be. Income was broadly conceived as some measure of command over society's scarce resources. Prioritizing the prospects of the least advantaged reflected the so-called difference principle central to the theory of justice recently set out by John Rawls (1971) (Harvey,1973:383-430).

In 2010, after having published several texts on this matter, Soja publishes Seeking Spatial Justice. In this book, he aims to further the theory on the relation between space, society, and exclusion, which had already been discussed by classic authors such as David Harvey, Henry Lefebvre, and Michel Foucault. According to him, and as Lefebvre advocated, space is a social product, with social and cultural texture and a crucial element to understand spatial phenomena. He thus advocates what he calls spatial turn - a shift that allows for social-spatial dialectics able to consider that human activity is as understandable in time and its social interaction, such as in space.

In 2010, Soja declares that as I hope I have made clear, spatial justice is not a substitute or alternative to other forms of justice but rather represents a particular emphasis and interpretive perspective. I have also argued that

foregrounding a critical spatial perspective and seeing the search for social justice as a struggle over geography increase the possibility of opening up new ways of thinking about the subject as well as enriching existing ideas and practices. (soja,2010:13) However, in Seeking Spatial Justice, Space is not an eppt y void. .t is always filled with wolitics, ideolo, y, and other forces shaping our lives and challenging us to engage in struggles over geography (soja,2010:19).

According to Soja Spatial, justice is the point of intersection of space and social justice that addresses the spatial or geographical aspects of justice. Spatial justice includes the fair distribution of valuable resources and opportunities in the community and can be considered as result and process (Soja,2009,4).

Justice and injustice emphasize the spatial aspects of (in) justice. In the dialectical formulation of the spatiality of injustice and the injustice of spatiality, the spatiality of injustice implies that justice has a spatial dimension to it, and therefore, that a spatial perspective might be used to discern injustice in space (Dikec,2001:1972). Spatial justice's approach cannot help to determine fair or unfair, it rather explores the dynamic processes of social, spatial, economic and political organizations to know if the performance is for producing or reproducing justice or injustice (Prange, 2009:4)

Spatial justice is best understood as an analytic lens that illuminates how "space" - a term denoting the location of things relative to each other – participates in the formation of justice claims. Spatial justice is a concept already deployed in geography and urban planning, yet it is most frequently understood as a normative evaluation: that any particular space is just or unjust (Williams,2018:VI)

Spatial justice can be defined as the equal distribution of resources and services which refers to who benefits and what. Spatial equity implies that there is an even distribution of services about the needs, preferences and service standards of each resident (Tsou and et al,2005:425) in a broad sense, spatial justice pays considerable attention to equal rights of human or social actors, protection of human dignity and basic needs. Spatial justice in universal totality refers to all people's equal right observance regardless of

ethnicity, race, culture, religion, political beliefs and protection and attention of their human dignity, life's basic needs and their social self-esteem security. (Javan and Abodollahi,2008:139-140).

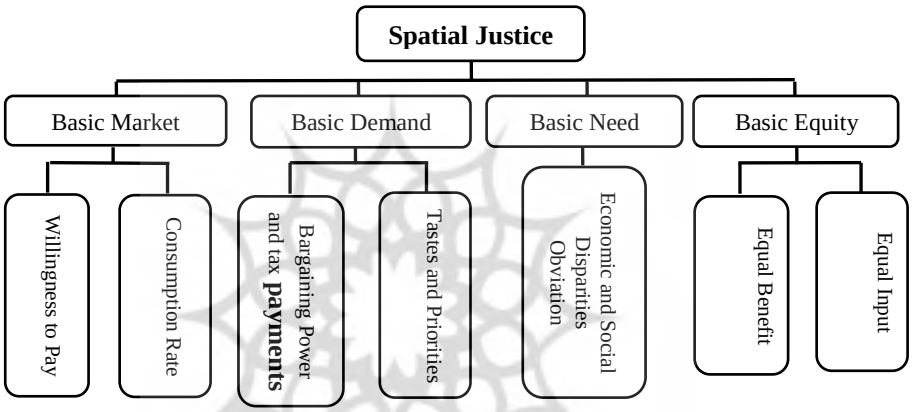
“The Just City” raised by Susan Fainstein in the late 1990s is one of the trustworthy theories about justice in urban spaces. A theory of the just city values both participation in decision making by relatively powerless groups and equity of outcomes. The key questions asked of any policy by political economists have been who dominates and who benefits? The "who" has typically been defined by economic interest, but economic reductionism is not necessary to this mode of analysis; evaluation of outcomes can also be performed with regard to groups defined by gender, race, and sexual orientation. Nor does the stress on material equality need to boil down to an expectation that redistribution should proceed to a point where there is no reward to achievement. (Fainstein,2000:16). Spatial justice research aims to ascertain whether the distribution of public services is equitable and correlates with observed socio-economic spatial patterns (Omer,2006:255).

