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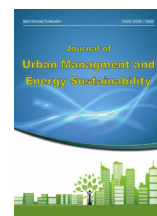
ORIGINAL RESAERCH PAPER

Regional planning approach for the development of polycentric urban areas in Mazandaran Province

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ABSTRACT

In recent years, polycentric urban areas have become widespread as a spatial reality, analytical framework, and normative approach. While most researchers are focused on the structure of these regions and the assumptions such as economic competitiveness, territorial cohesion, and environmental sustainability; understanding the potential of planning in such areas is yet limited because planning in polycentric urban systems is relatively in a new scale which is based on new strategic goals. This paper studied the problem from the planning perspective and focused first on the role and necessity of the regional approach in developing polycentric urban areas. Then, by accepting this essential, a framework was presented to apply a regional approach in these areas, i.e., the central Mazandaran urban complex, emphasizing the three dimensions of spatial-functional integration, institutional capacity, and culture-identity as a planning prerequisite. The results revealed despite the potential of complementary relations and everyday culture in this region, the immaturity of public organizations and institutions, and the lack of legal boundaries for the urban complex, the urban complex of central Mazandaran is a product of competition between cities rather than being the result of cooperative relations.

Running Title: Regional planning approach for development of polycentric urban areas

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
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1. INTRODUCTION

The concept of polycentricity refers to several centers in a specific area. Therefore, the idea comes from functional relationships and cooperation (versus competition) between these centers. Polycentricity can be considered at different spatial levels, from global cities' wide networks to the inner-city level (Brezzi & Veneri, 2015; Davoudi, 2003). However, different scales present definitions, goals, and, as a result, different types of relationships, cooperation, and competition. This research focuses on polycentricity at the regional and intercity levels. The unique phenomenon of polycentricity in this scale refers to the formation of "a collection of smaller and larger adjoining cities that are administratively and historically distinct from each other and have a clear hierarchy in terms of economic and political context (Kloosterman & Lambregts, 2001). Such areas are called "polycentric urban regions". The concept of polycentric urban area has been noticed since the 1980s (López-Gay & Salvati, 2021) and gained widespread popularity among experts (geographers and economists), planners and policymakers. Analytical and experimental studies of theorists focus more on inter-city interactions, especially the integration process of "functional markets such as housing, employment, economic production, culture, and social and welfare services" among the cities of this complex. The main question of these studies is related to the spatial trend of polycentric urban areas as "more or less integrated metropolitan systems" (Lambregts & Zonneveld, 2003). Among the planners and policy makers, the discussions about polycentric urban areas revolve around inter-urban cooperation, strategic drivers of these areas and collective action. In addition to "space", the second group considers these areas as an actor (Keating, 2001) (Moisio & Jonas, 2018). Polycentric urban areas, as an actor, aim to strengthen their competitive position at higher levels. These goals show that cities and city-regions have regained their priority as a place of international competition from national governments. So that within the "reconstruction of capitals geography, metropolitan areas have become engines of global economic growth". These engines don't just tend to be large; they tend to keep getting larger (Scott, 2019). It is often hypothesized that the participation of cities and local communities in a polycentric region is beneficial in forming policies and planning to compete in these metropolitan areas. Polycentric regions as a whole, compared to a unique city in the same region, provide a more appropriate scale for policies that aim to strengthen competitiveness in the global economy. In other words, strengthening internal cooperation to promote external competition. Some experts emphasize that polycentric structures have potential competitive advantages over metropolitan areas (Boussauw et al., 2018; Meijers et al., 2018; Camagni, 2001). Successful regional collaborations pursue specific goals common to all participants, and there is a belief that these goals will be best achieved through collaboration. This topic focuses on polycentric urban areas as an "actor" that is placed within the term "urban network" (Burger & Meijers, 2016).

Contrary to the significant growth of polycentric urban areas, the conceptualization of polycentricity at this scale is in its early stages (Derudder et al., 2022; Rauhut, 2017). Understanding the potential of planning in such areas is still limited because planning in polycentric urban systems is planning on a relatively new scale, the starting point of which is based on new strategic goals (Meijers et al., 2008). Due to the lack of theoretical and empirical knowledge, some experts such as Capello (2000) from the general assumptions of some planners, that cooperation within the regional urban network can stimulate growth in the region and for each city, community and interest group to be beneficial, criticizes (Huang et al., 2020). For this purpose, the focus of this study is on the role and necessity of spatial planning in the development of polycentric urban areas, and more specifically, it examines the possibility of forming a regional approach

in these areas by testing the metropolitan area of Amol, Babol, Qaemshahr and Sari. This urban complex has a fragmented nature and a scattered settlement pattern consisting of several small and medium-sized cities close to each other. Although this region has never been referred to as a polycentric urban region, it is often recognized as an integrated metropolitan region in national and regional plans. In addition, in the studies of the preliminary plan of the Amayesh Project in 2004, it is also mentioned on a macro level to strengthen this group to accept the roles of higher levels. However, these plans are often adopted with a top-down nature which causes an abstract and impractical approach to this area. As a result, each city still makes traditional decisions and plans according to its regional location. Finally, to understand why cities do not choose cooperation in polycentric urban areas, it is necessary to systematically consider the costs and potential resources for each place. Nonetheless, from the territorial point of view, by knowing where the obstacles of polycentric cooperation are, policy makers can start an appropriate program in these areas. Therefore, this research tries to help better plan and create a more suitable organizational structure by recognizing the limitations of the region in accepting a regional approach.

