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DETERMINING RATE DEVELOPMENT OF COUNTIES OF KHUZESTAN PROVINCE BASED ON VARIOUS INDICES OF DEVELOPMENT

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ABSTRACT
The recognition of social and economic inequalities in various districts is the first step in regional planning. Considering this fact, development has a direct relationship with social equality and well-balanced spatial distribution of services in regions, such that it can be said that appropriate and coordinated distribution of economic, social and cultural indices, is one of the most important indicators of social equality in the country. The main purpose of this research is to analyze spatial distribution condition of infrastructural services in cities of Khuzestan province. The methodology used in this study is descriptive and analytical in which statistical methods and quantitative models including three various procedures such as: sum of indices, data standardization method and human development index (HDI) have been used. Findings are shaming, unbalanced spatial distribution of indices in Khuzestan counties, such that Ahwaz and Dezful have reached developmental facilities more than other counties respectively and in comparison Howizeh and Haftekel, have the lowest ranking in terms of soft hose indices.

Keywords: Social Justice; Development Rate; Human Development Index (HDI); Khuzestan Cities

INTRODUCTION
Social equality has engaged human brain for such a long time. Therefore, in order to reach the full scale development there is a need to take a general look at balanced distribution and appropriate facilities in the region. Unreasonable and inappropriate distribution in biological fields results in unparalleled economic and social distribution in geographic regions. This is reflected in geographic prospect of cities and their heterogenic growth (Farid, 1996). Therefore, the very important duty of policy makers and planners is to rely on strengths and evaluate problems and flaws in less developed regions and try to avoid them. Often in poor countries economic and political forces merge and in less developed regions these two are focused and intensify the geographic inequality (Asayesh, 2006).

In order to recognize and solve the region's issues and problems and rate residential areas in regional planning, statistical methods are the best way to utilize. Evaluating social, economic, cultural and health indices is one of the components of development phenomenon. The quality and quantity growth of the indices in poor and underdeveloped regions can be a big pace in reaching social equality and sustainabledevelopment. The present study aims at studying and recognizing developmental status and predicting planning priority and development of Khuzestan counties is based on 2009 statistics and aims at rating the counties of the province for which 18 health, education, cultural and urban services variables were evaluated using data standardization, human development index (HDI) and sum of indices. Generally speaking, this article tries to address the recognition of facilities over Khuzestan province and lead them to improve the quality of the facility and services in this province. The article seeks to answer the following questions:

- Is there social-economic inequality among counties of Khuzestan province?
- Are development indices unequally distributed among the counties in Khuzestan province?

Today equality expansion and improving social life is among the most important and valuable purposes in planning, and recognizing deprivedregions and increasing their expansion power is among the most important topics in planning. Generally speaking, the purpose of the present study is to address the

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Research Article

recognition of facilities over the province and lead them to improve the quality of the facility and services in the province.

MATERIALS AND METHODS

The research methodology of the present study is based on descriptive–analytic method in which the development level of 22 counties of Khuzestan in the year 1388 SH (2009) are evaluated based on 18 educational, cultural, health care, and health and urban services variables. Data were analyzed using SPSS software, human development index (HDI), data standardization and sum of indices of each county and their comparison. Finally, the level of development in Khuzestan counties was calculated and reviewed.
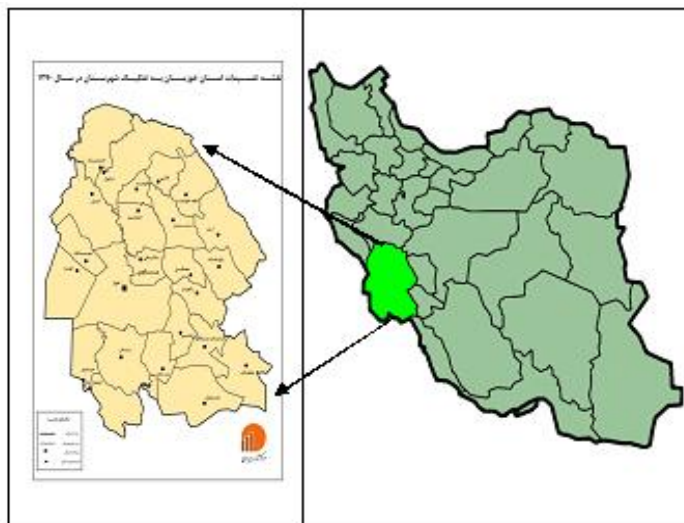
Research History

The research history shows many sources related to Iran cities' development through different methods like numerical taxonomy, human development index, data standardization, coefficient of dispersion model and so on. In table 1,the major sources related to research topic in Fig. 1 are presented.

