



## The Role of Governments in Iran Regional Development (Case Study: Tenth Government)<sup>1</sup>

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### Abstract

Development is a multi-dimensional process which has evolved over time with conceptual challenges and has undergone different dimensions to complete the word. One of its important dimensions is paying attention to social justice within the framework of regional equilibrium. The present article tries to investigate this important dimension for the tenth government in Iran. With the aim of analyzing regional equilibrium process and providing priorities for the development of the provinces can play an effective role in national policies to promote regional equality and decentralization. Using multi-dimensional decision making (MADM) and Topsis model, after the formation of a Regression and Matrix model with 21 indicators and 157 sub-indicators for the developmental level of the provinces, it was revealed that Tehran and South Khorasan provinces placed first and last respectively and using the cluster model Iranian provinces were categorized into five groups from which one province was a highly developed province, six provinces were developed, 11 provinces with moderate development, 12 undeveloped provinces and 1 was considered as a deprived province. Among other results of the study, we can mention the direct relationship between the development of regions with population growth and its indirect relation with the spatial distance from the capital for groups of 5 in the cluster method. Also, a ranking of the provinces is presented in terms of institutional indicators.

**Keywords:** Development, Regional Economy, Regional Development, the Tenth Government, Decentralization Multi-dimensional Decision Making.

**JEL Classification:** O1, O11, R1, O38.

### Introduction

The development is a multi-dimensional process involving major changes in the cultural and social structures on the one hand, and the reduction of poverty and social inequalities on the other hand (Ziyadi et al., 2011:1). In other words, the development is a broad and far-reaching category that changes all the interconnected elements of a country in order to sustain prosperity and improve the situation of a community, sometimes like changing a nut from a puzzle. The adjustment movement of structures opposing development requires a fundamental shift in thinking along the lines of the development goals. According to the conditions of each society, the process of time adjustment of these structures requires different situations depending on culture, the variability of beliefs, science, tradition, and the temporal and spatial requirements of different regions with different conditions.

In today's world, socio-economic inequalities are becoming increasingly widespread as a

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1. It should be noted that this article is extracted from the author's PhD dissertation.

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phenomenon (Lees and UNDP, 2010). These inequalities are of great importance as the most important factors in creating social, economic and political tensions in the regional geospatial complex. Today, the development process, through challenging the inequality in the geographical areas of the country considers different dimensions: Equality and social justice, real and artificial potential in the regions for development, political thinking of the current governments, electoral and party thinking, territorial affairs, the creation of power rents of regions in decision-making cores. In central planning for regions, it should replace the purely economic conceptions of development which after being institutionalized in the realm of society, must come to an end practically.

When regions are looked at from the point of view of improving development, they should consider all aspects and not focus on a single component of several important factors. Although regional science has, in many cases, been in line with regional economics, these two branches of the sciences interfere with each other. Regional economics is also a science that studies human economic behavior in spatial context and tries to answer this question "what economic activity, where, why, and for what is performed?" (Kalantari, 2013). The regional economy began to emerge in the 1950s for economic planning in the regions to achieve the elimination of income disparities and urban-regional policies and development of regions. In general, the regional economy is of great importance as one of the most important components of regional development.

In the process of the development of the country, other than the macro level which considers improving the situation and increasing the overall average of the growth of national indices, special attention should be paid to the category of social justice in the distribution of material and spiritual resources and the non-discrimination and development of all areas. Because the most important goals of development are the establishment of justice and increasing the efficiency (Sarraf, 2000). Therefore, with regard to the importance of the role of areas as the body of the geostationary bodies of the country with a justice-cored view, the matching progress is an integrated process of growth in regions that can be defined for development, which in addition to distributed justice, should highlight equal prosperity in the regions as one of the main priorities of regional planning. From Mirdall's point of view, according to the principle "All human beings are born equal", Justice can be considered as an effective factor in development (Ibid, 43). With this view, the present study tries to find out an output from the status of the development level of the regions by considering the multi-criteria decision-making models according to which the ranking of the development level of the provinces of the country in the tenth state can be done. Although in recent years some research has been carried out on this subject, but not at this level in the country. It is possible to differentiate the present study by a high number of defined indices with other studies which have differentiated the ranking of the development of the areas for the provinces of the country compared to the past. For this reason, the present study, by emphasizing the importance of the subject of the status of development and status of the provinces in this regard, tries to identify the level of development of regions in the tenth state, and then ranks the provinces using 21 general indices of the country's provincial registers indices in Statistics Core and their 151 subcategories. After that, with the cluster model, it provides a more coherent interpretation of the regions and provinces of the country. The population of the provinces and their distances to the core of the country are among the factors that their relationship with development will be discussed. In general, the importance and necessity of examining the subject can be considered in that there must be an accurate understanding of the status of development of the provinces. Therefore, in this study, using the maximum available indicators, the developmental status of each province will be determined.

## Literature Review

Decades of 60s to 70s were the era of the expansion of the development theories that any theory in competition with other theories in its rightfulness justifies the negation of other theories in their models. At each stage, the meaning of development was associated with the widespread problems and inequalities of the community at the regional and social levels, due to which the new colors of the new models were introduced to the economies. One of the concepts that has drawn everyone's attention was the imbalance in sectoral cutbacks (industry, agriculture, services), social (rural and urban), economic (in the area of production and consumption, or modern and traditional production) and areas (periphery and core) which were opposing each other (Azimi, 2014:2). Thus, societies tried to get help from the scientific methods in the form of different theories in order to reverse the lost equilibrium due to economic growth.

### *Theories of Development*

Generally, the development theories are divided into two parts: conventional or dominant theories and criticisms

#### *Conventional or Dominant Theories*

In the framework of development, conventional theories can be embedded in shuffles of the theory (such as Rousto, Schumpeter ...), Pattern (Solo, Garudomar, ...) or Strategy (Unbalanced and Balanced).

The classical school, which in 1776 was in the form of Adam Smith's book, who later was called the father of economics, "Wealth and Nations," stated theories of their development, and then advanced with the development of new ideas according to the needs of the community. Developing theories are usually debated in the development the areas that did not enjoy the advantages of development, although balanced and unbalanced development has been under discussion in the regional area. However, they spoke only in the area of sectoral imbalances, and at that time, the agricultural sector and services were considered, as well as with the discussion of the proposed areas only in the area of urban and rural imbalances (Azimi, 2014:5).