Potentials of regional approach in polycentric urban areas

In polycentric urban areas, many of the spatial decisions made by the main decision-makers, companies and households about location, involve a more extensive set of capitals and a wider spatial domain of cities. Therefore, the policies that strongly aim at strengthening the competitiveness of the local economy, make each of these cities not seem like a part and a piece of a more prominent functional geographical identity. Therefore, planning to form a polycentric arrangement is always faced with questions and complications. Planning on the scale of a city or city-region can compete within polycentric urban areas for investment in specialized services, and high-tech industries, attracting skilled labor, tourists, and even for a brand (mental image) intensifying the market. This causes a waste of opportunities and benefits of the larger regional system. The study of Scott et al (2001:11) on the growth of global city-regions show "Regional urban networks are more appropriate and successful units than individual cities in terms of social organization and competition. They form acceptability". According to the findings of the "EURBANET" group, three types of potential can be obtained from cooperation and coordination in polycentric urban areas:

1. Achieving the desired population threshold and joint investment to provide services and facilities;
2. Expanding and taking advantage of balanced complementary relationships;
3. Optimizing spatial diversity is related to improving the quality of open spaces (Hoppenbrouwer, et.al., 2003; Huang et al., 2020).

But these potentials, as they are promising at the regional level, can have defects at the local level. For example, the coordinated development of complementary facilities and facilities may provide a more extensive scope and higher quality at the regional level. However, implementing this policy requires that each of the cities have their own interests and interests in favor of providing regional resources. Put a bigger one in the second degree. For example, the coordinated development of complementary facilities may provide a more extensive scope and higher quality at the regional level. Still, implementing this policy requires that each of the cities have their own interests in favor of providing regional resources, putting a bigger one in the second degree (Meijers & Romein, 2003). In another example, it may be decided on the regional level that a particular city will lose an essential part of its professional training institute, theater or medical specialty provided by the local hospital, in favor of the city. The neighbor is lost, without receiving a service in another department for this damage. This issue reveals the necessity of

developing a regional organizational framework for cooperation and coordination, especially in the fair exchange and distribution of regional resources. Without such a framework, local interests dominate the region's attractions and prevent the utilization of regional potentials (Zhang & Zhang, 2022).

Analytical framework for feasibility of regional approach in polycentric urban areas

The possibility of developing and implementing a regional perspective to improve competitiveness and quality of life in a polycentric area depends on the participation and support of various local, regional and even national actors. Even if such a view is accepted, the actual willingness of the actors to receive, develop and finally implement such a view still depends on the way they appreciate the polycentric urban area in the given problem. It is often argued that responsibilities are more easily mobilized when actors consider the region a meaningful identity. Therefore, it should be clarified to what extent local users perceive themselves as a polycentric urban area both among and within different sites (Ipenburg & Lambregts, 2001).

Van Hotem & Lagendijk (2001) propose a framework consisting of three dimensions to identify these areas: Strategic, cultural and functional. They consider the strategic identifier to be the voluntary desire of the beneficiaries to create a polycentric urban area, which aims to strengthen the external position and internal dependence of the region. The cultural dimension is related to the feeling of belonging to each other and the creation of cultural elements that help to understand the polycentric urban area as a single identity. The last dimension, the functional equivalence of a polycentric urban region, focuses on the area's defensibility as a coherent available identity. This dimension refers to the existence of economic, political and social links and networks between cities and within the region (Ibid, 2001). This research uses these three dimensions for the feasibility of a regional approach in polycentric urban areas. In addition,

instead of the strategic dimension, the regional organizational capacity (in an administrative and managerial sense) is replaced. Because the strategic identifier refers to the political achievements and cooperative relations in which the strategic interests of the region are determined. This requires administrative and institutional arrangements at the regional level (Scott, 1998; Keating, 2001), which justifies the organizational capacity at the regional level as an essential factor. Figure 1 shows the strong relationship between these three dimensions and the components of each.

