



Regional Differences of Economic-Political Power in Iran

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ABSTRACT

Poverty alleviation, regional balances and balanced development are considered in all upstream documents and the development plans after the revolution in Iran. The political leaders and policy-makers have also emphasized on them continuously. Nevertheless, there are always major imbalances and differences in poverty and development levels among Iran's provinces. In this study, unlike previous studies, regional imbalances are measured in terms of political economy. This study tries to explain regional imbalances with economic-political power and then adjust it with consider to population, area and distance of the provinces from the center of political power. To doing so, at first, the economic-political power matrix is formed for Iran's provinces and then the economic-political power is calculated using TOPSIS method during the period of 2004-2019. After that, this matrix is adjusted using population, area and distance of provinces from capital city. The results show that even with the adjustment, economic-political power among regions is significantly differ. The regions cannot be considered homogeneous from the point of view of economic-political power.

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1. Introduction

Paying attention to the spatial dimensions of development has led to an increase in regional studies and regional planning that follows sustainable spatial development. In this approach, the study of regional differences in terms of their potentials has led to the formation of some concepts such as regional imbalances and inequalities in the economic literatures. Due to the importance of balanced spatial development, this issue has always been emphasized by regional planners and policy-makers in Iran, and is reflected in the upstream documents of Iran especially the constitution, the outlook document of Iran in the horizon of 2025 and six economic, social and cultural development plans as well. For instance, regional balances have been emphasized in Iran's constitution, as the most important upstream document. Especially, the 48th article refers to the non-discrimination in the distribution of economic activities among different provinces and regions according to their needs and potential for growth process. Iran's 20-year outlook document also has emphasized on the convergence of Iran's regions as well. Furthermore, non-discrimination in the distribution of facilities and regional credits has discussed in the first to sixth development plans. The First Development Plan recommends that the fixed investment credits is distributed without discrimination between deprived and non-deprived provinces. Also, in the 6th note, it has obliged the government to create regional balances in this respect. In the Second Development Plan, regional balances are followed as the basis for the consumption of public and specific national revenues. The 11th note of this plan also calls for creating regional balances in villages. The law of the Third Development Plan mainly claims the creation of regional balances in terms of human capital. Article 145 of this law allocates 30% of the national income in order to balance the provinces of in terms of education level. Also, article 193 emphasizes on the balanced distribution of health services according to the needs of regions. The Fourth Development Plan focuses on the demographic balance. Article 199 advises plan implementers to avoid population imbalance in order to

secure population structure and prevent from population disparities. Finally, in the Fifth and Sixth plans, the planners mainly have been recommended to the balanced development of the industry sector. The Fifth Development Plan calls for the reduction of regional imbalances through financial support and encouragement of job creation in private sector (article 80th). In article 46 of the Sixth Development Plan, the government has been obliged to compile a list of industrial priorities (such as mining industries) in accordance with the considerations of logistical planning and sectorial and regional imbalances. Despite the continuous emphasis of Iran's upstream documents on eliminating regional imbalances, the studies that have focused on this field have indicated the existence of sectoral and extra-sectoral imbalances. Especially these studies have increased in the last two decades. For example, the following studies can be mentioned: Abbasi and Pashazadeh (2021), Ahmadi et al. (2020), Mirzadeh and Prizadi (2018), Karimi Moghari and Barati (2017), Shahikitash et al. (2015), Sharifzadeh and Abdulzadeh (2012), Tavakolinia and Shali (2013), Ibrahimzadeh et al. (2012), Lilian et al. (2011). The previous studies have provided valuable points; but they have neglected the role of political variables, especially the distribution of power in Iranian regions. Therefore, it can be guessed that regional imbalances can be explained by political power. It is a subject that is often neglected. In this regard, the present paper tries to evaluate the regional differences in Iran with the approach of political economy and the variable of economic-political power.

The present paper includes six sections. After the introduction, the theoretical foundations of the relationship between political power and economic development are discussed. Then in the third section, the empirical research will be reviewed. In the fourth section, the method is presented and the fifth section is dedicated to the statement of the empirical findings. In the end, the most important results and suggestions are presented.

2. Informal Power and Budget Allocation

In this study, the budget law is used to calculate an index that has economic and political dimensions. Based on the theoretical literature, budget process includes four common purposes: to review past performance, to allocate resources, to provide for financial management and accountability, and to act as a platform for introducing new policies. So, from economic view point, the budget process should determine the distribution of –and who benefits from– limited resources. But also, in terms of political view point, the budget is inherently a political process determined by (formal and informal) political power and is including with winners and losers. Formal rules are often incomplete and budgets can rarely operate without a thick array of informal mechanisms. Informal frameworks (such as family and village relations) shape how actors interact. They influence budget processes, such as political bargaining attempts, perceptions of dis-satisfaction and actual spending decisions. In addition to political negotiations and bargaining processes, budget decisions may also be affected by personal, political, and cultural practices that operate around the edges of formal institutions (Ranker et al., 2004: 1). The allocation of budget based on informal relationships is commonly known as “pork-barrel politics” in the political economics literature. This policy states that officials and political positions intend to allocate government budget to regions with various incentives.