Peter Marcuse’s piece suggests that jjustice planning’ is largely concerned with post facto or processual problems of distribution and deliberation, and argues for ‘commons glanning’ as a more radical understanding of how power relations shape urban conditions–and spatially, with pieces on the European city and Amsterdam in particular as (increasingly compromised) models of what a just city might look like, and on the severe injustices produced within processes of Israeli city-and nation-building. The final section looks to cases of urban activism, from local movements for environmental justice in New York City, to urban politics in Brazilian cities, to the baleful exemplar of urban injustice offered by pre-and post-Katrina New Orleans. The strongest insights are to be drawn from those pieces that bring together original critical arguments with a compelling analysis of specific urban contexts. (Tonkiss,2010:1).

In Expert discussions, two different concepts of justice have polarized the debate: The first focuses on redistribution issues, while the second is more concerned with decision-making processes (Dufaux,2008:1). Some authors have classified different types of spatial justice. Typologies of equity such as those suggested by Lucy (1981) and Crompton and Wicks (1988) are useful

guides when attempting to do this. Between them, these authors identify four significant classes of equity about the allocation of resources, each of which can be operationalized in one or more ways. As Fig. 2 illustrates, the four categories are a) equality; b) compensatory (Crompton and Wicks) or need (Lucy); c) demand and, d) market (Nicholls,2001:203).

Figure (2): Taxonomy of Equity Models



(**Source:** after Lucy (1981), and Crompton and Wicks (1988) (Nicholls,2001:203)

According to the results of Dadashpoor and Alvandipoor Research (2016) on 44 articles, focusing on spatial justice in Iran, there are two general approaches: Distributive justice and structural justice (Dadashpoor and Alvandipoor,2016:77). Table 1 shows these studies' criteria.

Table (1): The Approach, Main and Sub-Criteria in the Researches

Approach	Main Criteria	Sub-Criteria
Distributive justice	Result Dependence	Spatial distribution of services and population Service performance Residents need for services
Structural justice	Process Dependence	Freedom Equal opportunity\ Equality Difference \ Diversity Need\Demand Participation in public Interest Desert Democracy

(**Source:** Dadashpoor and Alvandipoor,2016:77)

In pursuit of justice as a principal, spatial dimensions show particular importance; in this respect, planners pay attention to the type, location, the relation of urban activities, quality of place, access to services and

infrastructures. These are the components of the spatial structure. Spatial justice is closely related to spatial planning. It can determine how places are interconnected, how to enhance communication and links, and what kind of development for housing, employment, leisure is appropriate. If the criteria of justice do not accompany spatial planning that designs and manages urban spatial elements (spatial structure), they will lead to spatial discrimination and inequality. The physical inequalities can be views as spatial segregation, ghettos, worn-out areas, and slums or socially like racial, ethnic, or religious discriminations (Rafieian and Alizadeh,2017: 17).

Spatial justice, could indicate a distribution principle that tends to present space as a good to be enjoyed by all. Accessibility can become one of the most important attributes of spatial justice. Any division, separation or partitioning of space appears, thus, as obstructing this kind of justice. (Stavrides,2010:4).

The commentary here on the twilight concept of spatial justice gives a view of justice concerns in applied and theoretical geography that raises more ashes than it settles. In a corner of human geography that is otherwise rather stagnant, this is not wholly untoward. It would be a pity indeed if the busyness of political philosophers was to go completely unnoticed by spatial theorists and applied researchers. Equally, it would be a pity—dare one say unjust—if this essay were to stand alone as a review of implications of that busyness (Pirie,1983:472).

