An Exploratory Spatial Data Analysis of Socio-economic Indices Affecting Divorced People: Iranian Divorcee in 2006 Census

Ali Goli[1]

Abstract

An upward trend in the divorce rate in Iran in recent years has attracted officials, researchers and sociologists towards investigating causes and factors contributing such a social menace. Based on the statistics published by the Statistics Center of Iran (SCI), the divorce rate has gone up from 1.5 in 1000 cases in 1996 to 2.3 in 1999 and 3.1 in 2006.

Results of previous studies show that factors such as age and educational differences between husband and wife, women's employment, addiction and lack of moral principles have been the most important causes of the divorce. This study, however, focusing on the socio-economic status of the divorcee in Iran, picks up a different view from that of other studies conducted in this field. This article also tries to identify the relationships between the rules applicable to personal and employment variables among divorced people using exploratory spatial data analysis (ESDA) techniques. The sample data used in this study include 6400 divorcee from the total divorced population (of 392075) in the county according to the 2006 census; those who have declared themselves without marriage partner due to divorce. The sample includes both male and female.

Results show that the main characteristics of divorced women were their employment and level of education which were statistically significant in

---

1. Assistant Professor, Department of Social Planning, Shiraz University, Shiraz goli@shirazu.ac.ir

metropolitan regions where there is a rise in the employment and education level of women. On the contrary, low education, unemployment, and place of work have been significant factors among divorced men.

Keywords: Divorce; Social Harm; Spatial Data Analysis; Moran Index; Getis Index; Iran.

Introduction

The methods, techniques and tools of spatial analysis used in geographic information sciences is becoming more familiar nowadays, and based on their scale and liability of objectivism, such techniques take advantage of quantitative methods to describe spatial patterns in understanding and presenting different phenomena and problems. Although social sciences are about social issues related to people and communities residing in a geographical area -which constitutes the basis for their studies, the focus has generally been on populations with little attention to geographical place as a factor and its impact on social concepts. Throughout recent decades, divorce in different societies has been growing as a social phenomenon. In order to investigate it, numerous studies have been conducted focusing on economic, behavioral, cultural and social domains. In Iran, too, due to its

growing trend, researchers from varying disciplines have been working on it. A majority of studies conducted investigate factors affecting divorce, or the social harm resulting directly or indirectly from that, and in most cases, surveys have been conducted using different interviewing tools.

Divorce as a social phenomenon needs social analysis, and the studies conducted by different researchers to characterize this phenomenon have used numerous micro and macro theories to some of which we refer briefly:

*Social Exchange Theory***:** Societies in transition, which are in a condition of moving from their traditional patterns towards modernization, face a crisis of values and as a result, a rise in divorce rate (Kameli, 2007). The social exchange theory deals with both micro and macro factors involved in the decision to divorce. This theory suggests that individuals determine

whether to dissolve their current marital relationship by comparing the costs and rewards of that union. A positive correlation exists between the level of restraining force against divorce and the level of individual cost of divorce. The criteria used to assess rewards and costs of marriages and divorces not only differ among individuals, but also differ across cultures (Jeng & McKenry, 2001).

Social Anomy: When a human society is in a state of transition and change, ethical codes gradually disappear and the society loses its social control resulting in a condition of social dissatisfaction. This, in turn, results in such negative social behaviors as divorce, suicide, etc. (Ahmadi, 2008; Kameli, 2007).

Over the years, women have gained independence due to their often developing occupation in the work setting. Ermisch (1986) feels that marital disappointment often occurs when women have the experience of working and following their own job. This influenced women's earning capacity and ran considerable risk of marital disillusion especially when there were other problems present as well. Ruggles (1997) found that the rise of female employment in non-farm type

occupations is closely associated with growth of divorce and separation.

Role Conflicts: Based on this theory, each member of a family has a special function in the family system, a change in which causes complexity in the relations of family members and its vulnerability (Qiasi et al., 2009). Women's attitudes to equality between sexes tended to be more progressive than those of men and different expectations had caused conflict in the family hence, an increase in the divorce rate. "Although men had lost some of their social and religious authorities in the family, their economic and general authority remained intact. The Saudi family was a male-dominated institution with important decisions being made by men. Cultural norms, civil roles, and judicial legislations supported men's authority in the family and society. An American study also found that incongruence between spouses and gender beliefs, expectations, and behaviors affected marital stability through negative marital interactions, causing identity disruption, and resulted in distancing, marital instability, and in some cases divorce" (Lowenstein, 2005).

Economic and Financial Factors: This theory is considered to be a micro one and

includes varying micro views and theories. The theory of power distribution and an effort to achieve respect by man and wife, theory of need – man and woman's ideas and expectations of a married life, the theory of penetration and satisfaction or dissatisfaction of part of their life and its impact on other parts of life, and the theory of automorphism and self-authenticity are of the best known theories in this approach (Kameli, 2007). "The people who embarked on partnerships at an early age, cohabitants, those who had experienced parental divorce, and those who were economically, somatically and emotionally vulnerable had higher risks of divorce"(Lowenstein, 2005). Most couples tended to find themselves in financial difficulties from one side or the other, or in some cases, both sides as a result of separation and divorce. Frequently, it results in unemployment and the reliance on state benefits. In most cases, there is an association between emotional factors and subsequent partnership break-ups (Kiernan & Mueller, 1998).