Table 1: Some of the major sources related to research topic.

Reference	Topic (scientific activity)	Description (scientific work)
(Ahangari, 2003)	Evaluation of development degree among Khuzestan cities and regional inequality in the province.	This article tries to reveal the level of development of Khuzestan counties using factor analysis and numerical taxonomy method. Also, inequality coefficient among the counties in 1999 and 2003 is calculated.
(Movahed, 2011)	Level of development analysis in Khuzestan counties using factor analysis and cluster analysis	In providing a level of development among Khuzestan counties, this article takes 25 indices of urban development and using factor analysis, tries to analyze the indices and categorize them in 5 meaningful categories.
(Nasrollahi, 2011)	Comparison analysis rating of development (case study: Khuzestan counties)	In order to recognize the developmental position of every county in Khuzestan using three methods of numerical taxonomy, Fuzzy logic and factor analysis along with rating the counties, there is a comparison analysis of the methods used in measuring development in Khuzestan counties.
(Jamali, 2010)	An analysis of regional inequality and setting priorities in developing city regions in East Azerbaijan province.	Using human development index and the factor analysis method the priorities of development in East Azerbaijan are predicted and finally urban areas are categorized to 3 levels of developed, semi developed and deprived.
(Taghvaei and Shahivandi, 2010)	Diffused services of health and health care in Iran counties.	In this article in order to analyze the data the secondary analysis and in order to normalize the data the data standardization method is used; also, in order to rate the counties the cluster analysis is used.
(Hekmat *et al.,* 2011)	Analysis of spatial distribution of public services using data standardization method, numerical taxonomy and feature coefficient model (case study: Ardakan)	In this article 4 different statistical methods including sum of units, data standardization, numerical taxonomy and feature coefficient model were used to analyze spatial distribution of services and facilities spatial distribution in Ardakan city.

Research Article

Figure 1: Khuzestan location on Iran map
[REPLACE PERISAN WORDS IN THE MAP]

Development
Development literally means improvement and recovery which pays more attention to the quality aspect. Development is a multi-aspect process which includes economic, social and cultural aspects. Asterine defines development as rebuilding and building new things which mean evolution in human (Asayesh, 2006). Development dynamic is more attached to logical and scientific planning in order to achieve settled goals in line with providing an idle level of social welfare and economic production growth. Generally, infrastructure conversion is the center of development and quantitative conversion is in the center of growth (MasomiAshkori, 2008). Development theories presented anyway suggests a converse act, which means transforming a pseudo-traditional society to a new form and combine or merge it into a pseudo-modern society (Elyasi, 1989). Social development includes growth in social life aspects such as health and health care, education, food, employment and the likes which at the end provide social welfare and related goals (ZahediAsl, 2002).

Social Equality
Equality consists of a multi-aspect concept which idiomatically means creating a balance and coordination among all life aspects. Possessing equal and parallel amounts of natural, economic and welfare gifts have been one of the most important issues that planners are faced in addressing an ideal society. David Harway, the author of the noble book *social equality and city*, sees social equality of geographical analysis in revolution in geographic notion (Shakoei, 2006). Equal distribution of facility and services is one of the most important signs of social equality in national, regional and urban level. Social equality realization, creating equal opportunities and improving human safety are the most important solutions for achieving a sustainable development. Social equality must consider both wealth creation and social welfare and can present social relation concept in a specific situation (Safaei, 2011).

Therefore, governments play an important role in increasing or decreasing regional inequality. In this regard, in first place changing citizens' innate image about the city is related to equal wealth distribution in the cities, battling deep gaps between classes and equal relations of power, wealth and information (Hosseini, 2010). Also, the way budgets are regulated and used by regulatory institution for development, improvement and providing appropriate services to underdeveloped and deprivedregions and spatial and social equality expansion shouldn't be neglected.