Generally, the studies introduced two main incentives. The benefit approach explains first incentive. Political authorities prefer to spend public budget for party alignment and electoral goals. This is discussed by Wang and Lu (2022), Matos et al. (2020), Olejnik (2019), Abdulai (2016), Palaniswami and Krishnan (2012), Arulampalama et al. (2009), Saul-Oll and Navarro (2008), Larsens et al. (2006), Ansolaber and Snyder (2006) and Alway and Sketch (2004). The favoritism approach provides second incentive that, for example, ethnic interests are included. This approach can be also investigated based on birthplace, hometown, local and regional favoritism. Indeed, politicians tend to favor their hometown in the

distribution of resources, independent of electoral goals. This topic presented recently by Wang and Lu (2022), Matos et al. (2020), Hodler and Razecki (2014). The importance of the favoritism approach is that by assuming that the officials are interested in their hometown, and the officials' power can be considered equivalent to the power of their birthplace provinces. This issue is the basis for quantification of political power of regions. As mentioned before, power is a complicated and widespread issue. However, the power of regions should be able to link the economic power with the political power. For this reason, the budget law has been chosen. The budget, due to its comprehensiveness in covering most institutions and organizations that enjoy from power, provides the basis for examining the power of Iran's regions. Based on this, the extracted power index is called Economic-Political Power Index (EPPI). Figure 1 depicts the components of the economic-political power index of Iranian provinces as bellow:

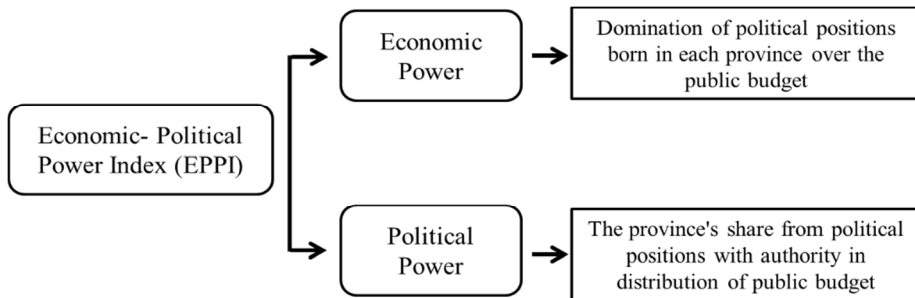


Fig 1. Dimensions of Economic-political Power Index

Source: Authors' Findings

The method of calculating the economic-political power of Iran's provinces based on favoritism approach is fully presented in method section.

3. Birthplace Favoritism and Budget

Investigating the impact of birthplace favoritism on economic development (and especially the allocation of public resources) increase in the last decade.

For example, Wang and Liu (2022) investigated the relationship between regional favoritism and public investment in education in the regions of China. They used the data of 282 Chinese cities from 1996 to 2016. The results indicated that regional favoritism has significant positive effects on the investment of educational resources. Hence, the political leaders of Chinese provinces have given more support in their hometowns. Matos et al., (2020) tried to answer the question of whether federal representatives in Brazil prefer their birthplace in allocating discretionary resources to municipalities through budget reforms. The results showed that in spending pork-barrel, the factor of birthplace favoritism is still one of the important factors of the behavior of local politicians. Do et al., (2017) evaluated the effect of hometown preference of government officials on supporting policies in Vietnam. Using panel data method from 2000 to 2010, the results indicated that hometown favoritism is widespread at all levels. For example, a city received an average of 23% of new infrastructure within three years after the promotion of a local official to the highest authority. Fiva and Hulse (2016) attempted to show that electoral incentives are not the only driving force behind pork-barrel politics, but politicians' local favoritism or group identities are likely to play a role as well. The findings indicated the importance of local interest in the spillover of public spending to Norwegian regions. Hodler and Raschky (2014) used satellite data on nighttime light intensity and information about the birthplaces of 126 countries' political leaders during 1992-2009. Using panel Data method, the finding indicated that subnational regions have more intense nighttime light when being the birth region of the current political leader. Also, evidence showed that regional favoritism is most prevalent in countries with weak political institutions and poorly educated citizens. Palaniswami and Krishnan (2012) tried to answer the question of whether local power affects the distribution of resources in India. The data from 80 rural councils has been used to determine this relationship. They concluded that villages that have benefited from dominant political positions have obtained more resources. Despite the

above-mentioned studies, however, in few studies, the imbalances in terms of economic and political power and its impact on the development of regions have been investigated in Iran. Mohammadi Kangrani et al. (2009) analyzed the impact of power (formal and informal) on the budget allocation in the Fourth Development Plan of Kohgiluyeh and Boyer-Ahmad province. They concluded that the influence of informal power is greater than formal power of officials. Ashtarian (2006) explored the relationship between political power and government budget in Iran. Considering the budget of the presidential institution, he concludes that the budget of this institution has a general shape and this has caused it to be non-transparent. As a result, the officials can exert influence in the process of allocating credits and especially in the budget of the presidential institution.