Spatial-functional integration

Functional rationality refers to the idea of useful links and strong dependence within a polycentric urban area, which makes it meaningful for the adoption of regional planning. In fact, when there are the weak links and functional relationships in the region, the ways for the actual application of a regional approach and the benefits derived from it are closed. So far, few authors have tried to provide a distinct definition of functional rationality. They often focused on people's daily flows, which have been translated into "commuting areas", "daily urban systems" (Malý & Krejčí, 2022), or "functional urban areas" (Liu et al., 2021). However, functional rationality is more than just workflows. Markets, infrastructure and flows are therefore known as indicators to determine the practical rationality of a multi-centered urban area. It can be assumed that in polycentric urban regions, interactions are made possible by infrastructures, displayed by flows, and given meaning by markets. The requirements of functional rationality do not mean that a polycentric urban area is necessarily a closed and coherent functionally compact system. The polycentric urban system tends to be a multi-layered and open set of nodes, networks, global, regional and local flows and interactions. As a result, the spatial scale and the tendency of interactions between places are not necessarily compatible with the polycentric system as a whole. Of course, these
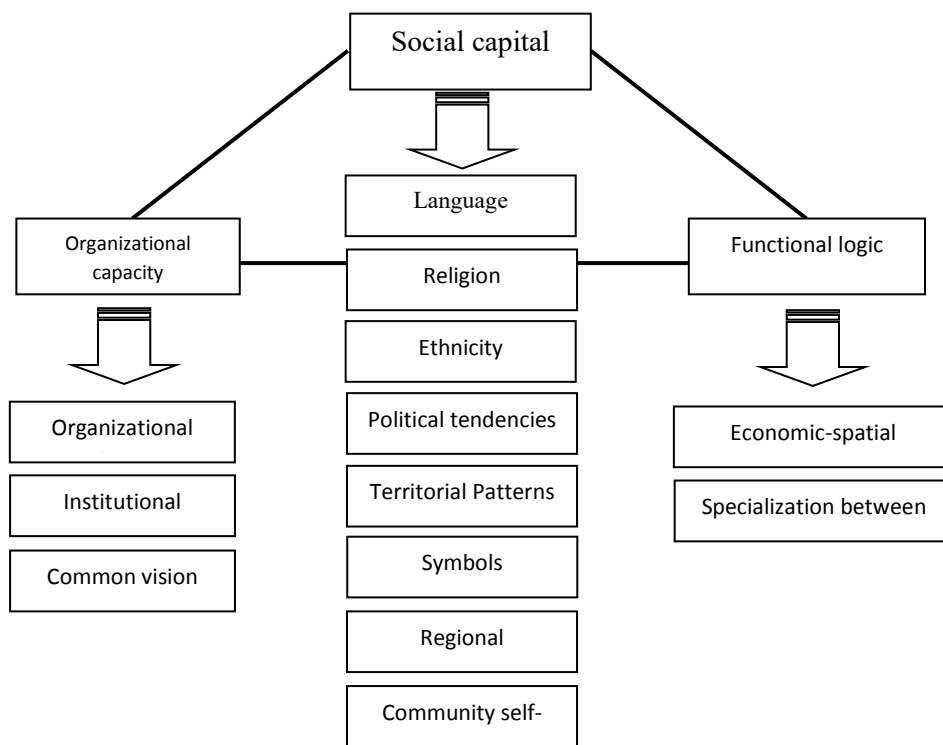
Figure 1: Dimensions and components of regional approach in polycentric urban areas

Authors: adapted from Romein & Meijers (2003)

scales and trends differ significantly between types of interactions and are dynamic, for some networks, a polycentric urban context is unique, but for others they are too large or too small.

Regional organizational capacity

Regional organizational capacity is another essential factor that is effective in the feasibility of regional planning in polycentric urban areas. Van der Berg et al (1999) defined organizational capacity as "the ability of all involved actors to participate, and help them generate new ideas, develop and implement a policy designed to respond to fundamental developments and create conditions for sustainable development." This study presented a theoretical framework consisting of seven criteria for the analysis and development of organizational capacity. These criteria include: administrative organization, strategic networks, leadership, vision and strategy, socio-economic conditions, political support, social support. Keating (2001: 379) also analyzed new forms of competitive development and its impact through the concept of "development coalition". This concept refers to the inter-class coalition in a specific area dedicated to economic development in a particular place. From a political point of view, Keating argued that in addition to the region's competitive position, there are 5 other factors - culture, institutions, leadership, social composition and external relations are also considered necessary for creating such a coalition. The formal organizational framework draws the most critical attention to itself. If the organizations can move towards a mutual interaction and make their hierarchical and static framework dynamic and multi-level, regional planning approach will be more possible for them.

Culture and identity

The cultural dimension refers to the tendencies and explanations that make up the vision, self-awareness and behavior of a regional society, and it is the reproduction and reconstruction of the actions of the regional population (Buiks, 1981). Therefore, the cultural structures, behavior and insight of a society should be considered as factors related to explaining a community's economic, social and spatial development. According to the distinction between culture and identity, this factor is divided into two elements. The first one is a common culture and refers to the existence of history and shared values, norms and beliefs in a region. Social relations, perceptions and means of cooperation and confrontation were shared in all regional networking. On the other hand, specific cultural differences create obstacles for regional cooperation. The primary sources of cultural differences are language, ethnicity, religion and political priorities. The second element identified is identity. This concept is the most critical social construction, therefore it is a dynamic phenomenon. Moreover, it is a multi-layered and contextual concept. One belongs to many groups that provide one with a diverse set of discrete identities that differ in relative or contextual importance (Hogg, 1992). The existence of regional identity in polycentric urban areas is difficult to define in such a way that it can help to create social support from the beneficiaries for the regional planning approach. Regional identity for regions with a specific territorial form (certain demarcation), and a symbolic form (regional symbols) is found by regional organizations as the principle of territorial organization more easily (Passi, 1996) and a region with a specific political atmosphere (Keating, 1997). However, cultural homogeneity and a regional identity often did not exist in the polycentric urban area.