Spatial/geographic justice refers to the balanced distribution of opportunities, benefits, wealth, and political-executive power in space, which addresses the basic needs of citizens.

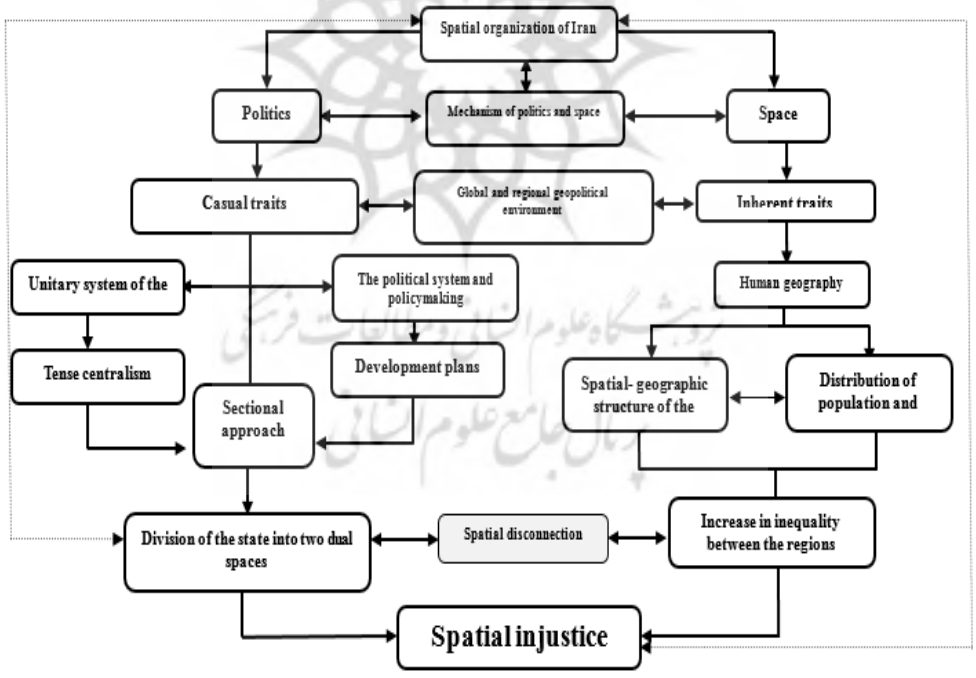
In other words, spatial justice is a fair and democratic distribution of social interests and responsibilities in a variety of scales (Hafeznia, and et al, 2015:37). Spatial injustice establishes the unequal distribution of opportunities, wealth, advantages and political and administrative power in geographical space.

4. Finding

4-1. Iran's Spatial Injustice Situation Based on Theoretical Background

Theoretical and studies show that spatial injustice in Iran has resulted from ignoring spatial planning as well as optimal political management of space. Hence, the decision-making system of the state in Iran is faced with opposing challenges to attain geographic/spatial justice. Spatial injustice in Iran has resulted from the inherent characteristics of the regions (physical geography and distribution of vital infrastructures), human geography (spatial structure of the nation and distribution of population and activities), causal characteristics of the regions (political system, policymaking, national development planning, systemic centralism, and development plans) and the global and regional geopolitical environments. Fig.3 illustrates this issue.

Figure (3): Spatial Injustice in Iran: Process and Results



Theoretical and experimental studies show that spatial injustice in Iran has resulted from ignoring spatial planning and optimal political management of space. The global and regional geopolitical environment is another accelerating cause of

spatial injustice in Iran. Hence, the decision-making system of the state is faced with opposing challenges to attain regional development, geographic/spatial justice and decrease regional gaps. These challenges are as follows:

a. Inherent characteristics of the region
- Physical geography, inherent distribution of vital infrastructure
- Global and regional geopolitical environment

b. Human geography
- Geographic-spatial structure of the nation
- The pattern of distribution of population and activities

c. Causal characteristics of regions: policymaking and national development planning
- Institutionalized centralism
- Inequality in the distribution of power, wealth and opportunities
- Ambiguity in the place and importance of spatial justice in the administrative system of Iran
- Weak spatial perception of policy-makers
- Weakness in planning and budgeting systems
- Poor of usage of administrative managers in deprived regions
- Lack of attention to supporting documents related to balanced development and deprivation
- Spatial justice has not become a public right
- Weakness in the regional and local management system
- Weakness in the collection of comprehensive regional and national data
- Lack of discourse of balanced and just development
- The role of petroleum as strategic in the budget, which prevents balanced development
- Lack of attention to public participation in further development plans
- The dominance of growth-based approach in government and lack of attention to spatial justice