### *Critical Flow*

The Inequalities of a country in this critical flow a School of Dependence emerged by Baran and Franck, relying on the theory of Marxists. This approach brings about global inequalities by posing developed countries as "cores" and developing countries as "peripheries" in which the costs and materials of development for the countries in the core are the countries around them. According to the School of Dependence, domination of some countries over other countries or in the interior regions of countries brings about some conflicts regarding the enjoyment phenomena among the regions which will make the economies of low-income countries dependent to the rest (Santos, 2006). Friedman, who suggests the Core-Periphery pattern, believes that peripheral areas are dominated by the core (Hasin, 1982). An economic look means being dependent on the lack of inherent dynamics within the system itself (Foran, 1992). In general, the characteristics of the dependency perspective refer to three domains: A) the framework and the relationship between the international capitalist system. B) How are the interactions and connections between the underdeveloped and capitalist countries? (C) Internal characteristics of the non-developed countries (Sariolghalam, 1990).

Another theory that can be linked to areas is the pole of growth theory. The pole of growth

pattern was introduced by Perroux in 1955 and it was later examined by Hirschman and Hansen. In many areas which consider the pole of growth theory as their own theory, the development is only within a certain radius of those areas. In their research, Gilbert (1975) and Moseley (1974) found out in some areas around 20-30 km to the city of Rennes it has a positive effect and far away villages have not seen any positive effects. In the area of services created, this tendency was commonly found in large urban cores, and in small towns and villages, there was less influence on such service activities (Dewar and Todes, 1986). In other words, these poles at the level of regions re-engage in other stages in attracting the human, natural and financial potential of marginalized regions without affecting the economy of the aforementioned regions (Stohr and Todiling, 1978). Regional planning was first established in 1920 in Germany, 1922 in the U.S, and in England, and then in France in the 1950s. Regional planning has already been driven by centralized domination and under the influence of central planning (Vahidi, 1991:277).

But in Iran, this issue with the goal of decentralizing the core due to the problems of non-implementation of regional programs and policies, and the attitudes of the core and the focus of funding in the core has so far failed (Core for Urban Research and Studies, 2002:2).

Although there were many patterns of development until the end of the 1970s and early 1980s, progress in modeling regions dates back to the mid-1980s (Krugman, 1996; Anselin and Bera, 1998).

Given the focus on economic growth in countries, despite the long-term horizons of equitable distribution in the regions, social challenges arise in societies. The discussion of regional differences in economic research has been studied since the early 1990s (Niebuhr, 2001), which recognizes regional differences, convergence, and divergence in more areas. In the discussion of regional convergence in the formation of divergent and convergent regions, many studies and efforts have been made so far (Lipshitz, 1992). The planning has focused on national and regional areas and less focus was on the regional areas in Iran (Amir Ahmadi, 1986). In general, it can be stated that regional development experiences started to happen scientifically at the beginning of the 20th century (Regional studies, 1994: 8) and the father of this branch of developmental science, which we know as the regional affair, is Walter Isard.

### *Policy Making, Regional Planning, and Development*

The region is sometimes considered to be a few countries, sometimes as part of a country, or even about a part of a province or county or district or village and etc. (Kalantary, 2013:27). The regions have different definitions and functions. Richardson divides regions into three categories: 1- Homogenous regions 2- Nodal regions 3- Programming regions (Kalantary, 2013:29). Regional policy means knowledge-based and informed endeavors that are performed by the government to change the spatial distribution of economic and social phenomena such as population, income, production, and the types of goods and services, transportation facilities and other social infrastructure, and even political power (Hansen, 1987). In regional policy, the core is considered as the determiner of the processes and policies of the region (Azimi, 2014:11). The most important goals that can be outlined for regional policy are: implementing social justice by applying equality, eliminating poverty in different areas, applying structural changes, developing development infrastructures, eliminating unemployment in areas with low employment (Hansen, 1997).

Besides the overviewing the previous studies, this study tries to examine the relationship and differences in the conclusion.

With the aim of ranking the spatial inequalities of Khuzestan province and information for 2011, Maleki et al. (2014) in the research entitled "Spatial distribution and ranking of economic development in the cities of Khuzestan province" concluded that the distribution of the space

of economic development in the cities of Khuzestan province has been unequal. This inequality has been at two levels: geographic and demographic. The models used in this research were TOPSIS, cluster analysis, Pearson correlation coefficient, Mann-Whitney test and SPS, GIS, Excel software were used to estimate the results.

With the aim of determining the levels of spatial development and identifying the nature of the enterprise patterns while making the combined index, Abdolazadeh and Sharifzadeh ranked the provinces of the country in their article "Level of regional development in Iran" (2012). 41 indicators were used in social, demographic, cultural, economic, and infrastructure sectors and services. Using geographic information systems techniques and at three levels of high, medium and low development, Tehran ranked first, Sistan and Baluchestan ranked in the end.

To specify regional development and display inequalities, in their article entitled "Regional Inequalities in Iran", Tavakolinia and Shali analyzed 60 socio-industrial, economic, demographic, physical, infrastructural and sanitary-therapeutic indicators. The result for 2006 shows that from a total of 30 provinces, there are 1 highly developed province, 4 developed provinces, 7 middle development provinces, 19 undeveloped provinces and 1 deprived province. All deprived provinces were located in marginal, border and mountainous areas. The method of taxonomy was used for developmental level and cluster analysis method was used for grouping.

In their article entitled "Application of Factor Analysis in Explaining the Spatial Pattern of Urban and Regional Development in Iran", Erahimzade and Eskandarisani, using the factor analysis method and based on the administrative-political divisions of 2006, divided the cities of the country into four groups in which 32 highly developed cities, 76 developed, 126 less developed and 106 deprived cities.

In their article entitled "A Framework for the Analysis and Integration of Regional Indicators", Eskandari and Hoseini (2000) ranked the provinces of the country by forming 18 indicators and using factor analysis method. The result of the research showed that the first rank was for Tehran and the last for Sistan and Baluchestan.

Zarabi and Eizadi (2013) in a research entitled "Analyzing the Regional Development of the Provinces of the Country" ranked the provinces of the country in terms of enjoyment degree using Quantitative Factor Analysis, Vicker Technique, and Multivariate Regression and using 22 indicators. The five general indicators are "health services", "demographics", "cultural-welfare services", "economic" and "rural services". The output of the calculations carried out in the research showed the provinces of Tehran and Qom to be ranked as the first and last.