Contrary to expectations, Albrecht (2001: 734) defines polycentric urban areas as "incompatible socio-spatial zones for the coalition of multiple interests, cultural and identity differences". Since the existence of a strong identity does not necessarily weaken the basis of a region to accept a regional or polycentric perspective, the presence of a strong cultural segregation may occur. Finally, in order to evaluate the identity and culture of the region, from the components of language, religion, ethnicity and political tendencies (Hoppenbrouwer, et al, 2003) for cultural investigation and from the members of territorial shape, symbols, formation of regional institutions and social self-awareness of society has been used to examine regional identity. There is a strong relationship between functional rationality, organizational capacity, identity, and culture. In fact, functional dependence and communication help to build a shared identity first and then to better interaction between managers and actors. On the other hand, a region that has a clear cultural separation or a robust common identity causes distinctions in thearean. Cultural segregation may limit interaction between departments, while common identity does not hinder developing functional relationships. It is evident that the presence or absence of a common identity or cultural segregation also affects the quality of political and administrative relations within the region. In summary, a regional approach in polycentric urban areas is more meaningful and practical when the region is related to:

- Better reflections of functional rationality are at the regional level;
- Political organizations, etc., willing and able to organize the governance capacity at the regional level;
- They can also contribute to heterogeneous identity and culture.

MATERIALS AND METHODS

Study area

The study area consists of 4 cities, 16 districts and 43 rural districts (dehestan), with 17 urban and 2063 rural places respectively. This complex, with an area of about 3.8796 square kilometers, has a population of about 1606861 people. This region, with an area of about 3.8796 square

kilometers, has a population of about 1606861 people. This region's environmental and physical characteristics have created a unique urban and rural system. So that the easy access to surface and underground water sources has caused the concentration and diversity of settlement and activity centers and prevented the formation of a clear hierarchy. Also, the settlements are located in short distances from each other which caused spatial-functional relationship of the region. These factors qualify this urban complex as a polycentric urban area. This led to play a role as an integrated urban area in planning documents in the regional scale. However, the problem here is why it has been unsuccessful to adopt a regional approach. From the point of view of planning, does this urban complex really have the ability to accept a regional policy?

In this section, the question will be answered whether the urban complex of Amol, Babol, Qaemshahr and Sari has an integrated structure from an economic-functional point of view? Is it considered a single identity in terms of cultural and social network? and finally, does it have the potential to develop organizational capacity at the regional level? Answering to these questions may help planning more meaningful and feasible in this area.

The scale of analysis is to measure spatial-functional integration at the province level. For this reason, it is possible to compare the functional position of the cities in the target area with the role and function of other cities in the lower ranks of the province. In different dimensions, the analysis is limited to the research subject, except for the points necessary to refer to the institutional and cultural context in which the region is located (Fig. 1).

Analytical methodology

Regarding to the nature of various dimensions, the following analyses have used:

Functional rationality: According to the definitions mentioned in the previous sections, the main components of practical rationality can be seen as economic, social and spatial integration and differentiation between the financial performance of cities. To analyze the first component in this dimension, from the indicators provided to determine the urban complexes; the hand of the industry and service sector's location quotient are used in the province's cities. To measure the degree of economic differentiation of cities and acceptance of complementary functions, using the ESPON (2004), the economic performance of the cities of the province in six groups; Population, industry, knowledge, tourism, transportation, official decision-making power are examined.

Content analysis: The research used content analysis technique to evaluate organizational capacity and regional culture and identity. Con-
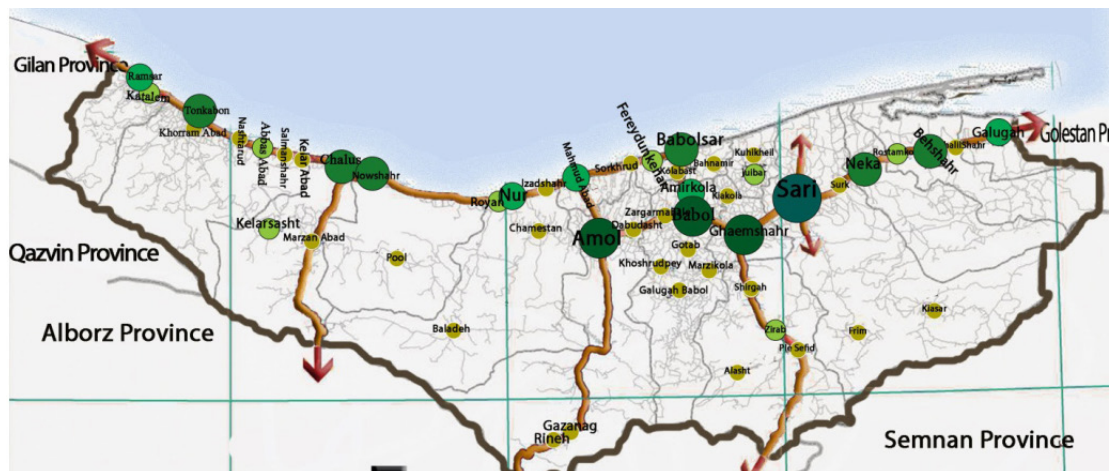