The foundations of spatial injustice in Iran (inherent characteristics of regions, causal characteristics of the regions and human geography) have weakened the planning system of the state in a historical process. Theoretical and experimental weaknesses exist in the planning system. This, along with other accelerator factors, has polarized the spatial structure of the state, which can be seen in the core-periphery pattern at levels ranging from local to national. The result of this mechanism is institutionalized inequality in the flow of wealth, interests, opportunities and power. Table 2 lists the field findings related to the foundations

of spatial injustice in Iran.

Table (2): Foundations of Spatial Injustice in Iran

No.	Name. of Objective (Criteria)
1	Inequality in the distribution of power, wealth and opportunities**(IDPWO)**
2	Weakness in the planning and budgeting systems**(WPBS)**
3	Weakness in the regional and local management systems**(WRLMS)**
4	Spatial justice is not getting a public claim**(SJNP)**
5	Institutionalized centralism**(IC)**
6	Ambiguity in the importance of spatial justice in the administrative system of Iran**(ASJASI)**
7	Lack of experience of administrative managers in deprived regions**(LEAMDR)**
8	Weak spatial perception of policymakers**(WSPPM)**
9	Lack of attention to documents supporting balanced development and deprivation**(LADS)**
10	State dependence on oil income and imbalanced development **(DDOI)**
11	Conceptual ambiguities in regional and local planning**(CARP)**
12	Legal ambiguities in regional planning **(LARP)**
13	Lack of discourse about balanced and just development**(LDBJD)**
14	Weakness in public participation to further balance development plans**(WPPFB)**
15	Emphasis on security in development in border regions **(ESDBR)**
16	Regional and global geopolitical environment**(RGGE)**
17	The dominance of growth-based approach in previous states and lack of attention to spatial justice**(DGAP)**
18	Weakness in the collection of comprehensive regional and national data**(WCCRN)**
19	Theoretical weakness about spatial justice domain of knowledge**(TWSPJ)**
20	Imbalanced vital resources **(IVR)**

4-2. Iran's Spatial Injustice Situation Based on ISM MODEL

Step1.Establishing the Contextual Relationship between Line Balancing Objectives

After identifying and enlisting the 00 objectives (criteria's) shown in Table 2. Through the literature review, and expert opinion on criteria survey sheet from manufacturing industries (manufacturing industries selected are automobile manufacturing two-wheeler and four-wheeler, etc.) where line balancing work is performed, the next step is to analyze the objectives (criteria's). For this purposepa contextual relationship of 'reaches to' type is chosen. This Tea ns that one objective (criteria's) reaches to another chosen objectives (criteria's). Based on this principle, a contextual relationship is developed. Some experts, from various industries, were consulted to assist in developing the contextual relationships between the objectives (criteria's). Keeping in mind the contextual relationship for each objective (criteria's), the existence of a relation between any two objectives (i and j) and the associated direction of this relations decided to analyze the objectives (criteria's) for the develomment of the SSIM, the folloging four symbols are used to denote the direction of the relationship between the

objectives (criteria's) (i and .). As suggested by (Rajesh, & Suresh, & Deshmukh,2007:429) four standard symbols are used to denote the direction of relationship between the variables.

V: Criterion i will assist to reach criterion j

A: Criterion j will assist to reach criterion i

X: Criterion i and j will assist to reach each other and

O: Criterion j and i are unrelated

Step 2. Structural Self-Interaction Matrix (SSIM)

SSIM was discussed in a group of experts. Based on their responses, the SSIM was finalized and is presented in Table3.