4. Method

In this section, the method is presented in two parts. First, extracting the economic-political power index (Figure 1) will be explained using the TOPSIS method. Also, the ranking and classification of provinces based on this index is stated. In the second part, how to adjust the power index based on demographic and spatial variables are described.

4.1. Economic-Political Power Index

According to Figure 1, economic-political power index has two components. Its economic dimension which represents the share of each organization in the budget, and hence the power capacity of each official is determined for each province. Its political dimension is also based on the degree of interest of the officials to their birthplace (hometown). Then, Economic-Political Power of the provinces depends on the political positions that have favoritism to their hometown. The calculation of the economic-political power of each province from the share of each position includes the following steps.

Stage 1: the institutions and organizations that enjoys from the public budget (in fact have a specific budget line in the budget law) are identified.

Stage 2: after determining the institutions and extracting the credits allocated to them, the positions that have the authority to allocate these credits from an organizational point of view are identified. In this study, heads of various institutions and organizations are considered, such as 19 ministers, heads of 20 government organizations, members of the presidential body, heads of the judiciary, head of the legislature, senior commanders of military and security institutions and also heads of some other independent institutions. Based on this, two indicators can be extracted here: the hometown of each manager and the duration of tenure of each position.

Stage 3: the importance coefficient of each official is calculated based on multiply of the share of allocated budget of institution to the duration of his/her tenure. The institutions are extracted from the budget law and then, their shares from country's budget are calculated. Also, duration of tenure of political positions and their birthplace are also determined (if necessary, by referring to the National Organization for Civil Registration). It is not possible that a person completely dominate the country's budget, hence the maximum value of this coefficient is close to 1 and it's minimum value zero (if the duration of tenure and the share of from budget have small).

Stage 4: the power matrix of provinces can be formed annually so that rows and columns of matrix shown provinces and position, respectively. This matrix has 31 rows, which is equal to the number of provinces in Iran during the period of 2004-2019. The number of columns is equal to the number of identified positions (about 63 positions). The elements of the power matrix are equal to the importance coefficient of each political position for the province where was born. For example, if the president's importance degree is 0.81, this number is placed in the column of the president and the row of his province of birth (and zero for other provinces

in this column). Table 1 shows the summarized form of the power matrix for a specific year.

Stage 5: The economic-political power index for each province is obtained by combining all of power indicators for the various positions annually. TOPSIS method is used, and hence its output indicates the EPPI for each province-year separately. In a decision-making problem, there are n criteria (position) and m alternatives (provinces), in order to choose the best alternative, the following steps are performed:

1) Converting the decision matrix (power matrix) to a normalized matrix as bellow equation:

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^m x_{ij}^2}}, \quad i= 1, 2, \dots, m \quad j= 1, 2, \dots, n \quad (1)$$

In this equation, i indicates province, j represents official position, and r_{ij} denotes the standardized importance coefficient of each political position for each provinces (x_{ij}).

Table 1. The Summarized Form of Economic-Political Power Matrix

Position Province	President	...	Economic and financial Queen	...	
West Azerbaijan	0	...			
Isfahan	0	•	...
.
.
.
Semnan	0.81	...		×	

Yazd	0	×	...	•	

Source: Authors' Findings

2) Determining positive and negative ideals. If the most values of the criteria indicate a better situation, then the “best value” will be the largest values and the “worst values” will be the smallest values.

$$A^+ = \{V_1^+, V_2^+, \dots, V_n^+\} = \{(\max_i r_{ij} | j \in \Omega_b), (\min_i r_{ij} | j \in \Omega_c)\}, \quad (2)$$

$$A^- = \{V_1^-, V_2^-, \dots, V_n^-\} = \{(\min_i r_{ij} | j \in \Omega_b), (\max_i r_{ij} | j \in \Omega_c)\}. \quad (3)$$

3) Calculating the absolute distance of alternatives from positive and negative ideal alternatives:

$$D_i^+ = \sqrt{\sum_{j=1}^n (V_{ij} - V_j^+)^2}, \quad D_i^- = \sqrt{\sum_{j=1}^n (V_{ij} - V_j^-)^2}. \quad (4)$$

4) Indicating the relative distance of alternatives. This indicates the similarity to the worst condition (El Alaoui, 2021: 65-67):

$$CC_i^+ = \frac{D_i^-}{D_i^+ + D_i^-}, \quad i = 1, 2, \dots, m. \quad (5)$$

The computational value is considered as an indicator of economic-political power. Any province that has a larger CC_i (closer to one) has more power.

Stage 6: After calculating the power index, provinces are ranked according to the degree of economic-political power and then divided into four groups (Table 2).