Figure 1: location of study area (Dadfar et al, 2013: 260)

tent analysis is "a research method to obtain valid and repeatable results from data extracted from texts". Passi (1991) described a region as a social structure, like a manifestation of a specific cultural concept's complex economic and political background and social processes. He used "customization of regions" for socio-spatial processes in a region clearly defined in different spheres of social action and consciousness. This process of becoming customary has 4 independent and simultaneous stages: the development of the territorial form, the development of the symbolic form, the emergence of organizations and the construction of a region in the social and spatial consciousness of the society. Nevertheless, the symbols that are attributed to the region can be helpful to in evoking a sense of place and bringing a regional plan and action to realization. The naming of the region and its representation can be essential factors in this process because they are necessary to enter the public mind. Several specific and different regional symbols such as flags and buildings are also less important. The third step in the process of becoming common is the emergence of organizations. The last step of Passi (1991) refers to the formation of the region in the spatial structure and social self-awareness of society. This does not mean obtaining an administrative position, instead, the "territorial unit" has been used for various purposes, such as place marketing or as a weapon in an ideological struggle over resources and power, for example regional politics (MacLeod, 1998).

DISSCOUSION AND FINDINGS

The functional dimension

Spatial integration and differentiation between the economic performance of cities are two important factors for forming a functional integrated identity. Accordingly, a two-step approach is used to evaluate the ability of the studied area.

a) In the first part, the locational quotient of industry and services is calculated for the cities of the province to show the economic performance of the cities according to their employment in the two sectors of industry and services (Tables 1 and 2). The results of these tables were obtained based on the data of the general census of the country's workshops 2002. The location quotient (LQi) is usually defined as follow:

$LQ_i = (e_i/e)/(E_i/E),$

While e_i is the employment of the region in sector i, e is the employment in the entire region, E_i is the employment in sector i in the reference region and E is the total employment in the reference economy.

This quotient shows the concentration of activity and employment in a region compared to the reference economy. Therefore, if the location quotient in a sector for a city is greater than 1, it means that that city is the base in that sector, and it can export its products in that sector, if the location quotient in that part is smaller than 1, it means that the city is dependent in that sector. Therefore, the location quotient can express the interactions between the cities of the region and the complementary characteristics between them. Also, it can show employment displacement patterns to some extent.

The calculation of the spatial coefficients of industry and services shows that even though more than 50% of large industrial units, and about 60% of retail and wholesale units in the four big cities of the province; Sari, Babol, Amol and Qaemshahr are concentrated, economic relations and interactions sometimes do not follow the population size and hierarchical pattern. These figures can indicate the complementary role of cities and the movement of labor from smaller cities to the major employment centers of industry and services in the province to some extent. From the results of Table 1, the location quotient of the industry sector for Sari is 0.7. This is while most of the industrial workshops are located in this city. Nevertheless, this index cannot correctly show the ability of cities and their surrounding areas (functional urban areas) to create balancing relationships. Therefore, in

City	LQ	City	LQ	City	LQ	City	LQ	City	LQ
Shirgah	3.4	Qaemshahr	1.2	Noshahr	1.0	Kelardasht	0.7	polsefid	0.4
Kouhikheil	2.2	Hadishahr	1.2	Mahmoudabad	0.9	Tonkabon	0.6	Ziraab	0.4
Amirkola	1.8	Amol	1.2	Nashtarood	0.9	Galoogah	0.6	Galoogah Babol	0.4
Rostamkola	1.7	Zargarmohaleh	1.2	Rouyan	0.8	Khoshroodpay	0.6	Reeneh	0.3
Sourkhrood	1.6	Abasabad	1.2	Chamestan	0.8	Nour	0.6	Marzikola	0.2
Babolsar	1.5	Joybar	1.1	Alasht	0.7	Marzanabad	0.6	Gazanak	0.1
Behshahr	1.4	Babol	1.1	Ramsar	0.7	Salmanshahr	0.5		
Khoramabad	1.4	Bahnamir	1.1	Neka	0.7	Kiakola	0.5		
Feridoonkeenar	1.4	Sourak	1.1	Sari	0.7	Baladeh	0.5		
Katlom-sadat-mohaleh	1.3	Kelarabad	1.0	Chalus	0.7	Kiasar	0.4		

Table 1: Location Quotient of the industry sector by the cities of Mazandaran province
Source: Research Findings

City	LQ	City	LQ	City	LQ	City	LQ	City	LQ
Reeneh	1.2	Chalus	1.1	Kelardasht	1.0	Joybar	1.0	Amirkola	0.8
Galogh Babol	1.2	Gazanak	1.1	Mahmoodabad	1.0	Hadishahr	1.0	Kelarabad	0.8
Polsefid	1.2	Neka	1.1	Galoogah	1.0	Katalom Sadatshahr	0.9	Rostamkola	0.7
Kiasar	1.2	Nour	1.1	Babol	1.0	Nashtarood	0.9	Kohikheil	0.7
Baladeh	1.1	Sari	1.1	Chamestan	1.0	Khoramabad	0.9	Sorkhrood	0.4
Zieaab	1.1	Royan	1.1	Sourak	1.0	Babolsar	0.9	Shirgah	0.1
Marzikola	1.1	Ramsar	1.1	Bahnamir	1.0	Feridoonkenar	0.9		
Kiakola	1.1	Salmanshahr	1.1	Amol	1.0	Zargarmohaleh	0.9		
Tonkabon	1.1	Alasht	1.0	Qemshahr	1.0	Behshahr	0.9		
Khoshroodpay	1.1	Marzanabad	1.0	Noshahr	1.0	Abasabad	0.8		