A review of studies in Iran and other countries shows that a major part of such research has focused on a sociological aspect throughout human societies, and especially in urban areas. An investigation into the social causes of divorce in Shiraz in 2009 by Qiasi et al. factors affecting divorce in Iran by Kameli (2007), a social analysis of a tendency towards divorce in Kermanshah in 2007 by Riahi et al. an investigation into factors affecting divorce in Falavarjan by Zargar and Neshat Doost in 2007, an investigation into the role of family factors in the low rate of divorce in Yazd, Ardakan and Meybod by Fatehizadeh et al. in 2005, a study of divorce status and some effective factors on divorce in divorced individuals in Dowlatabad by Qotbi, et al. in 2004, an epidemiology of separating men and wives referring to the central office for forensic medicine in Hamedan province by Shirzad et al. in 2000, an investigation into reasons for divorce in Tehran in 2000 by Seifollahi, an investigation into the reasons for divorce in Khorasan province by Rahimi in 2000, an investigation into immigration and divorce by Mosavati in 2006, and an investigation into reasons for divorce in Tehran by Danesh et al. in 1990, are part of the numerous studies conducted in Iran.

A Japanese study by Ogawa and Ermisch (1994) found that in Japan the divorce rate had more than doubled since the mid-1960s. This was attributed to

female paid employment which had increased rapidly over the past few decades. The studies of the influence of women's work on the risk of divorce were carried out by Dutch researchers Poortman and Kalmijn (2002. Of particular importance were the factors that led to divorce due to the intensity of the wife's work, the status of the wife's work and the potential success she achieved on the labor market in comparison with her husband. An international study of regional differences in divorce rates was carried out by Lester (1999). The author explores social correlates of regional divorce rates for seven nations: Finland, France, Hungary, Japan, Switzerland, Taiwan, and the USA, found little consistency. The most consistent social correlates were found to be unemployment and, to a lesser extent, population size, homicide rates, percentage of elderly people, birth rates, death rates, and crime rates. A study of young Americans who wished to divorce showed that economic factors played an important role in seeking separations and divorces (Burgess et al., 1997). Similar results were obtained by Waters and Ressler (1999). A final study by Finnas (2000) showed that in Finland an increasing level of income of

husband decreased the divorce risk, whereas the trend was the opposite with respect to the wife's income. It was also found that tenants in this study ran a 50% higher risk of divorce than home owners (Lowenstein, 2005).

The most important factors affecting divorce and its growing rate in the mentioned studies include factors such as lack of mutual understanding, addiction, level of education, women's higher education, women's work, unemployment, economic factors, age difference and residence in cities, showing a statistically significant relationship with divorce.

This research investigates the impact of place-related differences of the mentioned factors on the size of the divorced population insisting and focusing on those factors affecting divorce that could be obtained through the results of the 2006 census. These factors will be studied under social and economic factors:

- Social factors: overall literacy level, graduate and postgraduate females, immigration and urbanization index.
- Economic factors: unemployment, the share of women in total employed population, and the share of employed women in the total number of working

women in urban areas.

Material and Methods

The present study uses a library, analytical and co-relational investigation method. Data were collected in this research using usual methods in social studies including documentary inquiry by referring to overall results of census report in 2006 and sample of Statistics Center of Iran in 2006 on a county basis and extracting data using a data mining method (SCI, 2008).

Results were obtained using exploratory spatial data analysis (ESDA) approach among variables in the geographical information system (GIS). An investigation into the social and economic characteristics of the population without a marriage partner due to divorce and their spatial differences in the studied scale was possible using such data.

ESDA includes a group of methods that show and describe spatial autocorrelation, spatial distributions and investigate places, spatial patterns, spatial links, aggregation or hot spot that can put forth different homogeneous or heterogeneous spatial shapes (Anselin, 2006). ESDA which is a developed reproduction of Turkey's exploratory data analysis is used to clearly

investigate the spatial distribution of phenomena in order to identify the spatial bonding, homogeneity and heterogeneity of the spatial trend in data analysis. In fact, ESDA insists on differences between characters of geographical data.

Spatial autocorrelation and distribution is a fundamental feature of spatial data. It could be described as "the coincidence of value similarity with location similarity" (Zhang, et al, 2011). In large amount of data in social, economic or environment cases, ESDA provides tools to find areas or points with positive or negative spatial autocorrelation. In positive cases, it refers to similarities in values clustering in space and in negative ones, it shows areas surrounded by neighbors with very dissimilar values. Indices such as Moran's I (cliff & Ord, 1981) G statistics (Getis & Ord, 1992) geographically weighted regression (Fotheringham, et al, 1998) are looking for spatial patterns in natural systems and real world.

One of the methods of investigating spatial order pattern is the coefficient of spatial autocorrelation which is calculated by using the second rule of geography "every being is related to another, but the closer ones are of a closer relation

compared to farther things" (Cliff, A. et al, 1981: 8, Tobler, W, 1990:3). In order to get at this coefficient, the closeness of places is reached to by calculating the distance between spots. Two methods to calculate this coefficient include (Lee & Wong, 2000):

1- Getis-Ord Index

"Getis-Ord statistics is often employed in hotspot analysis. It is a distance-based statistics that measure the proportion of variables found within a given radius of a point, to the sum of the variable in the study region. The statistics for location is defined as:

$$G_i(d) = \frac{\sum_{j=1}^{n} w_{ij}(d)x_j}{\sum_{j=1}^{n} x_j}; j \neq i$$

Where x_j is the value of the observation at j, $w_{ij}(d)$ is the ij^{th} element of a binary weights matrix with ones for all sites within a distance d of location i and zeros otherwise, and n is the number of observations. A significant and positive G_i indicates that location i is surrounded by relatively high values while a significant and negative G_i indicates that location I is surrounded by relatively low values. Getis-Ord is useful to reveal spatial agglomerative

pattern with high-value clusters or low-value clusters" (Zhang, 2011).