Table 2: Classification based on Economic-political Power Index

Row	Intervals	The level of power
1	$EPPI_i \geq \mu + 2\sigma$	High privileged
2	$\mu < EPPI_i < \mu + \sigma$	Semi-privileged
3	$\mu - \sigma < EPPI_i < \mu$	Low-privileged
4	$EPPI_i \leq \mu - 2\sigma$	deprived

Source: Authors' Findings

4.2. Adjusted Economic-Political Power Index

Although, Iranian provinces can be classified according to EPPI, but it is more appropriate to modified EPPI by demographic and geographical dimensions. This issue can lead to more balance in power distribution. This is obvious that distribution of power is directly related to the population. The areas with more population should be given more total power due to maintaining the balance of power; but naturally in centralized systems (such as Iran), more power is given to areas that have few distance from Capital city (as the center of power). On the one hand, in centralized management systems, capitals have special importance. Therefore, local institutions such as municipalities and districts are only responsible for implementing the laws of the central government and have limited powers in the field of services and local development. On the other hand, by moving away from the center of power, these powers will be more limited. Therefore, in order to decentralize political power and create spatial balances in power distribution, a direct relationship between power distribution and the distance from the power center should be imagined. Hence according to the management structure in Iran, which originates from a centralized planning system, a direct relationship between the distribution of power and population, area and distance from the center of power has been considered.

Based on the above explanation, in order to more adoption of EPPI with the demographic and spatial characteristics, at first, power cake is determined by the total EPPI for every year. Then the provinces' potential share is calculated based on three variables: population, area, and distance from the capital city of Iran. In the final step, by differentiating the actual and potential share, the share of power cake is determined for each province. Accordingly, it is determined which provinces have more and which provinces have less power than their potential. In this regard, the following steps are carried out: In the first step, EPPI is adjusted based on the population of the provinces, and then based on the area and the distance from the capital city. The adjusted EPPI based on the population is as follows: the potential share of each province in the power cake is equal to its share in the total population of the country. Then, the difference between the actual and potential contribution is

determined and the provinces are divided into different groups based on it. In the second step, the potential share of each province is determined by combining demographic and geographical dimensions. Finally, the mentioned indicators are combined using the TOPSIS method and then the difference of the potential and actual share of power for each province is calculated. Hence the provinces are divided based on the degree of power.

5. Findings

At first, the EPPI for each province are calculated during the period of 2004-2019. These results are presented in the appendix section. Now, it is possible to calculate the total power index which shows the size of the total power in each year and it is named in this study as “power cake size”. The size of the power cake is obtained by summing EPPI annually. In order to provide a comprehensive analysis of the size of the power cake, the average EPPI for each province is calculated during 2004-2019 and then the average size of the power cake is determined from the sum of the average power index for all provinces. In order to indicate how the average power cake is distributed among the provinces, at first, this issue has been done only based on the population variable. The results are presented in Table 3.

Table 3. Real and Potential Power Based on Population

Province	Share of Population (%)	Potential share	Real EPPI	Difference	Rank
East Azerbaijan	4.98	0.183	0.171	-0.012	19
West Azerbaijan	4.10	0.151	0.163	0.012	11
Ardabil	1.66	0.061	0.066	0.01	15
Isfahan	6.46	0.238	0.289	0.05	6
Ilam	0.75	0.028	0.030	0.00	16
Bushehr	1.37	0.050	0.029	-0.02	22
Tehran (& Alborz)	19.21	0.706	0.369	-0.34	30
Chaharmahal&Bakhtiari	1.20	0.044	0.042	0.00	17
South Khorasan	0.95	0.035	0.120	0.09	4

Province	Share of Population (%)	Potential share	Real EPPI	Difference	Rank
Khorasan Razavi	8.04	0.296	0.210	-0.09	28
North Khorasan	1.13	0.042	0.079	0.04	10
Khuzestan	6.03	0.222	0.185	-0.04	24
Zanjan	1.35	0.050	0.032	-0.02	20
Semnan	0.86	0.032	0.194	0.16	1
Sistan & Baluchestan	3.50	0.129	0.007	-0.12	29
Fars	6.12	0.225	0.190	-0.04	23
Qazvin	1.61	0.059	0.022	-0.04	25
Qom	1.55	0.057	0.168	0.11	2
Kordestan	2.01	0.074	0.056	-0.02	21
Kerman	3.91	0.144	0.191	0.05	8
Kermanshah	2.56	0.094	0.145	0.05	7
Kohgiluyeh&Boyer-Ahmad	0.90	0.033	0.028	-0.01	18
Golestan	2.34	0.086	0.095	0.01	13
Gilan	3.28	0.121	0.129	0.01	14
Lorestan	2.33	0.086	0.045	-0.04	26
Mazandaran	4.11	0.151	0.163	0.01	12
Markazi	1.87	0.069	0.146	0.08	5
Hormozgan	2.13	0.078	0.024	-0.05	27
Hamadan	2.30	0.085	0.129	0.04	9
Yazd	1.40	0.052	0.160	0.11	3

Source: Authors' Findings

In the following, EPPI will be adjusted based the geographical variables including area and distance of each province from capital city. As can be seen in Figure 2, Semnan, Qom and Yazd have the largest difference between actual and potential shares. In contrast, the lowest differences are for Tehran and Sistan & Baluchestan. However, adjusted EPPI based on population can be misleading. Because, for example, Tehran is at the lowest level, while as the capital city of the Iran is the center of political power and the concentration of organizations and political positions as well.