Table 2: Location Quotient of service sector by cities of Mazandaran province
Source: Research Findings

section (b), the functional specialization of the urban system of the province is described in 6 main functions.

b) The indicators introduced in this section are the indicators taken from the reports of European Union space planners and adjusted based on the available statistics and information to some extent. So, the province's cities are evaluated as functional urban areas in terms of population and economic size, communication system, attractiveness and decision-making system location (Table 3).

The calculation of scores (Table 3) indicates the lack of superiority of a particular city in all functional areas. Although the population is an essential factor in the establishment of employment, activity, human resources and attracting private investments to choose the location of specific services and facilities, nevertheless, the natural and environmental features of the province have triggered the region in some area's functional steps towards a polycentric nature. For example, we can mention tourism. In this field, cities such as Chalus, Ramsar and Noshahr are higher than the central and more populated cities. Also, removing the ban on industrial centers in the province has caused towns and industrial areas in 16 townships to be distributed in a balanced way in the Mazandaran. In addition, the long-standing competition between the cities and the natural location of the cities has prevented the establishment of

Criteria	Value	Importance	Category	Criteria	Value	Importance	Category
Population	>400	4	Township	Industry	Special economic and commercial zone	7	Township
	>200	3			Industrial Park	6	
	>100	2			industrial zone	5	
	>50	1			The number of workshops is more than 1000 people	4	
	>200	4	Urban place		The number of workshops more than 500 people	3	
	>100	3			The number of workshops more than 100 people	2	
	>50	2			The number of workshops more than 50 people	1	
	>25	1		Transport	Airport	4	Township
Higher Education & Science	50 top universities and higher education centers in the country	10	Township		Port	3	
	Top 100 universities in the country	8			Rail	2	
	Top 200 universities in the country	6			Road	1	
	Top 10 Non-Profit Universities	4		Tourism	Special tourist areas	3	Township
	Science and Technology Park	6			Number of hotels	2	
	Growth and technology centers	4			Forest parks	1	
Administrative	Administrative centers in the country	6	Central city	Private sector	The number of head offices of the 500 largest companies in the country	5	Township
	Trans-provincial administrative centers	4			The number of branches of the country's 500 largest companies	3	
	Provincial administrative centers	2			Exchange centers	2	

Table 3: Criteria and indicators
Source: Authors using

the entire provincial administration in Sari. In this case, we can mention the cities of Noshahr, Babolsar and Babol. Finally, it seems that the distinction and difference in economic related specializations among the province's cities has led to strong interactions between them and as a result proper integration of the region. Therefore, the economic link in the province supports well the regional planning to manage relations and interactions.

Organizational capacity

One of the problems that managers and urban planners face in their efforts is maintaining competitive positions at the local level. This issue reflects the fact that development occurs at levels beyond local levels, or in other words, development requires coordinated action beyond local levels. The standard response to this complexity requires the expansion of the scope and territory of planning, by the coalition

of municipalities, as well as the creation of an extra-local framework for greater cooperation and coordination. The standard response to this complexity requires the expansion of the scope and territory of planning, by the coalition of municipalities, and creating an extra-local framework for greater cooperation and coordination. The number of urban places in the area has increased from 5 to 14 during only 20 years. Meanwhile, Qaemshahr city has been divided into Simorgh and Qaemshahr cities in recent years. This increases the spatial and political division of the region by "increasing the number of spatial and political-administrative territories", and consequently increasing the number of decision-making institutions and organizations (Akhundi and Barak-Pour, 2009). In addition, although the cities of Amol, Babol, Qaemshahr and Sari have been considered as an integrated economic-spatial region since years ago in various plans, but due to the lack of a defined position

Township	City	City Pop	Town-ship Pop	Pop thresh-olds	Trans-port	Indus-try	Tour-ism	Sci-ence	Administra-tive
Amol	Amol	198454	346775	6	1	51	8	10	0
Babol	Babol	200272	469591	8	0	41	24	34	10
Babolsar	Babolsar	52076	119173	4	3	33	26	10	8
Behshahr	Behshahr	84000	156195	4	5	40	13	10	0
Tonkabon	Tonkabon	46362	194719	3	0	21	6	6	0
Joybar	Joybar	27864	70419	2	0	6	0	0	0
Chalus	Chalus	56712	122863	4	1	8	36	0	0
Ramsar	Ramsar	31733	68163	2	4	5	31	0	0
Sari	Sari	260733	495360	8	7	70	29	28	Rest of other Departments
Savadkooh	Savadhooh	18180	67920	1	2	30	2	0	0
Ferydoonke-nar	Ferydookenar	34253	56129	2	3	0	6	0	6
Qaemshahr	Qaemshahr	171751	295135	6	3	33	11	8	0
Galogah	Galogah	18709	39461	0	2	6	0	0	0
Mahmood-abad	Mahmood-abad	27403	90502	1	0	16	24	0	0
Neka	Neka	53707	105652	4	5	16	0	0	0
Nour	Nour	22070	105894	2	0	23	9	4	0
Noshahr	Noshahr	43985	118481	4	7	23	30	0	14
Sum		1348264	2922432						