2- Moran's I

Moran's Index measures spatial autocorrelation (feature similarity) based on both feature locations and feature values simultaneously. The equation of the Moran's I is as follows:

$$SAC \approx \frac{\sum_{i=1}^{n}\sum_{j=1}^{n} C_{ij}W_{ij}}{\sum_{i=1}^{n}\sum_{j=1}^{n} W_{ij}}$$

Where C_{ij} the similarity of coordinates (descriptive data) of points is ij, W_{ij} is the closeness of coordinates (descriptive data) of spots ij. The indices resulted from these equations will present the three possible spatial orders based on table 1 (David et al, 2002).

**Table 1.** Three Spatial Order Patterns Possible based on Cross-spatial Autocorrelation Statistic

Moran Index	Spatial Order Pattern
0<SAC<1	Cluster Distribution (Clustered)
SAC ≈ 0	Homogeneous Distribution (Random)
-1<SAC<0	Accidental Distribution (Dispersed)

Results and Discussion

Based on the available statistics, number of divorces recorded in Iran in 2002 has been

7

67256, which increased to 110510 cases in 2008 and 125747 cases in 2009. This increase has been especially more significant in urban areas to the extent that based on the report by the Statistics and Registration Administration in 2009, from the total number of 125747 cases of divorce recorded, 84.7% had taken place in urban areas while only 15.3% were recorded in rural areas. However, taking a look at the recorded statistics of divorce in rural areas within a 10-year period, we could easily observe a rapid growth in the rate of divorce in rural areas compared to the same rate in urban areas (Graph 1) (Jahangiri, 2009).

Graph 1. Number of Recorded Divorce Cases in Iran Between 2000 -2008
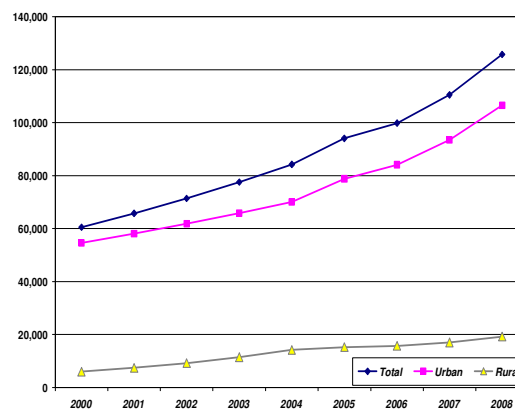
The total number of samples used for this study was 6400 individuals distributed within 336 counties. Table 2 shows their distribution based on sex, age, place of residence, and an age ratio of the sample individuals under study.

Table 2. Relative and Absolute Distribution of Sample Population B\based on Sex, Age, Place of Residence, Age Ratio

Quantity and Percentage Sample		Total		Male		Female	
Variable		Quantity	%	Quantity	%	Quantity	%
Sex		6400	100	2184	34.13	4216	65.87
Age	1648	25.75	521	43.54	1127	26.73	30.36
	2693	42.08	951	32.6	1742	41.32	47.32
	2059	32.17	712	32.6	1347	31.95	22.32
Age Ratio		40.2		40.8		39.9	
Resident in City		4272	66.75	1447	33.87	2825	66.13
Resident in Village		2128	33.25	737	34.63	1391	65.37
Employment Status	2156	33.69	1160	53.80	996	46.2	
	655	10.23	406	61.99	249	38.02	
Education Level	1547	24.17	373	24.11	1174	75.88	
	87	1.35	75	86.21	12	13.79	
	3838	59.97	1374	35.799	2464	64.2	
	458	71.56	131	29.60	327	71.4	
	470	7.34	231	49.14	239	50.85	

The Pattern of Spatial Distribution of Divorce in the Counties

Results of spatial distribution of divorce in counties show the pattern of non-accidental distribution of samples under study. The divorce population distribution in rural areas shows a centralization and cluster formation in special regions around metropolitan area. In general, the factor of contiguity of places in the whole counties and in urban areas shows a more significant pattern than the one without spatial contiguity (Table 3).

Table 3. The Pattern of Spatial Order of Divorced Population Distribution using Moran and Getis Methods

Index	Region	Without Spatial Contiguity	Level of Significance	With Spatial Contiguity	Level of Significance
Moran Index	total	0.051865	0.000002	0.074955	0.000008
	Urban	0.037964	0.000118	0.066593	0.000018
	Rural	0.217662	0.000000	0.147587	0.000005
Getis-Ord Index	total	0.000001	0.000370	0.026475	0.000000
	Urban	0.000001	0.000211	0.034661	0.000000
	Rural	0.000001	0.087220	0.017021	0.000000

An investigation of the related map based on the two aforementioned methods shows the distribution of separated people in three different patterns. The distribution of divorced population in the whole country and metropolitan areas is generally around condensed population centers such as megalopolises and large cities, while the pattern of rural distribution shows the formation of numerous clusters in different provinces.