Table (3): Structural Self-Interaction Matrix (SSIM)

S.No.	Name. (Criteria)	Criteria Code	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1	(IDPWO)	C1	V	X	X	X	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
2	(WPBS)	C2	O	O	A	X	O	O	O	A	A	A	X	X	X	V	V	A	O	X		
3	(WRLMS)	C3	O	X	X	A	O	X	X	X	X	X	V	V	A	X	X	V	O			
4	(SJNP)	C4	O	X	A	X	O	O	X	X	V	X	V	X	X	X	X	V				
5	(IC)	C5	V	A	A	O	V	A	A	O	A	A	A	A	A	A	A					
6	(ASJASI)	C6	O	X	X	X	O	O	X	X	V	V	V	O	X	O						
7	(LEAMDR)	C7	V	X	X	O	V	V	X	X	O	O	V	X	X							
8	(WSPPM)	C8	O	X	X	A	O	A	A	X	V	V	A	A								
9	(LADS)	C9	X	X	V	V	O	V	X	O	X	X	V									
10	(DDOI)	C10	O	A	A	A	O	O	X	X	V	V										
11	(CARP)	C11	V	O	V	X	O	O	A	X	X											
12	(LARP)	C12	V	O	V	X	O	O	A	X												
13	(LDBJD)	C13	O	A	A	X	O	A	X													
14	(WPPFB)	C14	V	O	O	V	V	V														
15	(ESDBR)	C15	V	V	A	X	X															
16	(RGGE)	C16	X	O	O	O																
17	(DGAP)	C17	O	X	A																	
18	(WCCRN)	C18	O	X																		
19	(TWSPJ)	C19	O																			
20	(IVR)	C20																				

Step 3. Initial Reachability Matrix

The SSIM was converted into a binary matrix, called the initial reachability matrix as shown in Table 3 by substituting V, A, X and O with 1 and 0 as per the case. The substitution of 1s and 0s are as per the following rules:

1. If the [i, j] entry in the SSIM is V, the [i, j] entry in the reachability matrix becomes 1 and the [j, i] entry becomes 0.
2. If the [i, j] entry in the SSIM is A, the [i, j] entry in the reach ability matrix becomes 0 and the [j, i] entry becomes1.
3. If the [i, j] entry in the SSIM is X, the [i, j] entry in the reachability matrix becomes 1 and the [j, i] entry also becomes 1.
4. If the [i, j] entry in the SSIM is O, the [i, j] entry in the reachability matrix becomes 0 and the [j, i] entry Also becomes.

Table (4): Initial Reachability Matrix

Code	C20	C19	C18	C17	C16	C15	C14	C13	C12	C11	C10	C9	C8	C7	C6	C5	C4	C3	C2	C1
C1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
C2	0	0	0	١	0	0	0	0	0	0	1	1	1	1	1	0	0	1	1	0
C3	0	1	1	0	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	0
C4	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0
C5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
C6	0	1	1	1	0	0	1	1	1	1	1	0	1	0	1	1	1	1	0	0
C7	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	1	1	1	0	0
C8	0	1	1	0	0	0	0	1	1	1	0	0	1	1	1	1	1	1	1	0
C9	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	0	1	0
C10	0	0	0	0	0	0	1	1	1	1	١	0	1	0	0	1	0	0	1	0
C11	1	0	1	1	0	0	0	1	1	1	0	1	0	0	0	1	1	1	1	0
C12	1	0	1	1	0	0	0	1	1	1	0	1	0	0	0	1	0	1	1	0
C13	0	0	0	١	0	0	1	1	1	1	1	0	1	1	1	0	1	1	1	0
C14	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
C15	1	1	0	1	1	1	0	١	0	0	0	0	١	0	0	1	1	1	0	0
C16	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C17	0	1	0	1	0	1	0	1	1	1	1	0	1	0	1	0	1	1	1	1
C18	0	1	1	1	0	1	0	1	0	0	1	0	1	1	1	1	1	1	1	1
C19	0	1	1	1	0	0	0	1	0	0	1	1	1	1	1	1	1	1	0	1
C20	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0

Step 4. Final Reachability Matrix

After the Initial reachability matrix is formed the factors affecting spatial injustice by incorporating the transferability of variables, the final reachability matrix is formed to fit the primary access matrix. So if (i, j) are related to each other and (j, k) are the same way, then (i, k) are related to each other.