Table 4: The degree of specialization of the cities
Source: Research Findings

in the government structure, it has never been recognized as a "legal establishment" (Asgari & Kazemian, 2005) with a single and integrated identity. This has caused the structures and institutions to impose more differences spatially and functionally during the last two decades. As a result, encourage competition between local levels to attract more provincial resources, attract population and public investments; and prevent the creation of political cooperation and coordination in the space realm. In the last decade, new regional (extra-local) frameworks have been created for planning and cooperation around integrating larger cities. So that in line with urban and regional development, many urban complexes are known for planning and development in the country. From this point of view, efforts are being made to form a new layer of governance in the country, which can help promote the development of this urban area and expand cooperative relations between its cities. Preparation of Mazandaran province's planning plan and formulation of the province's development perspective, continuous attention of policy makers, legislators and planners to the issue of boundaries and territories of the country's urban complex in the last decade and the formalization of metropolitan area planning in the form of Preparation of urban complex plans is one of the effective measures in this direction Preparation of Mazandaran province's planning plan and formulation of the province's development outlook, continuous attention of policy makers, legislators and planners to the issue of boundaries and territories of the country's urban complex in the recent decade is one of the effective measures in this direction, which will open the way to reduce the contradictions and inconsistencies between the officials and the cooperation and coordination of the region as much as possible. Nevertheless, the province and region's ability is still insufficient to accept a regional approach.

Cultural and identity dimension

Common culture refers to a common background in the region and the sharing of values, norms and beliefs among the regional actors. A common culture may facilitate interactions and thus encourage regional integration in the next step. The main cultural differences are caused by language, ethnicity, religion and political tendencies. Based on information from various sources, the first inhabitants of Mazandaran were mainly two tribes, the Tapours and the Amardas. The historical development, events and incidents caused a change in the composition of ethnic groups, and the communication and technology has changed the concept of ethnic society and ethnicity. So that today, due to the mingling of ethnic groups in the province, it is not possible to definitively mention one ethnic group or different ethnic groups that have ethnic characteristics. In terms of language, the people of Mazandaran speak Persian and Mazandaran dialect. The Mazandaran dialect, which is a remnant of the old Iranian language (Middle Persian), is common almost everywhere in the province. In addition, due to the proximity of cities and villages to each other, the development of transportation and communication, there is not much difference between cities and villages regarding cultural values and norms. However, despite the homogeneity of the population in the three factors of language, religion, and the absence of ethnicism in the region, the level of differences and pluralism in Mazandaran province has been more prevalent than the whole country. Because 69.5% of people believe that differences and diversity are among the problems and issues that can be seen to a large extent in the province (Mazand Consulting Engineers, 2008:23). The important part of the formation of this belief should be found in the process of the formation of cities and the urban system of the province in connection with economic and political issues throughout the political history of the province. And another important part can be expressed among the differences between two generations, young and old, in the development process of the province. The territorial form of a region refers to the localization of social behaviors in economy,

politics and management, which occurs as a result of regional transformation before being identified as a separate unit in the spatial structure. The important indicators for this stage are boundaries. Although the people in Mazandaran do not define a clear border in the boundaries, they introduce their identity within the political levels of the province, for example, the city or the province. In addition, although in different plans, these 4 cities and their surrounding areas are considered as an integrated region, but they have not defined a specific border legally and politically to make better decisions. Therefore, the lack of clear and administrative boundaries in this urban complex reveals the lack of regional identity in the region. The uncertain nature of the boundaries makes the distinction between "planners and decision-makers" and "people" more difficult and complicated.

The symbols that are attributed to the region can be useful in evoking a sense of belonging and achieving the results of a regional plan and action. The naming of the region and its representation can be important factors in this process because they are necessary to enter the public mind. A number of specific and different regional symbols such as flags and buildings are also less important. Unfortunately, most of the symbols in Mazandaran are attributed to cities at local levels. This is not enough to build a regional foundation. In addition, agricultural activities and agricultural lands with irrigation and small and large patches of gardens were also known as the dominant landscape in this area in urban growth and the indefinity of the intermediate areas of the city have faced spatial-ecological division and urban sprawl. The continuation of this trend due to destructive economic forces and the lack of common functional and social identity has become the basis for the visual separation of the study area, Mazandaran.

Recent trends show that organizations are more functionally organized on related spatial levels instead of focusing on administrative areas. These "traditional administrative identities" can be defined in social, economic and cultural fields. For example, we can refer to regional clusters of schools, regional transportation departments, trade boards and all types of social and public services at the level of the urban sector or even higher.