Regional Planning
One of the most important issues today is regional planning which is certainly crucial for regions' development. Last decades' experiences showed plans ran in national level without scientific and practical principals, which not only lead to nowhere but also imposed huge charges on related planners and

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Research Article

authorities. Planning notion necessity, has been greatly addressed by human need, population growth and existing limitations. Lack of balance in regional facility distribution is a sign of underdevelopment and lagging of some regions in Iran, the reasons of which is in lack of coordination among regional planners in providing appropriate solutions. Today, many factors cause central places' networks or urban hierarchy that affects surrounding areas (Nazarian, 2006).

An Introduction to the Subject Region

Based on the first country division act 16th Aban 1316 HS (7 November 1937) and changes imposed on 19th Day the same year HS (8 January 1938), Iran was divided to 10 provinces and 49 cities in which Ahwaz and the whole Khuzestan was part of west province. In 1339HS (1961) provinces were named according to the main titles and the sixth of them was named Khuzestan (Army Geo. etc, 2006).

Khuzestan with Ahvaz as the center covers an area of 64236 Km^2 and 4274979 people live there . It is located in 74°and 41 min to 50°and 39 min east longitude of prime meridian (Greenwich) and 29°and 58 min to 33°and 4 min northern latitude of equator in south of Iran. Being rich in oil reserves and having great potentials, Khuzestan has a specific position.

It is bordering Elam in North West, Lorestan in north, Chaharmahal and Bakhtiari and Kohgiluyeh and Boyer-Ahmad in east and north east, Persian Gulf in south and Iraq in west. The natural border of the province from north and east is spanned by Zagros mountain range. As we move west, the mountain range height decreases and in the south areas they are shaped as Mahoor hills. In south and south west the province is bordered with Persian Gulf and Arvand and a portion of western border limits to Hour-al-Azim (Safaei, 2007). According to the latest country divisions Khuzestan province has 23 counties and 61 cities (Khuzestan Planning Organization, 2010).

Table 2: Country divisions of Khuzestan province 1389 HS (2011)

Year	Number of counties	Number of sections	Number of cities	Number of villages
1986	13	31	28	-
1991	15	35	29	111
1996	16	36	29	112
2001	16	37	41	125
2005	20	46	47	126
2006	20	46	47	126
2007	20	46	52	126
2008	23	52	54	129
2009	23	52	54	130
2010	23	54	61	130

RESULTS AND DISCUSSION

Based on data gathered, education, health care, health and urban services indices in Khuzestan were studied and based on every index condition; a score was given to it. To do so *n* number of areas (22 counties of Khuzestan) (Because of negligible variables, Andikacounty was not taken into account) each with *m* indices (18 indices) were considered (Table 3). Therefore, the following vectors are defined so that each area (n area) is introduced based on the indices (m indices).

$$p_1(y_1, y_2,..., y_m)$$
$$p_2(y_1, y_1,..., y_m)$$
....
....
$$p_n(y_1, y_2,..., y_m)$$

Research Article

Table 3: Level of privilege of subject counties

Index

County	Elementary	Junior high school	High School	University	Library	Hospital	Physicians	Laboratory	Radiography	Rehabilitation	Emergency department	Drug store	Health care centers	State banks	Industrial centers	Technical and professional centers	Fire department	Parks	Sum
Abadan	146	91	60	2	6	4	67	14	10	9	7	24	35	63	19	3	8	30	598
Omidieh	86	47	43	1	2	2	13	6	5	4	3	7	15	18	1	1	2	26	282
Andimeshk	143	68	70	1	5	1	30	10	5	6	5	11	23	33	5	2	3	40	461
Ahwaz	825	417	458	4	18	20	433	72	58	81	27	199	123	343	183	5	9	178	3453
Izeh	180	140	93	1	5	1	25	6	3	3	5	11	21	24	6	2	2	8	536
Baghmalek	147	90	52	1	6	1	5	7	2	1	5	7	14	11	3	1	1	8	362
Mahshahr port	187	74	70	1	4	3	44	14	10	13	3	28	26	58	32	2	4	30	603
Behbahan	107	95	79	1	9	4	57	16	9	10	7	28	27	54	15	6	2	42	568
Khoramshahr	107	55	49	2	1	1	20	7	4	5	4	10	14	33	25	2	2	30	371
Dezful	283	149	111	1	1	4	79	24	9	13	6	46	45	76	43	2	4	106	973
Azadegan plain	104	46	44	1	2	1	12	7	2	2	4	7	12	19	3	2	2	24	294
Ramhurmuz	140	50	42	1	4	1	16	7	4	3	5	8	12	21	17	2	2	18	332
Shadegan	198	69	47	1	3	1	10	6	2	4	2	5	16	16	22	1	3	10	416
Shush	270	114	69	1	3	1	17	8	3	3	5	15	27	31	19	3	2	24	615
Shushtar	193	65	59	1	3	3	27	6	5	6	3	6	22	37	29	2	3	51	521
MasjedSoleiman	104	53	55	1	1	3	23	7	5	6	6	11	19	28	3	1	2	16	344
Lali	37	26	24	1	1	1	5	1	2	1	2	2	6	4	0	1	1	8	123
Hendijan	47	18	12	1	1	0	1	1	2	0	1	2	5	9	1	1	2	9	113
Ramshir	180	38	22	1	3	1	4	3	1	0	1	5	5	10	0	0	1	10	285
Getvand	53	30	22	1	1	0	0	3	1	1	3	4	10	9	6	0	1	5	150
Hoveizeh	63	18	10	1	1	0	0	0	1	0	0	2	4	7	0	0	1	16	124
Haftkel	44	11	9	1	1	0	0	0	1	1	3	3	3	7	0	2	1	11	98