Zayari et al. (2010) in his article entitled "Assessing and Ranking the Development Degree of Khorasan Razavi Provinces by using the Topsis Technique" ranked the cities of Khorasan Razavi province for 2006 using Topsis and multi-criteria technique in which the city of Mashhad has the highest level of development and the city of Khalil Abad has the lowest level of development among the 19th cities of Khorasan-e-Razavi province. The dispersion coefficient obtained as 0.3 is also an indicator of the intensity of regional inequalities.

A study carried out in Belgium by Soares, Lourenco, and Ferreira Monteiro (2003) for the development of areas, using the 33 indicators of economic, educational, health, cultural, ... and statistical techniques, multivariate factor analysis, they ranked the regions. Data were analyzed using Kaiser, Bartlett tests and the percentage of variance and the specific amount and the percentage of variance were used to select the extracted factors from the benchmark tests.

A research for the development and ranking of Indian states carried out by Nourbakhsh (2003) was carried out using factor analysis method and a combination of economic and social indicators, test results were shown and ranking for the states of this country was accomplished after weighing and the importance of the indexes, using the principal component analysis method. The inequality and compilation coefficients were extracted from our three regression

analysis as well as the human development index.

## Methodological Framework

In the present research, after collecting the raw information (from the provincial statistical journals) and the experiences that describe the developmental conditions of the regions and after weighing the matrix of each province, the status of each province is analyzed using the multi-criteria decision-making model. The provinces of the country will be ranked with respect to the development for 2013 as the last year of the tenth government activity. For this, a model with a combined index is formed. The formation of combined indices includes a number of choices that include various stages such as the selection of variables and indicators, normalization, weight determination, and finally their composition in a final indicator (Arabion and Abdolazadeh, 2012).

When more than one criterion is taken into account in decision making, the multiple criteria decision making is drawn into account which is divided into two parts: 1- multiple objective decision making 2- multiple attribute decision making. The most important multi-criteria decision-making methods are simple weighted average, TOPSIS, modified principal component analysis, taxonomy and modified method deviation from optimal value (Abdolazadeh et al., 2014: 3). The TOPSIS method is used to estimate the model of the present study.

(Research model)

$$Y_{it} = \sum \alpha_i f(x_{it}) \quad (1)$$

The variable  $Y_{it}$  is the dependent variable influenced by the independent variables  $x_{it}$  and  $\alpha$  which determine the weight of each indicator.

The regional development = Land and climate (1) + Population index (3) + Human resources (29) + Agriculture, forestry and fisheries (4) + Mining (3) + Oil and gas (8) + Industry (6) + Utilities (6) + Building & Housing (2) + Business & Hotel & Restaurant (6) + Transportation & Communications & Warehousing (8) + Financial Markets (2) - Judicial Affairs (3) + Social Welfare & + Education (14) + Health (8) + Culture & Sports & Tourism (13) + Urban Development (12) + Cost and Household Income (4) - Price Index (4) + Province Accounts.

Each of the research indicators, as specified in the parentheses, has sub-indicators for the development that the total of 21 indicators and 157 sub-indicators has been able to show the developmental level of each province.

Economic systems are usually highly influenced by political systems, which in this study are divided into five clauses: social, infrastructural, economic, health and cultural systems of development for different provinces. The social system has 48 sub-indicators (area, population, human resources, welfare and social security, judicial affairs). The infrastructure system (transportation and communication and warehousing, utilities, buildings and housing, urban civil engineering) also has 28 sub-indicators. The economic system (agriculture, forestry, and fisheries, household expenses and incomes, price index, provincial accounts, mining, oil and gas, industry, financial markets) has 41 sub-indicators. The health system includes 8 sub-indicators, and the cultural system (culture, sports, tourism, education, commerce, hotel, and restaurant) has 33 sub-indicators. These indices have been estimated in Iran for the ninth and tenth (8 years) periods and will provide a comparative static analysis of the two governments.

**Table 1.** System, Indicator & Development Sub-indicator

system	Indicator	sub-indicator
	Land and climate	Area
social	Population index	population, average annual growth, ordinary households per person- 4 persons
	Manpower	Participation rate, Unemployment rate - Youth unemployment rate -

system	Indicator	sub-indicator
		Literacy - illiteracy - Number of state employees by degree – Applicants working according to literacy-Distribution of employees in sectors: agriculture, hunting, warring, mining, industry, supply of electricity and gas, construction, wholesale, transportation and communications, financial intermediation-Real Estate and Lease-Office of Administration- Education- Health and General Work-Other Public Service Activities – Family Activity as Employer-Arts and Entertainment-Administrative activities and support services - professional, scientific and technical activities - ordinary households with servants-Organizations and offshore Offices-Office and Central Offices – Unrepresented Actions
	Welfare and social security	Number of Social Services Providers of the Welfare organization of the Provinces (Maintenance of children without caregiver Kindergarten services) - Prevention Services Providers of the Department of Welfare- Units providing training and social work services of the Welfare Organization (number of units per day - number of units per day- Number of units of medical genetic counseling - number of addicts' rehabilitation) - users of medical, educational and cultural services of Imam Khomeini Relief Committee
	Judicial affairs	The number of regular robberies in the country in terms of type (of places and others - vehicle and equipment - livestock)
	Transportation and communications and warehousing	Ordinary Warehouse - Number of Units - Registered and fixed telephone directories for mobile phone subscribers in the country - (telephone line - mobile phone) - Public mobile phones with rural telephones in rural areas (public telephone - rural telephone) – Number of stations and transmitters The main wave of radio wave, installed TV (radio TV)
infrastructure	Water and electricity	The length of the collecting network and the number of sewage lines in the urban area; (The length of the collecting network with a diameter of 200 m and more per km-number of branches); - Nominal capacity and electricity production of the generators installed in the province; - Electricity production and consumption; and thermal plants in the province (net electricity production - Gasoline - Natural gas oil) – The length of all types of power transmission lines
	Building and housing	Building permits issued for construction of the building according to the type of major materials in the urban area of the province – ordinary residential units in terms of facilities and facilities and the number of rooms in the country (the total number of employees)(
	Urban development	Number of slaughterhouses - Number of fire stations - Number of fruit and vegetable fields – Size of fruit and vegetable fields - Number of vehicles - Parks (number) - Cemeteries and gardens (number - size) Area of green space of the city - Number of public baths
economic	Agriculture, Forestry and Fisheries	Agricultural land area ... - Planting level and production yield per hectare of wheat ... - Planting level and production yield per barley ... –Livestock breeding poultry: Number of poultry - Number of halls - Capacity - General characteristics of active cooperative agricultural companies covered by the Cooperatives and Labor Department: Number of employees - Area of forestry – Fishery production and production of fish
	household Expenses and income	Average annual expenditures of a rural and urban household in the province (average total urban-average annual income)- Average annual income of a provincial urban household by type of source of income (average rural-rural-average annual income)
	price index	Total Indicator of Prices and Consumer Services Households (Total Price and Urban Service Indicators – Indicators for Food and Tobacco Change) - Total Indicator of Prices and Household Consumer Services