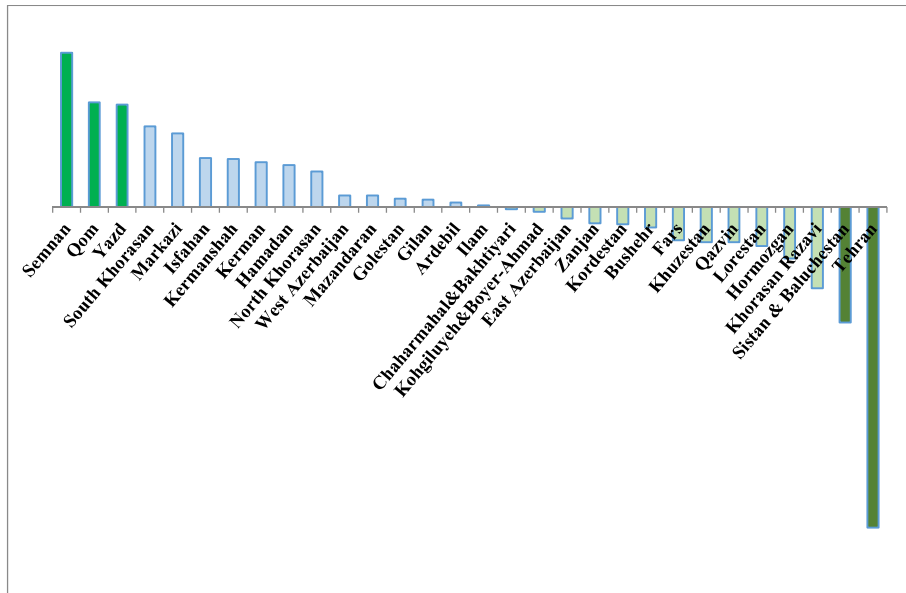


Fig 2. The Provinces' Shares from Power Cake

Source: Authors' Findings

Some provinces such as Sistan and Baluchestan have less population than Tehran, but their distance from the center of power is larger. Furthermore, the provinces of Sistan and Baluchistan, Hormozgan, Kerman, Lorestan, and most of the border provinces have more population than Qom province, but their distance and area is also much more than Qom province. The population and geographical information of provinces are shown in appendix Table 2. Therefore, EPPI should also be adjusted according to the mentioned geographic variables. Two approaches can be considered. In the first approach, the same weight of 0.33 is considered for the demographic and geographical variables. By combining these variables with TOPSIS method, the degree of potential enjoyments of the provinces are calculated and then the potential contribution of each province from the power cake is determined. Again, the difference between the potential and actual value is calculated that is observable in Table 4.

Table 4. Real and Potential Power Based on Demographic and Geographical Variables

Province	Potential degree	Potential share	Real EPPI	Difference	Rank
East Azerbaijan	0.266	0.133	0.171	0.038	10
West Azerbaijan	0.258	0.130	0.163	0.033	11
Ardabil	0.162	0.081	0.066	-0.015	16
Isfahan	0.367	0.184	0.289	0.105	2
Ilam	0.174	0.087	0.030	-0.058	25
Bushehr	0.257	0.129	0.029	-0.100	28
Tehran	0.553	0.278	0.369	0.091	4
Chaharmahal & Bakhtiari	0.146	0.073	0.042	-0.032	21
South Khorasan	0.363	0.183	0.120	-0.062	26
Khorasan Razavi	0.486	0.244	0.210	-0.034	22
North Khorasan	0.195	0.098	0.079	-0.019	18
Khuzestan	0.346	0.174	0.185	0.011	14
Zanjan	0.100	0.050	0.032	-0.018	17
Semnan	0.217	0.109	0.194	0.085	5
Sistan & Baluchestan	0.497	0.249	0.007	-0.242	30
Fars	0.436	0.219	0.190	-0.029	20
Qazvin	0.057	0.029	0.022	-0.006	15
Qom	0.054	0.027	0.168	0.141	1
Kordestan	0.151	0.076	0.056	-0.020	19
Kerman	0.460	0.231	0.191	-0.040	24
Kermanshah	0.161	0.081	0.145	0.064	8
Kohgiluyeh & Boyer-Ahmad	0.192	0.097	0.028	-0.068	27
Golestan	0.135	0.068	0.095	0.028	12
Gilan	0.139	0.070	0.129	0.059	9
Lorestan	0.156	0.078	0.045	-0.034	23
Mazandaran	0.164	0.082	0.163	0.081	6
Markazi	0.103	0.052	0.146	0.094	3
Hormozgan	0.341	0.172	0.024	-0.147	29
Hamadan	0.112	0.057	0.129	0.073	7
Yazd	0.272	0.137	0.160	0.023	13