9
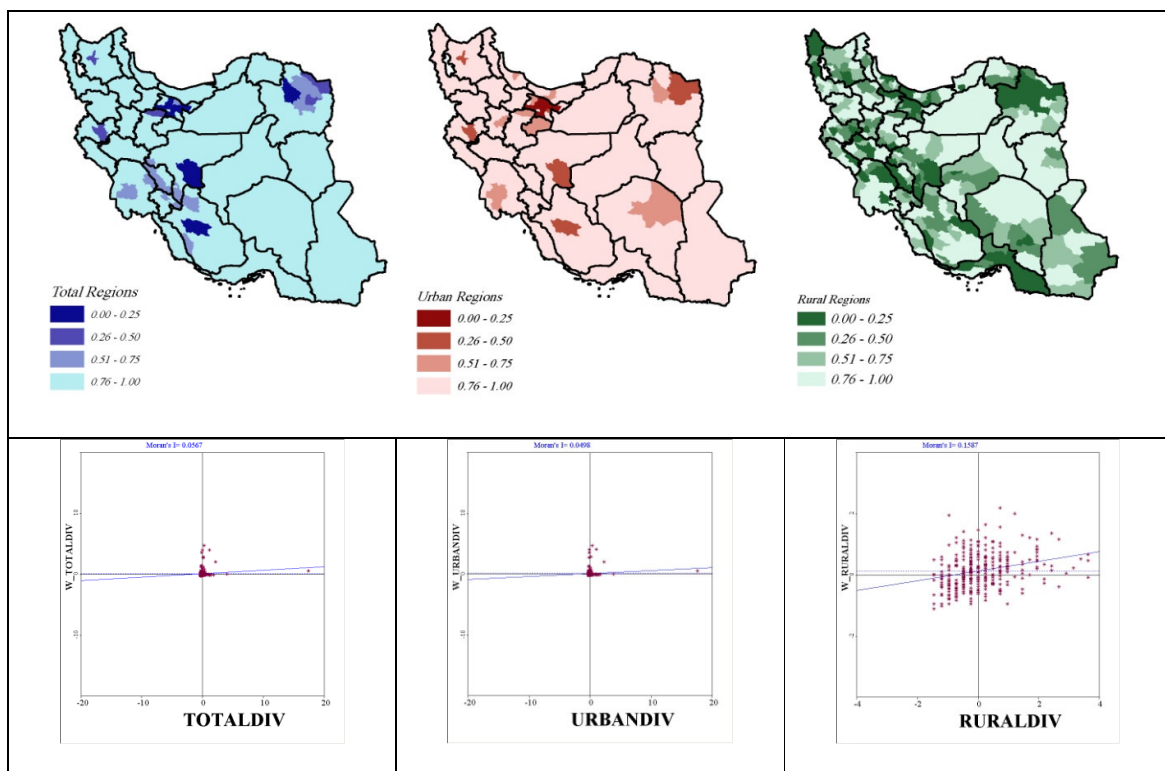
Picture 1. Spatial Distribution of Divorced People in the Whole Counties, Urban and Rural Areas

$$Y_i = X_i \beta_i + \varepsilon_i$$

Spatial Heterogeneity (Local Indicator of Spatial Association)-LISA

The term spatial heterogeneity refers to the deviation in relations among observations throughout geographical locations under study. The local Moran's I or LISA index tries to distinguish those local spots where the deviation in relations among observations is minimum or maximum. Assuming that we have a linear relationship:

i refers to the observations obtained in n, …, i=1 point in space, X_i refers to vector index (1×k) from the explanatory variables together with parameters related to that, Y_I is the dependent variable in the observation or place i, ε_i shows random error in the mentioned relation (Rogerson and Yamada, 2004). This index for region i describe the spatial association between a value in i and the area close to that as follows:

$$I_i = \frac{(x_i - \bar{x})}{S_x^2} \sum_j \left[W_{ij} \left(x_{ij} - \bar{x} \right) \right]$$

10

The result of the above equation in the form of a positive index shows that regions of high value are surrounded by regions of high value (high-high), and regions of low value are surrounded by regions of low value (low-low). Negative index shows that regions of low value are surrounded by high-value regions (low-high) or vice versa.

Studying the changes in the spatial pattern of divorced people, we made use of relationship between the number of samples under study and the socio-economic variables affecting divorce such as unemployment, the percentage of female illiteracy, the percentage of women with higher education, employment of women, and the balance of immigration to distinguish deviation in relations among observations throughout counties. In order to distinguish changes in the spatial pattern in counties, two methods were used; Moran local bi-variate indicator and the LISA bi-variate index.

Investigating the relation between the percentage of male unemployment in urban areas and its impact on divorce, the relationship between the two variables was positive only in a limited number of counties, despite the overall index of spatial dependence –which indicates the high rate of male unemployment and divorce. The existence of a negative index around megalopolises shows the low impact, or in other words, the low male unemployment rate in these regions, and a deviation in the relations among observations throughout such counties from the overall pattern (overall spatial dependence) (Pic. 2).
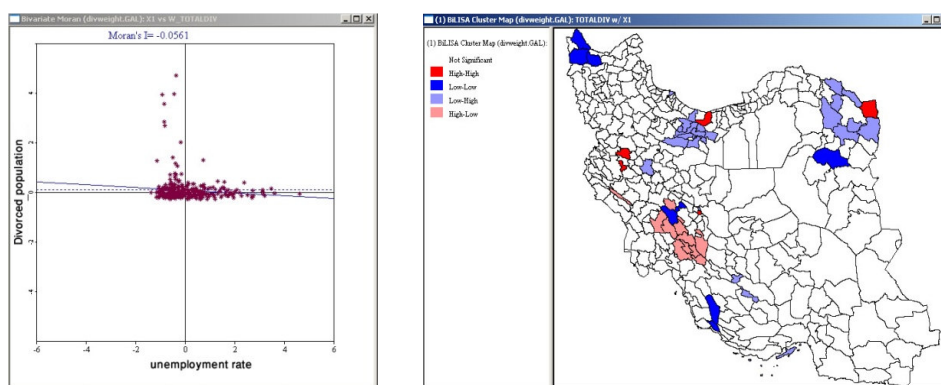
Picture 2. The Relationship between Male Unemployment Rate and Divorced Population