system	Indicator	sub-indicator
		(Total Indicators and Rural Services - Rural Indicators Changes in Food and Watersheds and Kids)
	Provincial accounts	Gross domestic product at market value and added value in the major sectors of the economy - Intermediate consumption of major sectors of the major economic sectors
	mine	Number of mines - Number of miners employed - The investment value of mines being exploited
	Oil and Gas	Number of reservoirs and locations of fuel sales in the province; number - capacity - number of seats - number of pumps –number of branches of oil sales - number of towns and villages of gas supply; gas supply cities - gas villages - number of branches (total )
	industry	Number of licenses issued by the industry department - Employment rate of industrial units based on licenses - Number of industrial - workshops with ten employees and more based on city management (total - Public sector - Private sector) – Value added industrial activities of industrial workshops It has ten employees and more than ten employees in terms of type of work and teaching staff
	financial markets	The number and type of facilities paid by provincial banks to the non-state sector in terms of major economic sectors ( number, amount)
Sanitary	Healthcare	Number of pharmacies - Radiology center - Rehabilitation center – the number of doctors – the number of paramedics- Preventive and therapeutic activities in the field of parasitic disease of livestock by veterinary clinics of the province (fight against domestic parasites - fight against foreign parasites, trapped poultry - fight against foreign parasites, poisoned area)
	Culture and Sports and Tourism	Number of religious sites - foreign tourists using hotels - number and size of spectators of sports facilities of the province (number of land - number of halls - number of pools - number of tracks - number of zurkhaneh) – Instructors and arbiters of the province according to sports and sex (male coaches - women coaches - referee male judge) – Organized athletes in the field of sports and sex
cultural	Education	With the literacy of the population of 6 years old and more, men and women – the number of schools of non-state schools in the province according to the period of education (elementary-guidance-secondary-college-undergraduate-master-doctorate-professional)- The number of students in the Islamic Azad University of Iran, by the name of the unit, the study group, the course (master's degree, master's degree-doctorate), the instructors (formal and contractual), and the grade of the general department of technical and administrative training of the province (coaches-permanent centers)
	Commercial, hotel and restaurant management and	Export value - Export value - Number of hotels - Number of residences - Number of beds in Residence - Number of bed rooms

**Source:** Research findings.

(Algebraic model)

$$Y_{1n} = \alpha_1 X_{1,1} + \alpha_2 X_{1,2} + \dots + \alpha_n X_{1n} \quad (2)$$

$$Y_{31} = \alpha_1 X_{31,1} + \alpha_2 X_{31,2} + \dots + \alpha_n X_{31,n}$$

*The Topsis Method*

The Topsis method as one of the non-compensatory methods of multi-criteria decision making were proposed by Huang and Yun in 1981 and it is known as one of the most famous and top-notch multi-criteria decision-making methods. In this method, after formulating a matrix with “n” options and “m” indices, we can judge about ranking and choosing the best option.



Assuming that each index is incremental, this method is based on choosing the option with greatest distance from the negative ideal solution and the least distance to the positive ideal solution in which A- stands for the negative ideal solution and A+ stands for the positive ideal solution (Azadi et al., 2019: 9).

"The distance between an option of positive ideal (or negative ideal) may be calculated as the Euclidean distance (from second power) or as the sum of absolute magnitudes from linear intervals (known as block intervals) which depends on the exchange rate and the replacement rate among the indices" (Asqarpour, 2005: 260).

If you choose the best option according to the relevant index or ranking, they should follow the steps below:

### *Topsis Method Algorithm*

By establishing the decision making matrix, the share of each province is calculated on the basis of owning the number of key managers in the country's decision-making center, and after the following steps, it is possible to prioritize the coefficient of political influence or power rents of the provinces of the country.

The first step is to scale out and convert the decision making matrix quantitatively, which is used to scale out the following formula:

$$n_{ij} = \frac{r_{ij}}{\sqrt{\sum_{i=1}^m r_{ij}^2}} \quad (3)$$

The second step is to multiply the scaled out matrix (N) in the weight diagonal matrix (W) (Available weights are based on the Delphi technique).

$$V = N \times W_{n \times n} \quad (4)$$

In the above formula N is a scaled out matrix of indices and  $W_{n \times n}$  is the diagonal matrix where the elements of the main diameter are non-zero.

The third step is to identify the best positive ideal solution  $V_j^+$  and negative ideal solution  $V_j^-$  at this stage.

Identifying the best positive ideal solution  $V_j^+$  and negative ideal solution  $V_j^-$  calculated as follows:

$$\begin{aligned} \text{The positive ideal option } A^+ &= \{(\max V_{ij} | j \in J), (\min V_{ij} | j \in J^{\circ}) | i = 1, 2, \dots, m\} \\ &= \{V_1^+, V_2^+, \dots, V_j^+, \dots, V_n^+\} \end{aligned} \quad (5)$$

$$\begin{aligned} \text{The negative ideal option } A^- &= \{(\min V_{ij} | j \in J), (\max V_{ij} | j \in J^{\circ}), | i = 1, 2, \dots, m\} \\ &= \{V_1^-, V_2^-, \dots, V_j^-, \dots, V_n^-\} \end{aligned} \quad (6)$$

Or, that is; the best values for the positive index are the largest values and for the negative indicators are the smallest values and the "worst" for the positive indicators are the smallest values and for the negative indicators are the largest values.