Source: Authors' Findings

Table 5. Real and Potential Power Based on Demographic and Geographical Variables

Province	Potential degree	Potential share	Real EPPI	Difference	Rank
East Azerbaijan	0.238	0.130	0.171	0.041	11
West Azerbaijan	0.211	0.116	0.163	0.047	10
Ardabil	0.110	0.060	0.066	0.006	14
Isfahan	0.402	0.221	0.289	0.069	6
Ilam	0.116	0.064	0.030	-0.034	22
Bushehr	0.175	0.096	0.029	-0.067	26
Tehran	0.545	0.299	0.369	0.069	7
Chaharmahal&Bakhtiari	0.097	0.053	0.042	-0.011	20
South Khorasan	0.359	0.197	0.120	-0.077	27
Khorasan Razavi	0.496	0.272	0.210	-0.062	25
North Khorasan	0.137	0.075	0.079	0.004	15
Khuzestan	0.317	0.174	0.185	0.011	13
Zanjan	0.073	0.040	0.032	-0.008	18
Semnan	0.265	0.145	0.194	0.049	9
Sistan & Baluchestan	0.507	0.278	0.007	-0.271	30
Fars	0.448	0.246	0.190	-0.056	24
Qazvin	0.047	0.026	0.022	-0.003	17
Qom	0.042	0.023	0.168	0.145	1
Kordestan	0.117	0.064	0.056	-0.009	19
Kerman	0.498	0.273	0.191	-0.082	28
Kermanshah	0.124	0.068	0.145	0.077	5
Kohgiluyeh & Boyer-Ahmad	0.127	0.069	0.028	-0.041	23
Golestan	0.103	0.056	0.095	0.039	12
Gilan	0.117	0.064	0.129	0.064	8
Lorestan	0.122	0.067	0.045	-0.022	21
Mazandaran	0.151	0.083	0.163	0.080	3
Markazi	0.091	0.050	0.146	0.096	2
Hormozgan	0.283	0.155	0.024	-0.131	4
Hamadan	0.090	0.049	0.129	0.080	29
Yazd	0.295	0.162	0.160	-0.002	16

Source: Authors' findings

Table 5 shows that if different weights are considered for demographic and geographic variables, the rank of the provinces will change in terms of excess or lack of power compared to the previous approach. The provinces of Qom, Markazi, Mazandaran, Hamadan and Kermanshah are among the high-privileged provinces and the two provinces of Sistan and Baluchestan and Hormozgan are among the deprived provinces (Fig 4).

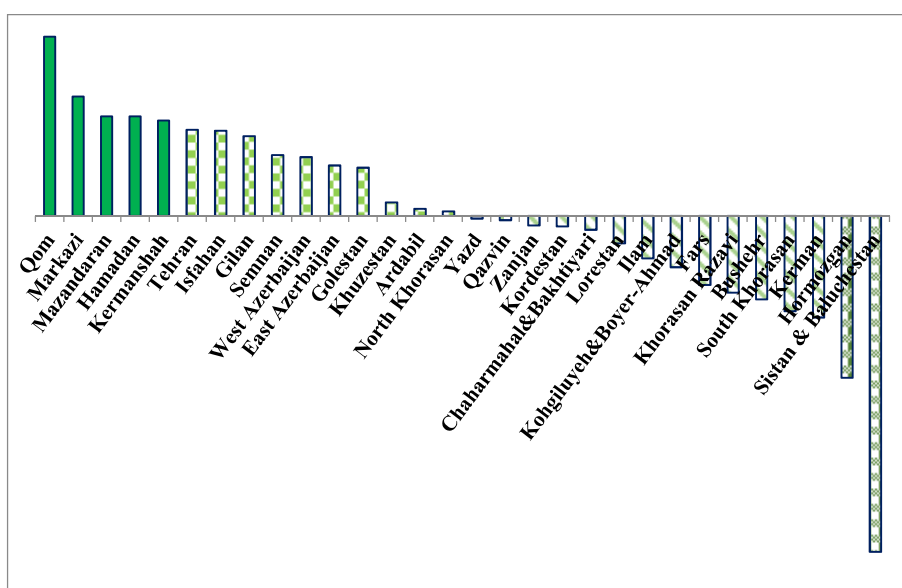


Fig 4. The Provinces' Shares from Power Cake

Source: Authors' findings

6. Conclusion

As mentioned in the introduction, the purpose of this study is to investigate the regional imbalances of Iranian provinces in terms political economics approach. Previous studies have examined regional imbalances using various dimensions, but the present paper has tried to introduce the economic-political power index and to explain how power is distributed among the Iranian provinces. This index has two political and economic dimensions.