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The scores of the standard are net and without point numbers, which are directly comparable (Jabbari, 2006). The amount of variables of the study in each county is mentioned in Table 3. Therefore the number related to each index is deducted from the sum of studied areas and divided to standard deviation of the same index among all the studied counties. In the next step z matrix is formed as below:

$$Z_i = \frac{x_i - \bar{x}}{sd}$$

In which z is the standardization index, xi is the primary indices mean and s is standard deviation. Therefore, z matrix is:

$$\begin{bmatrix} z_{11} & z_{12} & z_{13} \\ z_{21} & z_{22} & z_{23} \\ \dots \dots \\ \dots \dots \\ z_{m1} & z_{m2} & z_{m3} \end{bmatrix} \begin{matrix} z_{1x} \\ z_{2x} \\ \\ \\ z_{3x} \end{matrix}$$

Table 4: Calculation of development indices in Khuzestan counties

Rating	County	HDI	Level of Privilege
1	Ahwaz	1	Very developed
2	Dezful	0.27	deprived
3	Abadan	0.26	
4	Behbahan	0.20	Very deprived
5	Mahshahr port	0.17	
6	Andimeshk	0.15	
7	Izeh	0.14	
8	Shush	0.14	
9	Shushtar	0.14	
10	Khuramshahr	0.11	
11	Baghmalek	0.10	
12	Shadegan	0.10	
13	Ramhurmuz	0.09	
14	Masjed Suleiman	0.09	
15	Omidieh	0.09	
16	Azadegan plain	0.08	
17	Ramshir	0.05	
18	Lali	0.03	
19	Hendijan	0.03	
20	Getvand	0.03	
21	Hoveyzeh	0.02	
22	Haftkel	0.01	

Calculating Human Development Index
In order to rate the counties in deprived viewpoint the minimum and maximum of counties' indices should be calculated and then the deprivation amplitude in each county would be from 0 to 1 because based on the definition the maximum of deprivation (of the least level of privilege) is 0 and the minimum (or the most level of privilege) is 1. Therefore human development index (I_{ij}) is (Ziari, 2007):

$$I_{ij} = \frac{(Maxj \ x_{ij} - Min_j \ x_{ij}}{(Max_j \ x_{ij} - Min_j x_{ij}}$$

Research Article

In the second step, there is the definition of medium index or the deprivation average (I_j) which is derived from:

$$I_j = \frac{1}{n} \sum_{i=1}^{n} Iij$$

The third step is measuring human development. The index is the differential between 1 and deprivationmedium.

$$(HDi)_j = (1 - I_j)$$

Replacing the statistics and information the rating of counties in Khuzestan along with the calculations related to human development index is given in Table 4.