The fourth step: The distance of each option from the positive and negative Ideal: at this point, the Euclidean distance of each option from positive ideals  $d_i^+$  and Negative Ideal ( $d_i^-$ ) must be calculated according to the formulas below:

$$d_i^+ = \sqrt{\sum_{j=1}^n (V_{ij} - V_j^+)^2} \quad , \quad i = 1, 2, \dots, m \quad (7)$$

The distance of  $i$  option from negative option:

$$d_i^- = \sqrt{\sum_{j=1}^n (V_{ij} - V_j^-)^2}, \quad i = 1, 2, \dots, m \quad (8)$$

The fifth step: at this point, relative distance and proximity  $CL_i^*$  of each option relative to the ideal solution can be calculated according to the following formula:

$$CL_i^* = \frac{d_i^-}{d_i^- + d_i^+} \quad (9)$$

The closer the option to the ideal solution is, the closer the numeric value of  $CL_i^*$  to the number one (Azadi et al., 2019: 17).

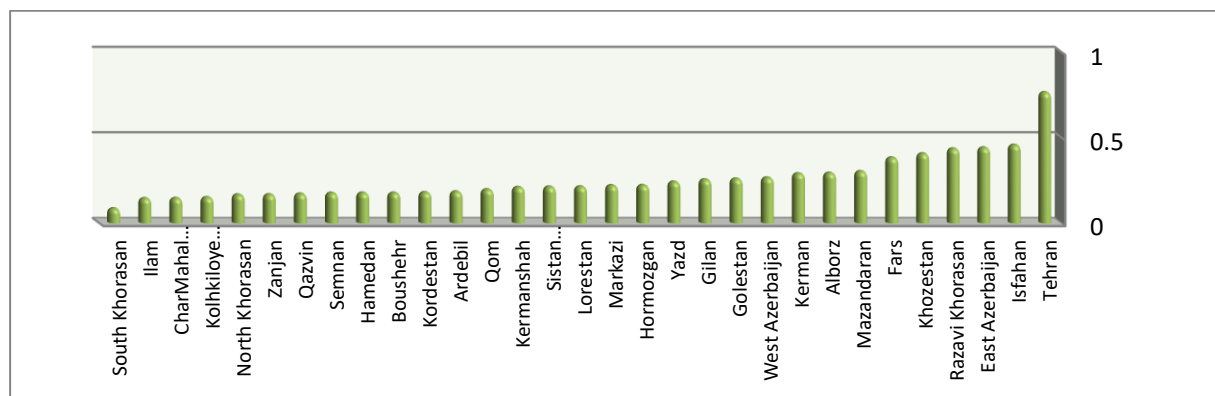
The sixth step: The final stage is given the outputs obtained from the previous steps for each option. Any option that has more  $CL_i^*$  is better and will be prioritized.

**Table 2.** Ranking the Provinces of the Country in the Tenth Government from the Perspective of Development

rank	The result of regional development	Development point	rank	The result of regional development	Development point
1	Tehran	0.7649	17	Sistan and Balouchestan	0.2139
2	Isfahan	0.4573	18	Kermanshah	0.2115
3	East Azerbaijan	0.4422	19	Qom	0.1982
4	Razavi Khorasan	0.4359	20	Ardebil	0.1854
5	Khouzestan	0.4076	21	Kordestan	0.1809
6	Fars	0.3837	22	Boushehr	0.1786
7	Mazandaran	0.3036	23	Hamedan	0.1785
8	Alborz	0.2944	24	Semnan	0.1777
9	Kerman	0.2915	25	Qazvin	0.1729
10	West Azerbaijan	0.2669	26	Zanjan	0.1688
11	Golestan	0.2608	27	North Khorasan	0.1681
12	Gilan	0.2558	28	Kolhkiyoye BoyerAhmad	0.1521
13	Yazd	0.2428	29	CharMahal and Bakhtiari	0.1476
14	Hormozgan	0.2228	30	Ilam	0.1464
15	Markazi	0.2217	31	South Khorasan	0.0872
16	Lorestan	0.2147			

**Source:** Research findings.

The results obtained from Table 1 and Figure 1 indicate that the development in Iran is asymmetrically distributed between the provinces and only 22 percent of the provinces in Iran have enjoyed a moderate to high development level, approximately 35% enjoy an average level of development and the regions that suffer from underdevelopment are called underdeveloped provinces with a share of 42%.



**Figure 1.** Regional Development of the Provinces in the Tenth State

**Source:** Research findings.

### *Development Cluster Model*

Based on cluster model, according to Table 2, the level of development of the provinces can be distinguished in five different groups or clusters (highly developed, developed, middle-level development, undeveloped, deprived). The status of each province in terms of development can be identified in the separate clusters below.

**Table 3.** The Five Cluster Model of the Development Level for the Provinces Ninth Government

cluster	The number of provinces	The level of development	provinces
1 (0.5 to 1)	1	highly developed	Tehran
2 (0.3 to 0.5)	6	developed	Isfahan, East Azerbaijan, Khorasan Razavi, Kerman, Mazandaran, Khouzestan
3 (0.2 to 0.3)	14	middle-level development	Fars, Yazd, Gilan, West Azerbaijan, Lorestan, Kermanshah, Semnan, Khorasan, Sistan and Balochestan, Hamedan, Markazi, Ardebil, Golestan, CharMahal and Bakhtiari
4 (0.2 to 1)	9	undeveloped	Hormozgan, Qom, Zanjan, Qazvin, Kohkiloye and BoyerAhmad, Ilam, Boushehr, South Khorasan, North Khorasan.
5 (0.1 to 0)	0	deprived	-

**Source:** Azadi (2018).

**Table 4.** The Five Cluster Model of the Development Level for the Provinces Tenth Government

cluster	The number of provinces	The level of development	provinces	Average population (thousand)
1 (0.5 to 1)	1	highly developed	Tehran	12183000
2 (0.3 to 0.5)	6	developed	Isfahan, East Azerbaijan, Khorasan Razavi, Khouzestan, Fars, Mazandaran	3216902.3
3 (0.2 to 0.3)	11	middle-level development	Alborz, Kerman, West Azerbaijan, Golestan, Gilan, Yazd, Hormozgan, Markazi, Lorestan, Sistan and Balouchestan, Kermanshah	1870930
4 (0.2 to 1)	12	undeveloped	Qom, Ardebil, Kordestan, Boushehr, Hamedan, Semnan, Qazvin, Zanjan, North Khorasan, Kolhkiloye and BoyerAhmad, CharMahal and Bakhtiari, Ilam	1042729.7
5 (0.1 to 0)	1	deprived	South Khorasan	732192