From the political aspect, the share of each province from power has been determined based on their share from the political positions that have a direct role and control over the distribution of public budget. Due to their interest to hometown, the political positions can use their potential capacity to allocate facilities to their birthplace. Also, from the economic perspective, the domination of person on the budget distribution indicates the power of each province as well. Therefore, the power of each province is calculated by the power of political positions who born in that province and have birthplace favoritism to it. In fact, the economic-political power is equal to the influence of political positions on the public budget. This does not mean that a person allocates all of budget to his/ her birthplace, but the extent of its control over the budget can be considered as equivalent to the maximum capacity of the power of his/ her birthplace province as well. The second dimension of power index is the economic dimension, which is equal to the share of organizations and institutions from budget. Accordingly, the importance coefficient of each official position calculated from the product of the institution's share of budget to the tenure period of each political position. Then the power matrix formed based on the importance coefficients and the power indicators combined using the TOPSIS method.

The power cake size is obtained by summing up the provinces power. Provinces can be classified according to the economic-political power index, it is more appropriate to do this by considering demographic and geographical variables. In this way, the provinces' potential share from the power cake calculated at first based on their share from population. Then the provinces divided into four groups: privileged, semi-privileged, low-privileged and deprived. In order to examine the importance of geographical variables in distribution of power cake, the provinces classified again by considering area and distance from the capital city (with equal and different weights for demographic and geographical variables). The results show that even after considering the role of demographic and geographical variables, Iranian provinces are heterogeneous regions in terms of economic-political

power. In addition, the pattern of power distribution is more concentrated in the central provinces and follows the core-periphery model. Meanwhile, various studies have emphasized the underdevelopment of the country's peripheral provinces compared to the central provinces. The finding can represent the fact that the imbalances in development are due to the imbalanced of political officials in the governance of the country. The more privileged provinces that located in the center, enjoy from more political positions compared to the peripheral provinces. So, it is recommended that the population and geological indicators should also be included in the distribution of power between the provinces. In the short-run, fewer imbalances will be giving by a larger share to the provinces that are low-privileged and deprived which located more in peripheral regions. In the long-run, the political structure should move towards decentralization so that the issue of the interest of political positions to allocation of budget to their hometowns should be reduced.

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All authors had contribution in preparing this paper.

Conflicts of interest

The authors declare no conflict of interest.

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Appendix

Table 1: The Results of Calculation of EPPI

Province	2004	2005	2006	2007	2008
East Azerbaijan	0.108	0.139	0.108	0.148	0.147
West Azerbaijan	0.1789	0.176	0.177	0.18	0.186
Ardabil	0.0549	0.057	0.053	0.032	0
Isfahan	0.322	0.345	0.321	0.338	0.319
Ilam	0	0	0	0	0
Bushehr	0	0	0	0	0
Tehran (& Alborz)	0.3713	0.399	0.388	0.378	0.379
Chaharmahal&Bakhtiyari	0.0812	0	0.092	0	0.107
South Khorasan	0.0348	0.126	0.111	0.111	0.109
Khorasan Razavi	0.238	0.129	0.15	0.174	0.202
North Khorasan	0	0	0	0	0.107
Khuzestan	0.2541	0.236	0.152	0.179	0.182
Zanjan	0	0	0	0	0
Semnan	0.1075	0.156	0.212	0.202	0.18
Sistan & Baluchestan	0	0	0	0	0
Fars	0.1103	0.16	0.181	0.201	0.213
Qazvin	0.0107	0.114	0.107	0.009	0.009
Qom	0.1135	0.221	0.209	0.224	0.213
Kordestan	0	0.113	0.107	0.107	0.107
Kerman	0.2071	0.175	0.159	0.143	0.122
Kermanshah	0.1906	0.187	0.16	0.17	0.114
Kohgiluyeh&Boyer-Ahmad	0	0	0	0	0
Golestan	0.1103	0.155	0.157	0.175	0.146
Gilan	0.1075	0.139	0.107	0.107	0.146
Lorestan	0.0446	0.047	0.011	0	0
Mazandaran	0.1591	0.102	0.114	0.113	0.153
Markazi	0.0238	0.13	0.148	0.11	0.109
Hormozgan	0	0	0	0	0.045
Hamadan	0.1855	0.165	0.113	0.114	0.112
Yazd	0.2257	0.196	0.192	0.178	0.125

Table 1: Continue

Province	2009	2010	2011	2012	2013
East Azerbaijan	0.188	0.195	0.175	0.183	0.178
West Azerbaijan	0.197	0.146	0.175	0.152	0.182
Ardabil	0.062	0.105	0.145	0.11	0.112
Isfahan	0.284	0.251	0.225	0.233	0.275
Ilam	0	0	0	0	0
Bushehr	0	0	0	0.036	0.037
Tehran (& Alborz)	0.369	0.38	0.326	0.331	0.375
Chaharmahal&Bakhtiyari	0.068	0.105	0.106	0	0
South Khorasan	0.117	0.145	0.146	0.15	0.153
Khorasan Razavi	0.227	0.209	0.246	0.253	0.242
North Khorasan	0	0.105	0.109	0.109	0.131
Khuzestan	0.192	0.178	0.205	0.213	0.192
Zanjan	0	0	0	0	0
Semnan	0.188	0.188	0.189	0.185	0.226
Sistan & Baluchestan	0	0	0	0.046	0.067
Fars	0.208	0.175	0.175	0.18	0.194
Qazvin	0.009	0.009	0.009	0.009	0.01
Qom	0.208	0.147	0.141	0.116	0.14
Kordestan	0.113	0.126	0.106	0.109	0
Kerman	0.211	0.195	0.201	0.208	0.226
Kermanshah	0.19	0.145	0.146	0.181	0.116
Kohgiluyeh&Boyer-Ahmad	0	0	0	0	0
Golestan	0.154	0.171	0.173	0.149	0.134
Gilan	0.157	0.105	0.109	0.11	0.175
Lorestan	0	0.105	0.173	0.149	0.037
Mazandaran	0.209	0.188	0.181	0.201	0.134
Markazi	0.133	0.145	0.146	0.152	0.206
Hormozgan	0.034	0.029	0.027	0.031	0.03
Hamadan	0.155	0.11	0.111	0.114	0.116
Yazd	0.162	0.145	0.174	0.179	0.188