Examining the pattern of spatial changes in the relations between the divorced population and the balance sheet of immigration to cities, too, showed that places with a positive index of spatial heterogeneity are classifiable into two major groups; immigrant-sending regions with a low divorced population shown in picture 3 in the form of regions of low value (low-low), and immigrant-receiving regions, generally located around Tehran

with a significantly large divorced population shown in the form of regions of high value (high-high). In the rest of counties, a negative index in the relation between the variable of balance sheet of immigration and the divorced population indicates that being an immigrant-sender or receiver does not affect the quantity of the population under study.
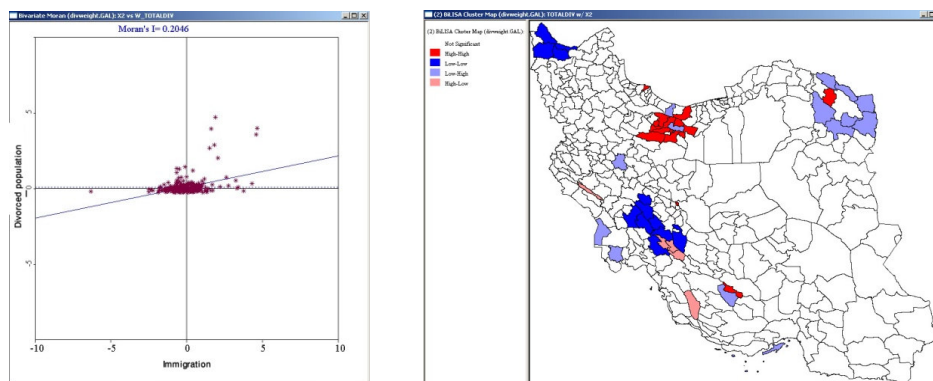
Picture 3. Relationship between Balance Sheet of Immigration and Divorced People

Studying the spatial changes in relations between the divorced population and the rate of illiteracy in counties, we found that regions with a positive index of spatial heterogeneity are limited to the north eastern parts of the country in urban region neighboring, such as Mashhad as a megalopolis, Soosanguerd, and Shadegan in Khuzestan province, Shahryar in Tehran province, Astane Ashrafie in Gilan

province, and Herseen in Kermanshah where the rate of female illiteracy exceeds 20% and the homo-directionality of illiteracy rate and divorce has resulted in a high spatial heterogeneity index for them. In this pattern, too, megalopolises of the country have the lowest rate of illiteracy, and despite the significant size of divorce, they are of a negative spatial heterogeneity index (Pic. 4).
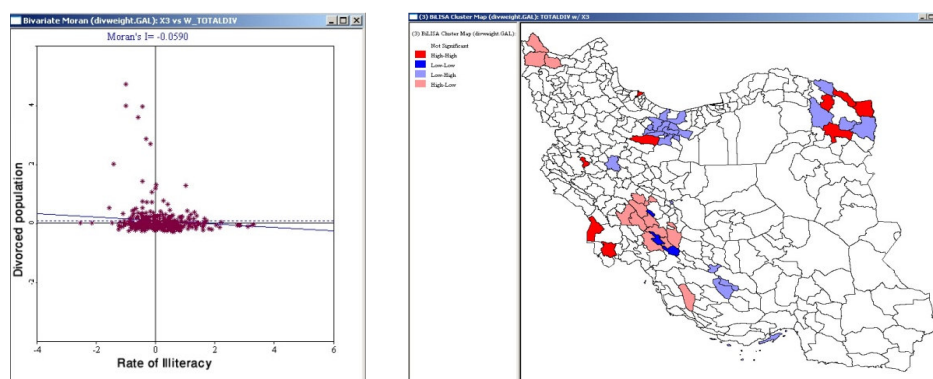
Picture 4. The Relationship Between Rate of Illiteracy and Divorce

Examining the spatial changes in relations between the divorced population and the female population with university education in counties, we found that regions of a positive spatial heterogeneity are generally in the capital or the neighboring areas, and parts of south-western region of the country. In other counties, too, independent areas were observable which had no significant relation with their neighboring parts. The higher education female percentage in 2006 in the whole country was 9.86% among literate women which does not show a significant difference compared to the ratio of national higher education rate (10.86%). However, counties with a positive heterogeneity index have a relatively low rate of women with university education compared to the national ratio (lower than 6%), in spite of the fact that some cities as Karaj and Tehran with a high percentage of women with university education are included in this group (Pic. 5).
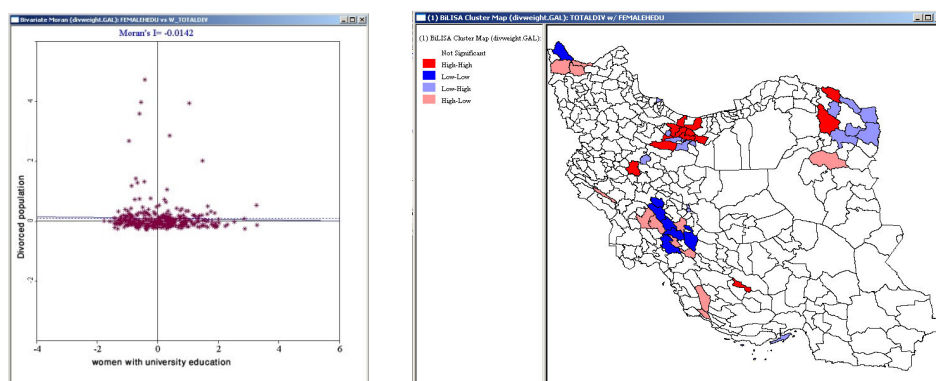
Picture 5. The Relationship Between Higher Education Female and Divorce Rate