In order to answer the research questions and conduct quantitative analysis, analytical methods and 3 different models including sum of the services and institutions of each county, data standardization and human development index were used. First the sum of units and institutions in each county which included 18 variables were calculated and based on the number of the institutions in each county different area were ranked. In this model Ahwaz, Dezful and Izeh were ranked 1 to 3 respectively and Haftkel and Hoveyzeh were ranked at last. Based on the data standardization model Ahwaz was ranked first and Dezful and Abadan were ranked second and third respectively; then, Haftkel, Hoveyzeh and lali were ranked the last. Finally, based on the human development index, Ahwaz ranked first, Dezful ranked second, Abadan ranked third and Haftkel ranked last. To link the final results, first the ranking of each model was summarized in a table. Next, each was given a value (Rabbani, 2010). Therefore, ranking 1 was given the value 22, ranking 2 was given the value 21 and finally ranking 21 was given the value 2 and ranking 22 was given the value 1. In the last column the values were summed up and the final rating of the county was derived based on the amount of value. The higher number was given to the higher rating. This way, Ahwaz was in first place, then Dezful and Behbahan were second and third respectively, and in the final place Hendijan, Hoveyzeh and Haftkel were placed respectively (Table 5).

Table 5: Final rating of development level of Khuzestan counties

Row	County	Rating in human development index	Rating in data standardization	Rating in sum of services	Final rating
1	Abadan	3	3	6	4
2	Omidieh	15	14	16	15
3	Andimeshk	6	9	9	8
4	Ahwaz	1	1	1	1
5	Izeh	7	7	3	5
6	Baghmalek	11	11	10	11
7	Mahshahr port	5	6	7	6
8	Behbahan	4	4	5	3
9	Khuramshahr	10	5	12	9
10	Dezful	2	2	2	2
11	Azadegan plain	16	16	15	16
12	Ram Hurmuz	13	13	13	13
13	Shadegan	12	12	11	12
14	Shush	8	8	4	7
15	Shushtar	9	10	8	10
16	MasjedSoleiman	14	15	14	14
17	Lali	18	20	20	19
18	Hendijan	19	19	21	20
19	Ramshir	17	17	17	17
20	Getvand	20	18	18	18
21	Hoveyzeh	21	21	19	21
22	Haftkel	22	22	22	22

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Conclusion

One of the best and most appropriate ways in order to recognize and solve problems and issues of the regions and rate the residential areas in regional and local planning is using analytical methods. Before imposing any development policy it is needed to recognize the basic and important problems in deprived areas. This helps the regional and local planners and policy makers attempt to suggest policies and solutions and prepare plans in order to develop lagging and underdeveloped regions and areas with deeper and better understanding. Anyway, the coordinated development of a country's areas is crucial in achieving national integrity and union. Therefore, underdevelopment is not an aspect or subset of a limited society. Improving and development should include all of the social subsets.

The present research evaluated and analyzed the level of development in counties of Khuzestan province based on the valid statistical data of the year 1388, and 18 different variables in health care, education, culture, health and urban services were gathered. Then using 3 methods: data standardization, human development index and sum of indices the level of development and rating of each county was specified. This reveals the quantitative and qualitative social-economic and cultural inequality among the basic indices of the counties in Khuzestan province. The counties faced different developmental problems and flaws in different times which reflect the lack of coordination in development based on population and ethical needs. Having administrative, economic and political potentials, and being a growth hub, Ahwaz maintained its preference over other counties in the province. Development and the level of access to services, facilities and expert labor in this county are due to the center-surrounding system. This leads to economic, political and population concentration in Ahwaz among the whole Khuzestan, which reveals its growth and development centralization in every aspect and turns it to the best hub of this province. This trend has been continuing for many years. Development and the concentration of facilities in Ahwaz and receiving budget and specialist and skillful labor is not in favor of the other counties and causes lack of balance among them and also they may lack the basic, productive and infrastructural indices.

Suggestions

• In order to provide a growth plate in Khuzestan paying attention to natural, human and ethical resources in Khuzestan is one of the important priorities of planners to ensure development.

• Appropriate distribution of services and facilities in all aspects of urban and rural levels of Khuzestan province.

• Using as much economic capacity in the coastal province bordering Persian Gulf.

• Improving the heavy, light industries' capacity and protecting handicraft and domestic industry.

• Optimum use of facilities and providing agricultural services to rural population.

• Stabilizing the existing condition of villages in this province in order to avoid their over migration to metropolises like Ahwaz.

• Addressing basic and vital issues in medium and small cities in order to avoid villages evacuation is an important step towards expanding social equality and development over the province. Therefore, in order to achieve coordinated and integrated national, regional and local development, simultaneous development of all cities with focus on lagging and deprived and underdeveloped areas is ideal in creating social equality and social and economic equality dominance in the society structure.

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Research Article

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