A conical matrix can be developed by clubbing together objectives (criteria's) at the same level, across the rows and columns of the reachability matrix, as shown in Table 5. The driver power of a barrier is derived by summing the number of ones in the rows, and the dependence power is derived by summing up the number of ones in the columns.

Table (5): Final Reachability Matrix

Driving Power	C20	C19	C18	C17	C16	C15	C14	C13	C12	C11	C10	C9	C8	C7	C6	C5	C4	C3	C2	C1	J / I
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	C1
8	0	0	0	1	0	0	0	0	0	0	1	1	1	1	1	0	0	1	1	0	C2
14	0	1	1	0	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	0	C3
13	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	C4
4	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	C5
13	0	1	1	1	0	0	1	1	1	1	1	0	1	0	1	1	1	1	0	0	C6
14	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	1	1	1	0	0	C7
12	0	1	1	0	0	0	0	1	1	1	0	0	1	1	1	1	1	1	1	0	C8
15	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	0	1	0	C9
8	0	0	0	0	0	0	1	1	1	1	1	0	1	0	0	1	0	0	1	0	C10
11	1	0	1	1	0	0	0	1	1	1	0	1	0	0	0	1	1	1	1	0	C11
10	1	0	1	1	0	0	0	1	1	1	0	1	0	0	0	1	0	1	1	0	C12
12	0	0	0	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	1	0	C13
16	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	C14
9	1	1	0	1	1	1	0	1	0	0	0	0	1	0	0	1	0	1	0	0	C15
3	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C16
13	0	1	0	1	0	1	0	1	1	1	1	0	1	0	1	0	1	1	1	1	C17
14	0	1	1	1	0	1	0	1	0	0	1	0	1	1	1	1	1	1	1	1	C18
13	0	1	1	1	0	0	0	1	0	0	1	1	1	1	1	1	1	1	0	1	C19
3	**1**	0	0	0	**1**	0	0	0	0	0	0	**1**	0	0	0	0	0	0	0	0	C20
	10	**11**	**10**	**13**	**7**	**9**	**9**	**15**	**12**	**12**	**13**	**11**	**14**	**11**	**11**	**15**	**12**	**14**	**12**	**4**	Dependence Power

According to Table ,, based on Driving Power, 00 identified criteria’s of Iran's spatial injustice are listed. The results show that inequality in the distribution of power, wealth and

Opportunities, with the amount 20 of Driving Power, have the most influence and Imbalanced vital resources with the amount 3 of Driving Power, have the least influence.

Step 5. Classification of Iran's Spatial Injustice Criteria's

The final reachability matrix must Be Categorized in different levels. To determine the level of criteria's in the final model, each of the three Collection of output, input and common is formed. In the first index table or variables whose output and input set share is the same, in the hierarchy process, they are considered as a common set, so that these variables are not effective in

creating any other variables. Those variables are excluded from the list of other variables after identifying the highest level. These repeats continue until the level of all variables is specified.

In this study, 20 levels of variables were obtained in 3 tables, with the final result they are summarized in Table 6.