Table 1: Continue

Province	2014	2015	2016	2017	2018	2019	Average
East Azerbaijan	0.199	0.183	0.201	0.197	0.188	0.200	0.17
West Azerbaijan	0.175	0.177	0.186	0.147	0.115	0.062	0.16
Ardabil	0	0	0	0.045	0.137	0.144	0.07
Isfahan	0.273	0.276	0.284	0.273	0.296	0.315	0.29
Ilam	0	0.109	0.105	0.112	0.11	0.036	0.03
Bushehr	0.035	0.035	0.06	0.06	0.085	0.114	0.03
Tehran (& Alborz)	0.378	0.373	0.375	0.375	0.358	0.343	0.37
Chaharmahal&Bakhtiari	0	0	0	0	0	0.111	0.04
South Khorasan	0.107	0.109	0.11	0.134	0.15	0.109	0.12
Khorasan Razavi	0.22	0.218	0.189	0.225	0.223	0.216	0.21
North Khorasan	0.107	0.111	0.11	0.115	0.11	0.150	0.08
Khuzestan	0.132	0.166	0.17	0.163	0.173	0.172	0.19
Zanjan	0	0	0	0.162	0.179	0.177	0.03
Semnan	0.223	0.206	0.238	0.229	0.19	0.185	0.19
Sistan & Baluchestan	0	0	0	0	0	0.000	0.01
Fars	0.179	0.186	0.212	0.231	0.229	0.204	0.19
Qazvin	0.009	0.01	0.01	0.01	0.01	0.010	0.02
Qom	0.182	0.185	0.142	0.14	0.129	0.172	0.17
Kordestan	0	0	0	0	0	0.000	0.06
Kerman	0.207	0.21	0.21	0.189	0.209	0.185	0.19
Kermanshah	0.11	0.114	0.112	0.153	0.111	0.119	0.15
Kohgiluyeh&Boyer-Ahmad	0	0.032	0.113	0.126	0.146	0.033	0.03
Golestan	0	0	0	0	0	0.000	0.10
Gilan	0.175	0.148	0.132	0.116	0.114	0.113	0.13
Lorestan	0	0	0	0	0	0.148	0.05
Mazandaran	0.153	0.182	0.165	0.185	0.188	0.184	0.16
Markazi	0.197	0.201	0.206	0.197	0.125	0.113	0.15
Hormozgan	0.03	0.03	0.031	0.035	0.033	0.033	0.02
Hamadan	0.151	0.151	0.13	0.09	0.126	0.124	0.13
Yazd	0.148	0.111	0.116	0.142	0.158	0.117	0.16

Table 2. Demographical and Geographical Information of Iranian provinces

Province	Population (1000 people)	Area (Km ²)	Distance from Capital (Km)
East Azerbaijan	3,757	45,624	633
West Azerbaijan	3,093	38,013	764
Ardabil	1,255	17,813	589
Isfahan	4,875	107,036	439
Ilam	566	20,137	672
Bushehr	1,031	22,769	1,046
Tehran	14,488	18,802	0
Chaharmahal & Bakhtiari	905	16,331	545
South Khorasan	718	121,504	1,163
Khorasan Razavi	6,064	120,493	894
North Khorasan	855	28,428	738
Khuzestan	4,547	64,092	821
Zanjan	1,017	21,768	334
Semnan	647	97,523	226
Sistan & Baluchestan	2,638	181,839	1,514
Fars	4,615	122,556	918
Qazvin	1,215	15,569	151
Qom	1,173	11,517	148
Kordestan	1,514	29,144	489
Kerman	2,947	180,786	986
Kermanshah	1,930	25,026	501
Kohgiluyeh & Boyer-Ahmad	676	15,508	761
Golestan	1,768	20,362	416
Gilan	2,478	14,035	327
Lorestan	1,757	28,268	487
Mazandaran	3,099	23,824	280
Markazi	1,408	29,136	279
Hormozgan	1,605	70,748	1,276
Hamadan	1,739	19,368	320
Yazd	1,059	101,573	621

Source: Data Center of Iran