Studying the spatial change pattern of relations between the divorced population and the rate of women's employment, two indices were used: 1. the share of employed women in the total employed population of the city; 2. the share of employed women in the total population of women who help the economy of their household. Results showed that regions of a positive heterogeneity index can be separated into two groups: the first group includes capital and neighboring urban areas, and the second one consists of the rest of counties located in north east and south west, and some others scattered throughout the country. The ratio of female employment to the total employed population of the country in the 2006 census has been 13.6%, and in the majority of counties with a positive heterogeneity index, the employment rate has been higher than the national ratio (Pic. 6).
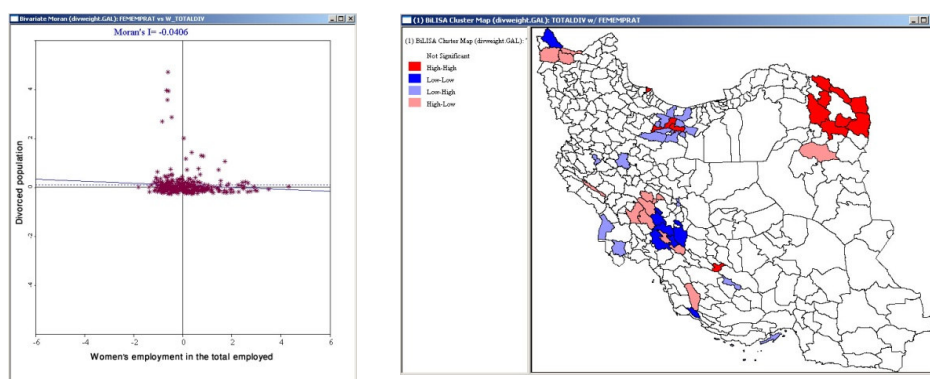
Picture 6. The Relationship Between % Women's Employments in Total Employed and Divorce Rate

14

As for the index of women's share of being employed in the total number of women who work for the economy of their household, regions with a positive index of spatial heterogeneity were generally located around two megalopolises of Tehran and Mashhad. Studying these spots shows that in these counties, more than 80% of the women who are known as helping the economy of their household are employed, and the existence of employment opportunities around these major counties and the significant number of divorced population presented in the form of regions of a high value (high-high) has caused a significant relationship between these two indices (Pic. 7).
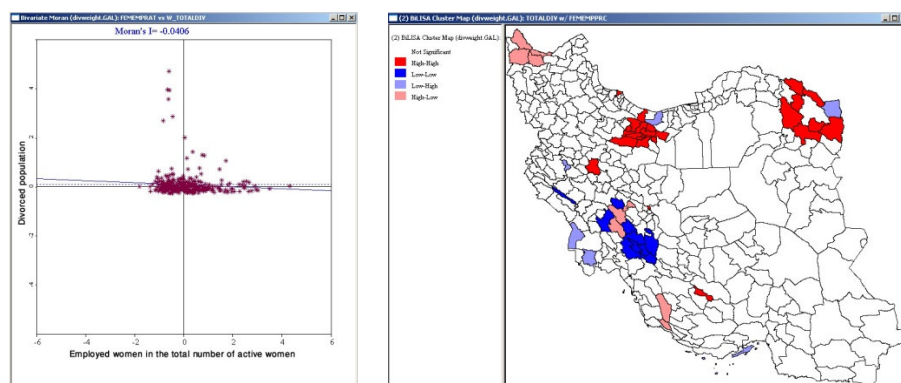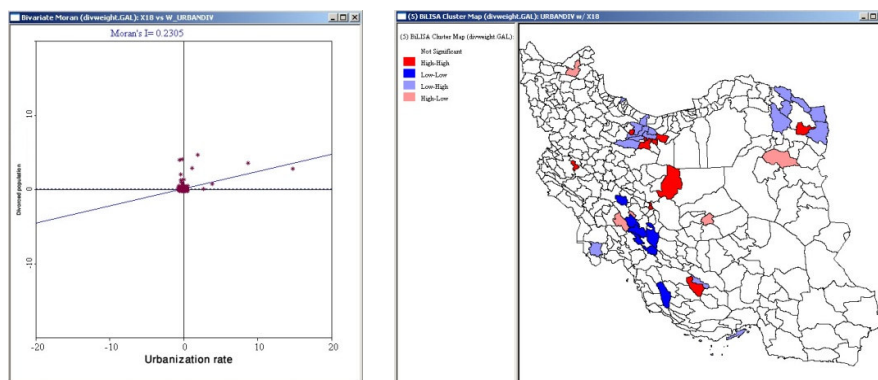