Considering the sectoral nature of decision-making, especially in spatial planning, this area is considered a separate territorial unit. In addition, it seems that the lack of development in Mazandaran, which until now has been the result of the lack of development in its economic structure (agricultural economy) and social context (traditional), is strongly reflected in this matter. In other words, the economic structure has had a significant impact on the power structure in Mazandaran as a function of the economic system, social stratification and objective (traditional) conditions. Although, there is more cultural awareness in the class with economic growth. Although the traditional fabric has relative awareness today, it is still far from development, a qualitative transformation. The development of any society is affected by the existence of civil institutions in political competition. From this point of view, the civil institutions responsible for extracting, aggregating, condensing and prioritizing the floating demands and transferring them to the power holders have not developed in Mazandaran province.

the main cause of these conditions is the lack of proper growth of industry in the province, because industry leads to the attraction of university graduates and the urban middle class, and the accumulation of class interests in this group can contribute to development. But this did not happen in Mazandaran. The developed classes provide healthy political competition in the province due to social self-awareness and common interests to achieve class interests. Therefore, underdevelopment should be looked for in the economic structure and rules, social behavior, the level of employment in public and private sectors, and the growth of the urban middle class. This issue has prevented this region from defining itself as a political identity with specific directions.

In Mazandaran, no political party or organization is directly oriented towards the region. National policies have superiority even over local and provincial elections. A more important factor that can be identified in the region is local media presence. The existence of only one newspaper in the province with a proper publishing sequence and a low maximum circulation indicates the inappropriateness of the environment for creation, printing and distribution of written media in the province and the insignificant role of this case in reflecting the issues and problems of the region (Amayesh Project, 2018: 105). This is even though radio and television programs in the province have been more successful. The products of this sector have contributed more to the growth rate of this sector by devoting the most hours to the socio-cultural and economic issues of the province (ibid., p. 97). This can be one of the effective factors in the cultural-social development of the Amol, Babol, Qaemshahr and Sari urban complex and its formation in the public's minds.

CONCLUSION AND RESULTS

The current study focused on the concept of polycentricity at the regional scale and tried to approach planning and decision-making by distancing itself from the perspective of geographers and economists. In this regard, the first step necessary in this direction is the necessity and feasibility of regional planning in multi-centered urban areas. Based on this, a three-dimensional framework including; Functional rationality, institutional capacity and regional culture and identity are recognized from the literature. These dimensions have a strong connection with each other, which helps to achieve better regional planning in polycentric urban areas. So that strong connections and dependence between different regions can help to build a common identity and then to better interaction between managers and actors. On the other hand, a region that has a clear cultural separation or a strong common identity causes distinctions in the region. Cultural separation may limit interaction between departments, while common identity does not create an obstacle to developing functional relationships. It is obvious that the presence or absence of a common identity or cultural separation also affects the quality of political and administrative relations within the region.

The results of the analyzes in the Mazandaran urban complex show that the urban area of Amol, Babol, Qaemshahr and Sari is a product of competition between cities, rather than the result of cooperative relations. The reason for this can be explained by the lack of complementary relations in the economic structure and industrial development between regional cities. In the long run, inter-city competition in a given spatial scale will lead to a way to cooperate in order to effectively compete with other scales. But what are the main reasons for unsuccessful planning and implementation in this region?

During several decades, the polycentric urban area such as Amol, Babol, Qaiemshahr and Sari has been considered as a more or less integrated urban network in the country's regional planning documents. However, this does not mean that the "actors on stage" necessarily feel part of a unified urban area. Therefore, none of the documents guarantee that such areas will easily become the scene of coordinated action between users with economic, social or environmental goals in different spatial scales. It seems that this is one of the causes of the lack of understanding of the value of adopting a regional approach in planning and action in such areas. On the other hand, the conflict between the provincial administration and the subordinate administration can be another factor of failure. While the province's officials are trying to improve the status of the province in a balanced way, the local levels are focusing their efforts to attract funds and resources. Therefore, it seems necessary to consider a position between the local and provincial levels.

The existence of traditional social structure and the absence of industrial economy in the province, the immaturity of public organizations and institutions, the absence of a legal boundary for the urban complex are among the obstacles that

have caused the lack of regional identity in the area. This prevents the formation of administrative links and inter-city cooperation in the region. Therefore, in addition to the challenges that are visible in the administrative structure of the country, it has caused the structural weakness of the institutional capacity to intensify. This issue has a reciprocal effect on economic networks at the regional level.

So that, despite the proper distribution of infrastructures at the province, and the capacity of the region to form a special type of specialization and complementary relations, it affects the functional rationality in the area. It seems that the area can strengthen mutual trust between different actors and managers by relying on small steps. Thus, voluntary cooperation between a limited number of actors on defined actions or less important issues, which have certain benefits for all actors, can be the best step to start. The benefits of this cooperation can improve the field of more complex activities and create stronger relationships by strengthening mutual trust between city decision makers. This issue will probably lead to the strengthening of the institutional capacity. As a result the better formation of the area's regional identity, and finally it can lay the foundation for the expansion of strategic networks and regional planning in the urban complex of Amol, Babol, Qaemshahr and Sari.

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