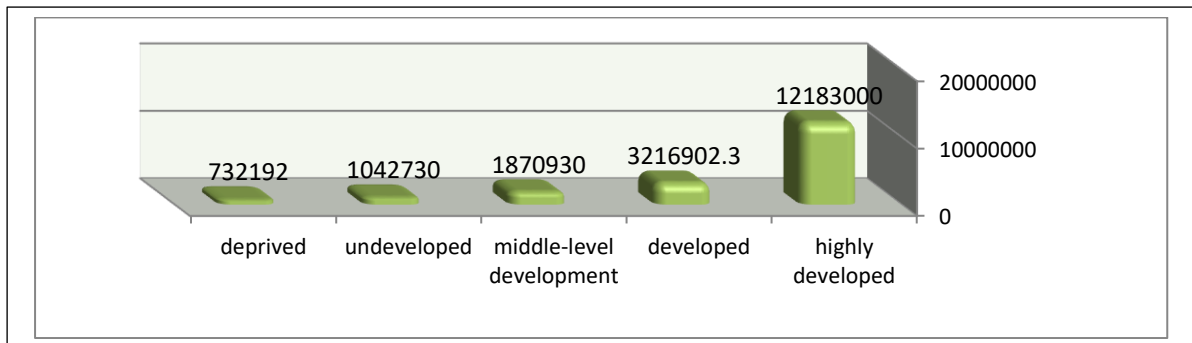
**Source:** Research findings.

With the goal of focusing on the development of the tenth government, in a comparative static analysis for the development of the ninth and tenth governments, we will find that 100% of the highly developed provinces have been developed over time. 83% of developed provinces have been developed and only Kerman province (16%) has fallen to moderate level of development. 57% of the middle-level provinces still remain "moderate" and 7 percent of the provinces (Fars) have advanced to "advanced" levels. 35% (Semnan, Kurdistan, Hamedan, Ardebil, Chaharmahal and

Bakhtiari, Hormozgan) provinces have also fallen to the lowest level of "undeveloped". Also, 77% of the provinces have fallen to an undeveloped level, and 11% (Hormozgan) provinces have been upgraded with an "average level of development" and 11 percent (South Khorasan) provinces have fallen to a lower level of "deprived levels" of degradation.

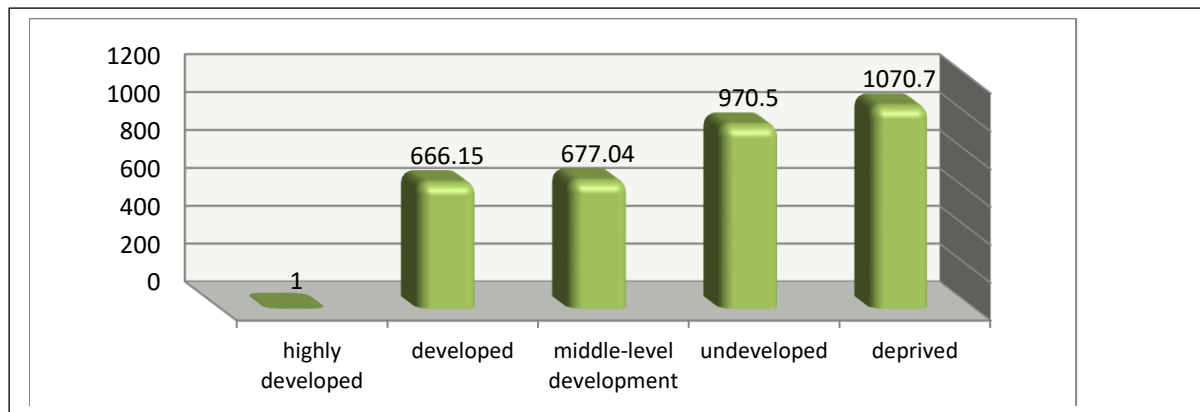
In the above discussion, the development indices of which various cultural, economic, geographical, health and ... factors were located, the development of each province was estimated and we achieved the main goals of the research. In the following, we will examine two categories and the "Role of Population in Development" theory and the "Core-Periphery" model for the tenth government in Iran. In the case of the population, the results for the tenth government indicate that, more the population of a province grows, more increase in development. Moreover, in the core-periphery model, more closer the provinces to the center (Tehran) in terms of distance, more developed they are.

Population as one of the important pillars of development is of great importance. One of the remarkable points in the development of the provinces is their population. Based on figure and Table 2, in terms of increasing the population of the regions for the provinces of each cluster, the populated provinces are highly benefited. Usually, metropolitans are among the top half of the most developed provinces in the country and the less developed the provinces are, the more we will see the population decline for these provinces.



**Figure 2.** The Relationship between the Development and the Average Population of the Provinces in the Tenth State  
**Source:** Research findings.

The Core-Periphery model suggests that the more the provinces are closer to the core of the country, the higher developmental level they can enjoy and the greater spatial distance for areas, the less developmental level is experienced. In chart 3 for the five cluster model of development, it is shown that the average distance (in square kilometers) of the more developed provinces is less than the least developed provinces. This implies that the forming conditions of development are based on this model and development occurs only to a certain distance of the core and the peripheral provinces will have less development with increasing distance from the core.



**Figure 3.** Development Situation of the Provinces (Peripheral or Peripheral) including the Distance from Tehran  
**Source:** Research findings.

### Ranking of Provinces according to Non-demographic Factors

Given that Iran is a country that has one decision-making center for the whole country and it is in the capital and is not politically state-owned, planning is centralized. In Iran, the landscape of economic, social, health, cultural and infrastructure indicators is formulated in the form of medium-term and long-term plans on the basis of which annual budgets have played a major role in changing these indicators over time for the provinces, which can vary the level of development of the regions. The political system, including the power rents at the decision-making center for budget allocation, is one of the main factors in the formation of provincial budgets. Various other political factors, such as elections, the role of parties and interest groups in the distribution of funds are other components of unbalanced distribution of funds are provinces and regions. One can also point to the undeniable role of unofficial institutions alongside official institutions in the differences in the level of development of the regions.