Picture 7. The Relationship Between Employed Active Women and Divorce

Investigating the relationship between the urbanization index and the divorced population too we found that the positive heterogeneity index was for Tehran as a megalopolis and the neighbors whose urbanization index are above 70%. A statistical study of this distribution, too, shows a significant (95%) relationship around megalopolises. Despite the macro-pattern, a study of the relationship between the urbanization index and the total population residing in counties shows a weak relationship between the two variables around megalopolises, and the positive relationship of heterogeneity in societies with a lower percentage of urbanization indexes is lower than national ratio (Pic. 8).
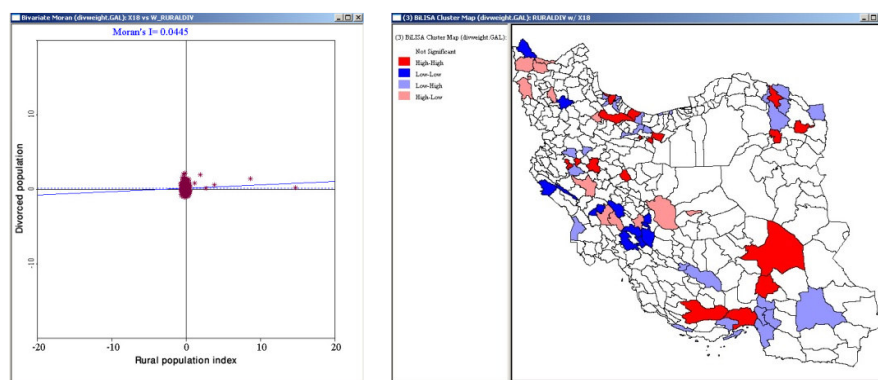
Picture 8. The Relationship Between Urbanization Index and Divorced People

There is another positive index of heterogeneity in the southern parts of the country with a decrease in population due to immigration - Hormozgan and Sistan Baluchistan - and some counties scattered in the country which are of lower urbanization compared to the former cluster. In evaluating the relationship between the percentage of population residing in counties and the divorced population in villages, it appeared that counties and immigrant-sending areas are of a positive index of heterogeneity in the sense that the increasing rate of divorce in villages is due to their immigrant-sending nature (Pic. 9).

Picture 9 The Relationship Between Rural Population Index and Divorced People

Conclusion

Results of the present study yield several important findings. Related studies about the causes of divorce provide main factors that express overall results for total counties. Unemployment, increasing

education level in female especially graduate and postgraduate, female employment, immigration and urbanization index are the main factors affecting divorce in social science research results.

Besides showing spatial distribution of divorce in the county level, this study specified main factors affecting different counties. Although unemployment and high urbanization index have a grater influence in metropolitan areas than in other regions, they do not affect the divorce rate. This finding shows that crisis in values in transition region such as metropolitan areas, which are in a condition of moving from their traditional patterns towards modernization, leads to the divorce rate. The increase in female education level as well as female employment is more than national mean and is related to increasing divorce in metropolitan areas. Illiteracy and immigration are other factors that affecting divorce in undeveloped and low density counties. High rate of illiterate and unemployed people in immigrant counties have a relationship with the population

without a marriage partner due to divorce.

Finally, the use of techniques in spatial analysis and GIS to investigate the characteristics of the divorced population throughout Iranian counties indicate that different factors have been affecting different regions.

References

[1] Ahmadi, H., (2008), *Sociology of deviance*, SAMT press, Tehran.

[2] Anselin, L, (2006), Exploring spatial data with Geoda: A workbook, spatial analysis laboratory department of geography, University of Illinois, center for spatially Integrated social science.

[3] Burgess, S., Propper, C.,&Aassve, A. (1997), "I vont to be alone," Transitions to independent living, marriage, and divorce among young Americans. Centre for Economic Policy Research, Discussion Paper: 1715, 28.

[4] Cliff, AD. Ord, JK, (1981), Spatial processes: models and applications. London, Pion.

[5] David L. B and Other (2002), Effect of Motor Vehicle Emissions on Respiratory Health in an Urban Area, University of Toronto, Toronto, Ontario, Canada, *Environmental Health Perspectives*, 110(3).

[6] Ermisch, J. F. (1986). The economics of the

family: Applications to divorce and remarriage. Centre for Economic Policy Research, Discussion Paper: 140.

[7] Finnas, F. (2000), Ekonomiska faktorer och aktenskaplig stabilitet i finland. Economic determinants of divorce in Finland (with English summary). *Ekonomiska Samfundets Tidskrift*, 53(2): 121-31.

[8] Fotheringham, A.S., Brunsdon, C. Charlton, ME. (1998), Geographically weighted regression: a natural evolution of the expansion method for spatial data analysis. *Environment and Planning* A 30:1905–27.

[9] Getis, A. Ord, JK, (1992), the analysis of spatial association by use of distance statistics. *Geographical Analysis* 24:189–206.

[10] Jahangiri, J. (2010), Review on social fundamentals of female pathology with emphasis on divorce, female Social Pathology Conference, Tehran.

[11] Kameli, MJ. (2007), Factors affecting divorce in Iran, *Daneshe Entezami Journal*, 9(3): 180-198.

[12] Kiernan, K., & Mueller, G. (1998), The divorced and who divorces? STICERD (LSE) Centre for Analysis of Social Exclusion, Discussion Paper: CASE/07 May, 40.

[13] Lee .j , Wong .D.W.S, (2000), *Statistical Analyst with ArcView GIS* , John Wiley & Sons, Inc Publication , New York , ISBN: 0-471-34874-0.

[14] Lester, D. (1999). Regional differences in divorce rates: A preliminary study. *Journal of Divorce & Remarriage*, 30(3/4), 121-4.

[15] Ludwig F. Lowenstein (2005): Causes and Associated Features of Divorce as Seen by Recent Research, *Journal of Divorce & Remarriage*, 42:3-4, 153-171.

[16] Mosavati Azar, M. (2006), Rural immigration and divorce tendencies, *Population Journal*, 5(15&16): 40-49.

[17] Ogawa, N., & Ermisch, J. F. (1994), Women's career development and divorce risk in Japan. *Labor*, 8(2), 193-219.

[18] Poortman,A. R.,&Kalmijn,M. (2002), Women's labor market position and divorce in the Netherlands: Evaluating economic interpretations of the work effect. *European Journal of Population*, 18(2), pp. 175-202.