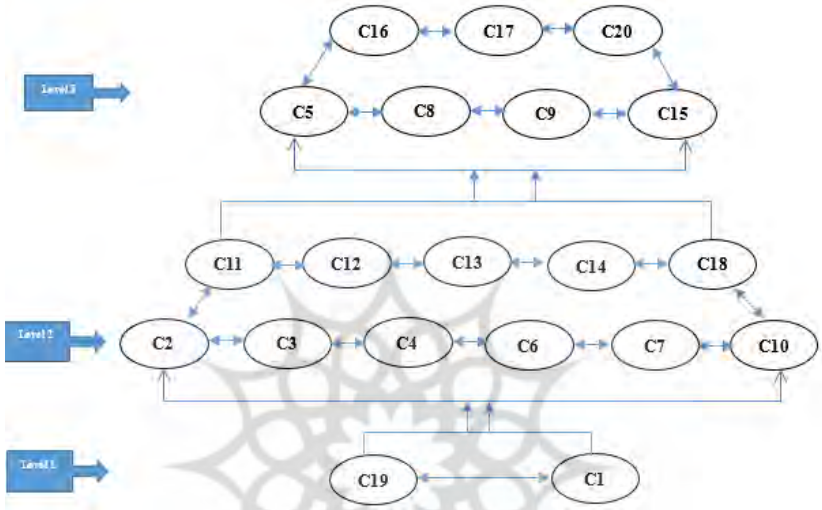
Table (6): Level of Objective Criteria

level	Code	Name. of Objective (Criteria)
1	C5	Institutionalized centralism**(IC)**
	C8	Weak spatial perception of policymakers**(WSPPM)**
	C9	Lack of attention to documents supporting balanced development and deprivation**(LADS)**
	C15	Emphasis on security in development in border regions **(ESDBR)**
	C16	Regional and global geopolitical environment**(RGGE)**
	C17	Dominance of growth-based approach in previous states and lack of attention to spatial justice**(DGAP)**
	C20	Imbalanced vital resources **(IVR)**
2	**C2**	Weakness in the planning and budgeting systems**(WPBS)**
	C3	Weakness in the regional and local management systems**(WRLMS)**
	C4	Spatial justice is not getting a public claim**(SJNP)**
	C6	Ambiguity in the importance of spatial justice in the administrative system of Iran**(ASJASI)**
	C7	Lack of experience of administrative managers in deprived regions**(LEAMDR)**
	C10	State dependence on oil income and imbalanced development **(DDOI)**
	C11	Conceptual ambiguities in regional and local planning**(CARP)**
	C12	Legal ambiguities in regional planning **(LARP)**
	C13	Lack of discourse about balanced and just development**(LDBJD)**
	C14	Weakness in public participation to further balance development plans**(WPPFB)**
	C18	Weakness in the collection of comprehensive regional and national data**(WCCRN)**
3	C1	Inequality in the distribution of power, wealth and opportunities**(IDPWO)**
	C19	Theoretical weakness about spatial justice domain of knowledge**(TWSPJ)**

Based on table 6, Factors affecting spatial injustice in Iran can be classified into 3 levels, In the ISM graph, the interactions and impacts between the

criteria and the relationship between the criteria at different levels are evident.

Figure (4): Designing a Model ISM Factors Affecting on Spatial Injustice in Iran



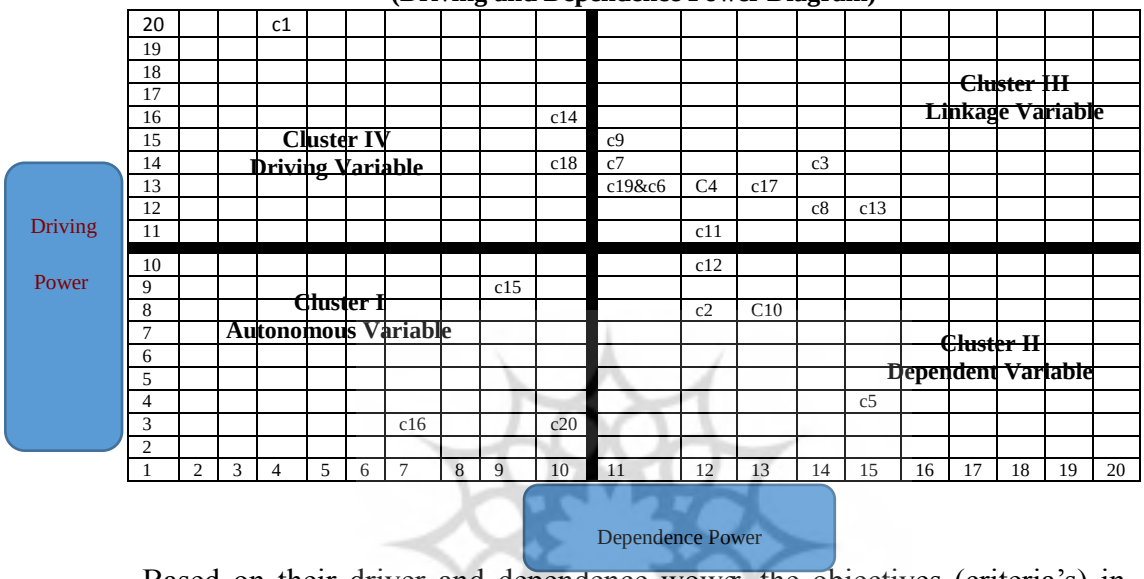
4-3. MICMAC Analyses

It is called the Matrice d'Impacts Croisés Multiplication Appliquée á un Classement (cross-impact matrix multiplication applied to classification) is abbreviated as MICMAC. The MICMAC principle is based on the multiplication properties of matrices. This is done to identify the key objective criteria that drive the system. Subsequently, the driver and dependence are shown in table.7 and Figure.5.