Piva considers two dimensions for social development: The first concerns the capacity and ability of people to develop, and the second is the transformation of social institutions (Kalantari, 1998). Considering that the aim of the research is indexation for the development and ranking of the provinces in terms of these indexations the role of institutions is examined to enhance research. The discussion of institutions has a high degree of development. In the following, it has been tried to rank the fertility and rules governing the social system in the provinces of the country from the perspective of non-demographic indicators and based on attitudes-the roots and values-the roots and values.

**Table 5.** Provincial Ranking according to the Institutional Factors Affecting the Development

	***Social Development	***Social capital	*Religiosity	***Population growth rate	*secularism	***Activity rate	*Individualism	***Immigrants entered	*Family values	*Fertility
West Azerbaijan	8	17	18	21	6	5	23	10	20	7
East Azerbaijan	24	20	12	6	11	29	15	9	17	24
Ardebil	36	13	2	1	20	11	13	27	13	9
Isfahan	2	27	16	19	14	18	22	3	8	26
Alborz	-	-	-	-	-	6	-	5	-	-
Ilam	28	1	19	2	17	7	19	31	5	22
Boushehr	14	4	9	28	21	15	9	14	4	5
Tehran	6	28	24	22	2	25	26	1	16	27
CharMahal	7	19	21	10	15	8	14	30	9	17

	***Social Development	***Social capital	*Religiosity	***Population growth rate	*secularism	***Activity rate	*Individualism	***Immigrants entered	*Family values	*Fertility
South Khorasan	-	-	-	-	-	27	-	22	-	-
Khorasan Razavi	3	22	10	18	24	24	25	2	8	10
North Khorasan	-	-	-	-	-	1	-	23	-	-
Khouzestan	15	24	23	16	2	16	21	6	6	4
Zanjan	11	16	8	14	13	22	11	24	12	18
Semnan	4	12	9	20	11	19	4	25	2	13
Sistan and Balouchestan	29	5	1	15	26	31	1	20	11	1
Fars	13	26	20	17	1	9	28	4	15	23
Qazvin	18	15	19	12	8	2	5	21	18	16
Qom	12	14	4	25	23	13	8	28	10	11
Kordestan	17	7	17	8	4	4	6	13	18	15
kerman	21	23	3	26	19	28	3	11	7	6
Kermanshah	22	9	22	7	7	17	24	16	19	20
Kolhkiroye	30	2	5	9	22	26	10	29	8	8
Golestan	9	18	14	24	10	20	16	12	9	12
Gilan	10	21	25	4	3	23	27	8	14	28
Lorestan	27	3	8	3	12	10	17	26	8	19
Mazandaran	5	6	15	13	9	14	18	7	21	21
Markazi	20	8	11	11	18	12	12	17	9	14
Hormozgan	25	10	6	27	16	3	20	15	1	2
Hamedan	19	25	13	5	5	21	7	18	19	25
Yazd	1	11	7	23	25	30	2	19	3	3

Rank 1 means social development, social capital, population growth rates, activity rates, religiosity and immigrants, and more fertility, less secularity, lower individualism and higher family values.

**Source:** \* Rastegar (2014:171) and \*\* Firozabadi et al. (2010:81) and \*\*\* Mousavi et al. (2015:13).

The Clarke and Stark model, which is consistent with Islam, has been used in the above table. This model studies the matter with four dimensions of belief (belief in the principles of the religion of Islam), experiential (the use of religion in everyday life) emotional (feeling of dependence and belonging to religion) and the dimension of the ritual (the practice of religious practices). It also crystallizes secularism (Vilem, 2007: 139).

For the difference in the level of development of regions, the demographic and institutional factors are among the most important factors explaining unbalanced distributions. There are many demographic indicators that can explain the situation of regional inequalities with different weights that in Iran, the literacy rate with 0.67, population density with 0/683, immigrants with 0.267, activity rate with 0.16 and population ratio with 0.027 affected the development and the reciprocity load had an inverse relationship with 0.367. The variables presented could explain 76.5% of the developmental changes in Iran in 2011 (Mousavi et al., 2015: 20).

Cultural differences are one of the important factors in the developmental differences between the regions. Culture has the same definitions as development that the factors that make culture based on them, in the Mexican Statement (1982) are introduced are beliefs, value systems, fundamental human rights, arts, lifestyles, and literature. To balance the development of provinces, a balanced cultural development must be shaped. Culture as one of the indicators of development over time can have many changes that will affect the development of the regions (Inglehot, 1997: 60). André Malraux mentions cultural development as the generalization of culture and the elimination of cultural inequalities, rooted in the social and economic needs of

people (Kazemi, 1995:45, Quoted from Ziaari, 1995:5). Cultural development has been confirmed as a precondition for social development in Iran (Babaeefard, 2010). In a study conducted by Babaeefard (2010) in Iran, it has been proven that cultural development in Iran has various barriers, including lack of individualism, cultural and identity damage, lack of intellectual and cultural plurality, intellectual and cultural capital weakness that these components make up the lack of social development itself (Babaeefard, 2010).

Social development has evolved from different angles derived from different perspectives, which can be pointed out by its factors: Human Identity, Social Trust, Communication Rationality (Dehshiri, 2014: 32). Social capital is the explanatory element of many indicators of social development. Economies that have a high boom are rich in social capital (Poormousavi, 2002: 177).

In 2006, a research was conducted in Iran that showed a positive correlation between the social development and the social capital of provinces in Iran. Among the factors of social capital are the private trust and the public trust that was shown to have a significant and inverse relationship between them and social development. And there was no meaningful relationship between social development and other components of social capital, such as intragroup relationships network, official partnerships, unofficial partnerships and institutional trust.

In order to rank the provinces, social capital is introduced in the form of three indicators: unofficial, generalized, and institutional.