[19] Qiasi, P. et all, (2009), An investigation into the social causes of divorce in Shiraz, *Journal of Women and Society*, 1(3): 77-103.

[20] Qotbi, M. et all, (2004), Study of divorce status and some effective factors on divorce in divorced individuals in Dowlatabad, *Social Welfare journal*, 3(12): 271-286.

[21] Rahimi, H. (1999), An investigation into the reasons for divorce in Khorasan province, *Population Journal*, 8: 33&34.

[22] Riahi.M et all, (2007), Sociology analysis

of couples divorce and separation, *Pazhohesh Zanan*, Vol 5, No. 3: 109-144.

[23] Rogerson. P, Yamada.I (2004), Monitoring change in spatial patterns of disease: comparing univariate and multivariate cumulative sum approaches, *Statistics in Medicine*, 23: 2195–2214.

[24] Ruggles, S. (1997), The rise of divorce and separation in the United States, 1880-1990. *Demography*, 34(4): 455-466.

[25] Seifollahi, HA. (1994), an investigation into reasons for divorce in Tehran city by factor analysis, *Journal of Social Sciences*, 3: 141-153.

[26] Statistical Center of Iran (SCI) (2008), , *General Report of 2006 Census*, Tehran.

[27] Waters, M. S., & Ressler, R. W. (1999), An economic model of cohabitation and divorce. *Journal of Economic Behavior & Organization*, 40(2), 195-206.

[28] Tobler, W, Frame (1990), *Independent spatial analysis*, , Taylor & Francis, London.

[29] Wei-Shiuan Jeng & Patrick C. McKenry (2001), A Comparative Study of Divorce in Three Chinese Societies, *Journal of Divorce & Remarriage*, 34:1-2,143-161.

[30] Zargar, F., Neshatdost, HT. (2007), An investigation into factors affecting divorce in Falavarjan County, *Journal of Family Research*, 3(11).

[31] Zhang, P. et al, (2011), An exploratory spatial analysis of western medical services in republic Beijing, *Applied Geography*, 32: 556-565, doi:101016/j.apgeog. 2011.07.003.

بررسی عوامل اجتماعی و اقتصادی موثر بر طلاق با رویکرد تحلیل اکتشاف فضایی داده‌ها مطالعه موردی: جمعیت بی‌همسر بر اثر طلاق در نمونه شماری سرشماری عمومی نفوس و مسکن ۱۳۸۵

علی گلی[1]

افزایش آمار طلاق در ایران در طی سال‌های اخیر، مسئولان، محققین و کارشناسان علوم اجتماعی را به بررسی علل و عوامل موثر در شکل‌گیری طلاق به عنوان یک آسیب اجتماعی سوق داده است. براساس آمارهای منتشر شده؛ مرکز آمار ایران نرخ طلاق از ۱.۵ در هزار در سال ۱۳۷۵ به ۲.۳ در ۱۳۸۰ و ۳.۱ در ۱۳۸۵ افزایش یافته است.

نتایج مطالعات انجام شده نشان می‌دهد که عواملی چون اختلاف سنی و تحصیلاتی زوجین، فرزند، اشتغال زنان، اعتیاد و عدم رعایت اصول اخلاقی از مهم‌ترین علل موثر در طلاق است. مطالعه حاضر با نگرشی متفاوت نسبت به تحقیقات انجام شده، به بررسی وضعیت اجتماعی — اقتصادی افراد مطلقه در کشور می‌پردازد. در این پژوهش که از حیث هدف تحلیلی محسوب می‌گردد، تلاش شده با استفاده از تکنیک تحلیل اکتشاف فضایی داده‌ها ، قواعد و روابط بین متغیرهای شخصی و شغلی افراد مطلقه شناسایی گردد. نمونه آماری مطالعه حاضر ۶۴۰۰ نفر از کلیه افراد مطلقه در سطح کشور که در نمونه‌شماری ۲۰ درصدی سرشماری عمومی نفوس و مسکن ۱۳۸۵، وضع زناشویی خود را بی‌همسر بر اثر طلاق عنوان نموده‌اند(۳۹۲۰۷۵ نفر) می‌باشند. نمونه فوق

---

۱. استادیار بخش جامعه شناسی و برنامه ریزی اجتماعی، دانشکده علوم اجتماعی، دانشگاه شیراز goli@shirazu.ac.ir

در قالب سهم جمعیت مطلقه (زن و مرد) در سطح ۳۳٦ شهرستان کشور بررسی شد.

نتایج این بررسی نشان داد که افزایش سطح تحصیلات و اشتغال زنان از مهم‌ترین ویژگی‌های زنان مطلقه می‌باشد که این امر در شهرستانهایی که با افزایش میانگین سطح تحصیلات و اشتغال زنان مواجه بوده‌اند، معنادار می‌باشد. بالعکس پایین بودن سطح تحصیلات، بیکاری و محل فعالیت از ویژگی‌های غالب در بین مردان مطلقه محسوب می‌گردد. بررسی الگوی توزیع فضایی آمار مردان و زنان مطلقه در مناطق شهری و روستایی نیز نشان دهنده شکل‌گیری پهنه‌های مجاور از جمعیت مطلقه شهری در نواحی مرکزی کشور و جمعیت مطلقه روستایی در جنوب و جنوب‌شرق و شمال کشور می‌باشد.

واژگان کلیدی: طلاق، آسیب اجتماعی، تحلیل اکتشاف فضایی داده ها، شاخص موران، شاخص جتیس.