Table (7): Driving and Dependence Power of Objectives

criteria's	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20
Driving Power	20	8	14	13	4	13	14	12	15	8	11	10	12	16	9	3	13	14	13	3
Dependence Power	4	12	14	12	15	11	11	14	11	13	12	12	15	10	9	7	13	10	11	10

Figure (5): The Cluster of Objectives (Criteria's) of Affecting Spatial Injustice in Iran (Driving and Dependence Power Diagram)



Based on their driver and dependence wowe, the objectives (criteria's) in this case, have been classified into four categories as follows:

1. Autonomous objectives (criteria): These objective criteria's have weak driver power and weak dependence. They are relatively disconnected from the system; with which they have few strong links. In the present case, objectives (criteria's) C1,, C ,,, a nd C00 are in the category of Autonomous objectives (criteria's).

2. Dependent objectives (criteria): This category includes those objective criteria which have weak driver power but strong dependence power. In the present case, objectives (criteria's) C2, C5, C10, and C12 are in the category of dependent objectives (criteria's).

3. Linkage objectives (criteria): These have strong driver power as well as strong dependence power. They are also unstable. Any action on them affects others and also a feedback effect on themselves. In this category, objectives (criteria's) C3, C4, C6, C7, C8, C9, C11, C13, and C19 are in the category of Linkage objectives (criteria's).

4. Driver objectives (criteria): These have strong driver power but weak dependence wowe. It is generally observed that an objective criterion's with very strong driver power, called a '**key objective criteria's'**. In the present

case, objectives (criteria's) C,, C,,, and C88 are in the category of driver objectives (criteria's).

5.Conclusion

Understanding spatial injustice in Iran requires identifying keys and influential indicators and their relationships. This article provides new insight into the nature of spatial injustice in Iran and outlines priorities for decision-making.

In terms of Driving Power, the results show that (the extent to which each factor influences other factors), both Inequality in the distribution of power, wealth and opportunities and Theoretical weakness about the spatial justice domain of knowledge have the highest influence over the creation of Iran's spatial injustice. Any action to achieve spatial justice must consider the role and position of these factors. In contrast, the weakness of Imbalanced vital resources has the least impact on Iran's spatial injustice.

Based on Mic-Mac analyses this research shows that criteria such as Weakness in the planning and budgeting systems, Institutionalized centralism, Legal ambiguities in regional planning and Weakness in the collection of comprehensive regional and national data the most influenced by other factors and systematically classified in the set of Dependent objectives. In other words, many factors are involved in the creation and promotion of these variables and they are less able to change and the impact on the underlying spatial justice in Iran.

More details about this analysis show that criteria such as Emphasis on security in development in border regions, Imbalanced vital resources and Regional and global geopolitical environment, in the group are Autonomous Objects, which have weak influence and dependency. These variables are relatively unrelated variables of the system and have low influence and dependence.

In these research linkage objectives are as follow, Weakness in the regional and local management systems, spatial justice has not been got a public claim, Ambiguity in the importance of spatial justice in the administrative system of Iran, Weak spatial perception of policymakers, Lack of attention to documents supporting balanced development and deprivation, Dominance

of growth-based approach in previous states and lack of attention to spatial justice, Lack of experience of administrative managers in deprived regions, State dependence on oil income and imbalanced development, Conceptual ambiguities in regional and local planning, Lack of discourse about balanced and just development.

Linkage objectives have high influence and dependence. Any action on these variables causes the other variables to change.

After all, of the criteria such as Inequality in the distribution of power, wealth and opportunities, Weakness in public participation to further balance development plans and Theoretical weakness about the spatial justice domain of knowledge in the group are Driver objectives or key criteria's. These objectives have a great impact on spatial injustice in Iran that have high influence and less dependence.

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