**Table 6.** Dimensions of Social Capital for Measurement

	Structural (quantity)	Cognitive (quality)
Unofficial (Wisdom - intergroup)	Whom does your family usually is in relation? How many times does the family go to visit the 1-relatives 2-neighbors 3-friends 4-colleagues? The times of visits in a month	Trust in 1- Family members 2- Relatives and Consultation with 1- Family members 2- Friends Confabulate with 1- family members 2- friends
Generalized (Wisdom - intergroup))	The ratio of participation of people over 15 years in religious activities including: 1- Celebration 2-Congregational prayer in the mosque 3- Congregational prayers at work or school The ratio of participation of people over 15 years in 1- Home and School Association 2- Trade Union 3- Islamic Association 4- Basij 5-Charity Association 6- Fund of Gharzolhasaneh	In your opinion, How much of each of the following characteristics is prevalent in society? 1 Forgiveness 2 trusteeship 3 fairness 4 benevolence and helping others 5 honesty and righteousness 6 Commitment to promise
Institutional (macro)	Participation in the election	The degree of trust to: 1 Workers 2 real estate owners and car dealers 3 teachers 4 police 5 taxi drivers 6doctors 7 judges 8 university professors 9 tradespeople 10 sportsmen 11 clerics 12 journalists 13 artists 14 Traders and marketers 15 Army 16 police force

**Source:** Hoseini et al. (2004: 79).

Based on the indicators presented for social capital, the following rankings are obtained for the provinces

**Table 7.** Ranking of Provinces from Social Capital Indicators

	Social capital						Social capital
	unofficial		Generalized		institutional		
	structural	cognitive	structural	cognitive	structural	cognitive	
West Azerbaijan	26	12	14	13	25	11	17
East Azerbaijan	20	13	9	25	14	23	20

Ardebil	15	14	28	8	19	5	13
Isfahan	17	25	8	26	27	22	27
Ilam	5	5	2	1	2	2	1
Boushehr	4	9	18	6	8	6	4
Tehran	28	10	19	27	28	26	28
CharMahal	23	23	20	22	3	18	19
Razavi Khorasan	13	28	7	20	12	15	22
Khozestan	12	7	12	19	24	25	24
Zanjan	18	17	22	16	11	13	16
Semnan	9	19	23	5	9	10	12
Sistan	7	2	25	2	12	1	5
Balochestan							
Fars	27	27	13	28	13	28	26
Qazvin	8	20	24	14	18	14	15
Qom	12	22	4	15	26	17	14
Kordestan	14	4	11	10	20	9	7
kerman	10	26	15	18	7	20	23
Kermanshah	22	11	16	12	15	4	9
Kokiloye	2	16	5	4	1	19	2
Golestan	25	1	17	24	4	24	18
Gilan	19	18	6	23	6	27	21
Lorestan	3	12	1	7	5	12	3
Mazandaran	1	6	3	9	10	12	6
Markazi	11	8	10	17	23	7	8
Hormozgan	6	3	27	11	16	16	10
Hamedan	24	15	26	12	22	8	25
Yazd	16	24	12	3	17	3	11

Source: Hoseini et al. (2004:79).

## Conclusions

The accurate knowledge and maximum use of development indicators in the regions for peripheral planning is considered as one of the most important factors in planning, because if there is no accurate knowledge of the level and distance of the development of the regions, the planning process and peripheral balance will be meaningless in developmental plans. In most previous studies, Tehran, and Sistan and Balouchestan provinces have been ranked as the most developed and deprived provinces in the country, respectively. Using multi-attribute decision making and Topsis model and considering the outputs of Table 1, the provinces of the country ranked in terms of development in this study. Tehran ranked as the first and Khorasan as the last, and Sistan and Baluchistan ranked for 17th. The reason for the different results obtained is due to the overlap and the high number of development indicators of the present article compared to other studies. The present study other than reviewing the status of development of provinces in the tenth government, which is important for developing peripheral development plans, was able to conceptualize one of the major models of peripheral-cored development in the context of the results obtained from research studies in Iran. Besides that, in this study, other results were obtained for the relationship between population density and development for the regions of Iran that this issue has always been the subject of discussions on the development programs.

Based on the cluster model (Table 2) for the level of enjoyment of the provinces of the country, five groups were defined and it was then determined that 1 province (Tehran) is highly



developed, 6 provinces are developed (Isfahan, East Azarbaijan, Khorasan Razavi, Khouzestan, Fars, Mazandaran), 11 provinces are moderate in terms of development (Alborz, Kerman, West Azarbaijan, Golestan, Gilan, Yazd, Hormozgan, Markazi, Lorestan, Sistan and Balouchestan, Kermanshah), 12 provinces are undeveloped (Qom, Ardebil, Kurdistan, Boushehr, Hamedan, Semnan, Qazvin, Zanjan, north Khorasan, Kohkiloye and BoyerAhmad, Chahar Mahal and Bakhtiari, Ilam) and 1 province is deprived (south Khorasan). It can be approximately expanded in another division that 22% of the provinces are developed, 35% are moderate and 42% undeveloped. These results indicate a developmental gap and uneven development in Iran for the year 2013 as the last year of the working government and the representative of the tenth government. Some other results obtained in accordance with chart 2 and with respect to the 5 developmental level clustering show the direct communication and correlation between the average population of each development cluster and higher ranks for development. In other words, the greater the province's share of the population of the country, the more they enjoy the development. Therefore, in this regard, immigration from the less developed provinces to developed provinces should be prevented which will be shaped in the form of incentive policies to increase the population of deprived provinces and create infrastructure for demographic development in these provinces. Also, the study confirms the development of the core-periphery in accordance with Chart 3, that is, as far as the provinces are closer to the core (Tehran) in terms of distance (in km), they have been more developed and marginal and border provinces usually have a lower development trend. There was also the same result for the research of Gilbert (1975) and Musli (1974) which had been done for the city of Rens. In this sense, the provinces peripheral are more developed than the more marginal provinces.

In addition to demographic factors, many non-population factors, including the role of institutions and values, beliefs and socio-political and religious factors have been among the other issues under study according to which the provinces were ranked.

With these interpretations it can be admitted that regional development has been distributed asymmetrically in Iran that in addition to the importance of the issue of social justice and the prevention of social, political and economic consequences due to the imbalance of development in the country, in order to balance the region, while paying special attention to the undeveloped regions towards the development of the findings, some actions can be planned such as Increasing the allocation of funds to these areas, the population growth policies through special benefits for less developed regions in the future country-specific programs and the incentive policies preventing from the migration to metropolitan areas.

Finally, for future research, it is suggested to use the other multi-criteria and multi-indices decision-making models, such as numerical taxonomy, AHP, or factor analysis, to rank the provinces. It is also possible to extract the impact of labor force indices and other tangible factors, including the impact of power rents on the development of areas we can compare the developmental situation of the provinces or in the form of regression models and the estimation using Stata and Iyvoz software and the coefficient for development has been obtained for each indicator.

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