

Full Length Research Paper

Studying the effective factors which affect on economical growth

Mirnaser Mirbagheri^{1*} and Namiq Tagiev²

¹Department of Economics, Payame Noor University of Ardabil, Ardabil, Iran.

²Professor of Mathematics, Economics Department, Baku State University, Baku, Azerbaijan.

Accepted 7 July, 2009

Investigating the effective factors which affect economic growth is important for most economists. Although lots of studies have been done on economic growth in the world, it gets little attentions in Iran. In this article, by estimating growth regression, we try to investigate the supply side economic growth of Iran. This study identifies the rate of enjoyment of each province concerning possibilities, facilities, and public services through gathering different social, economic, cultural, public indicators, benchmarks and through identifying the deficiencies and shortages to separate the priorities for investment and development for each province

Key words: Well-balanced development, economic growth, economical factors, human capital regional planning, social justice.

INTRODUCTION

The interest and the need to organize sound processes to arrive at shared understandings and agreements on what to do and how to proceed to promote development within a community, point out a reality that needs to be addressed with the best possible methods. On every field, planning is an inseparable part of the life and it is considered as a product of thought, art and wisdom of human beings. The necessity for using different kinds of planning for economic, social and frame development of modern societies is the subject about which most papers have been written.

On the field of modern economy and technology, those nations are successful that take adequate advantages of comprehensive planning and different kinds of designing. Thus, collecting and using different kinds of basic regional and local planning is an inevitable necessity. (Sarraf, 1998; Ziari 1999).

Economic growth is the most important index among the macroeconomic variables. This variable has been considered as an economical index of government, and its increasing rate shows the welfare condition of the

society. Thus, applying suitable economical policies, and recognizing effective factors in economic growth, has always been more important for politicians and economists. Because forecasting economic growth seems to be one of the main parameters of decisions for governmental and private-sector programmers, in addition to recognizing effective factors in growth, creating and forecasting different mathematical and statistical models have been more important for economists.

The present research is an investigation about analyzing economical growth and regional planning, and the writer hopes to take some useful, although small, steps regarding the regional studies till by reformulating and distributing resources provide the best economical situation. In order to reach to the scientific and acceptable conclusions, this study tries to compare economic possibilities and resources in different regions of the country as well as its welfare in 2006 and 1976.

OPERATIONAL DEFINITION OF THE CONCEPTS

Economic growth: The change of rate GDP

Development degree

High-level enjoyment of a region concerning a situation

*Corresponding author. E-mail: Mirbagheri_Hir@yahoo.com.
Tel.: 00994504490428.

has taken place, in comparison with other under-study regions. Here the amount of development degree has always been between 0 and 1, and the more it approaches to 0, the more the province is close to the ideal one and vice versa.

Region

Region is a restricted area in the frame of political divisions inside the country, and in this research the province is the unit of the region.

Inequality

It is a partition of degree of development in regions and its amount ranges between 0 and 1.

Regional Inequality

It is unbalanced distribution of social and economic possibilities and services at the level of regions (provinces) of the country.

LITERATURE REVIEW

Nili, (1997) has been said; one of the main national expenses is investment. After increasing oil prices (in 1963), the process of actual investment in GDP had increased the rate of this economic growth process. This process had decreased after the mentioned periods, but it increased after 1988. In general, this process had been fixed in 1959. One of the main parts of investment is private sector investment and it takes 50 percent of total investment. The main effective factor of economic investment is increasing GDP. On the other hand, the investment of each period lead to increasing amount of production in the following periods. It means that, by passing time, these two variables strengthen each other. Thus, in order to reach to stable internal growth, it is better to remove factor such as inflation which has negative effect on production as well as investment.

Another study bearing the title of "comprehensive perception" in planning for regional development of Yazd province, by "Feiz Pour (1976)" has taken place. In this study in which numerical taxonomy method has been used, provinces of the country have been ordered using the census of 1976. Results from this study show that Tehran bears more distance in comparison with other provinces regarding the rate of development.

Amir Ahmadian has done a study titled "The rate of development of provinces and the national harmony in Iran" using the coefficient absolute value method which shows that Tehran province has gained the first place and Sistan and Baluchestan province the last one.

HYPOTHESES

It seems that the rate of development (welfare level) in provinces in 2006, in comparison with the year 1976 has been increased (Tables 1 and 2).

THE OBJECTIVES OF THE RESEARCH

Description of the economic, social and cultural conditions of macro system of the country and regions in order to make clear the developed and developing regions for planning for the reduction of economic, social and cultural inequalities and achieving the regional balance (Anonymous, 1983).

RESEARCH METHOD AND ITS EXECUTIONAL PROCESS

Research method

Estimating the theoretical basis of economic growth

On the bases of previous experiences and theories, we can divide the effective variables of economic growth in Iran into 8 parts: 1) investment and physical capital, 2) labour power, 3) labour capital, 4) business, 5) credit and money variable, 6) inflation, 7) government, 8) political situation. For studying the effect of mentioned factors on economic growth, it is better to choose, and test a variable which match with the economic structure of Iran (Mirnaser, 2008; Mirnaser and et al, 2009).

In this part, we will show the Solow model which has been used by economists for growth studying and this is the starting point for analysing growth. This model consists of four variables: (A, L or N, K, and Y) (Romer, 1958).

Designing economic growth model

By investigating and analysing economic structure of Solow production function which was mentioned in formula (1)

$Y_t = A(t). F(K_t, N_t)$, we change it according to the economic condition of Iran as follow:

$$y_t = A(t).f(k, L(or)N, cg, x, p(or)cpi, D) \quad (2)$$

In this formula, y_t or GDP_t stands for gross domestic product, K stands for capital, L or N stand for labourer's power, cg stands for the consuming expenses of government (human being capital), X stands for exportation, p or cpi stands for inflation, and DUM stands for dummy variables.

After differentiating, the mentioned formula appears as follow:

$$\frac{\Delta y_t}{y_{t-1}} = \frac{\Delta A(t)}{A(t)} + A(t) \cdot \frac{\partial f}{\partial N} \cdot \frac{\Delta N_t}{y_{t-1}} + A(t) \cdot \frac{\partial f}{\partial k} \cdot \frac{\Delta k}{y_{t-1}} + A(t) \cdot \frac{\partial f}{\partial x} \cdot \frac{\Delta x}{y_{t-1}} + A(t) \cdot \frac{\partial f}{\partial (cpi)} \cdot \frac{\Delta (cpi)}{y_{t-1}} + A(t) \cdot \frac{\partial f}{\partial D} \cdot \frac{\Delta D}{y_{t-1}} \quad (3)$$

This formula also can be written as follows:

$$GGDP = a_0 + a_1 Dk gdp + a_2 DL gdp + a_3 Dcggdp + a_4 Rx + a_5 cpi + a_6 DUM \quad (4)$$

Table 1. Final taxonomy and development grade of the provinces in 2006.

Provinces' names	Rate of development	Grade
East Azerbaijan	0.765	8
West Azerbaijan	0.877	20
Ardabil	0.881	21
Isfahan	0.668	2
Ilam	0.888	23
Booshehr	0.873	18
Tehran	0.670	3
Chahar Mahal and Bakhtiari	0.787	11
Khorasan	0.803	13
Khoozestan	0.876	19
Zanjan	0.793	12
Semnan	0.678	4
Sistan va Baloochestan	0.993	28
Fars	0.782	10
Qazvin	0.776	9
Qom	0.808	14
Kordestan	0.917	26
Kerman	0.828	16
Kermanshah	0.857	17
Kohkilooyeh va Booyer Ahmad	0.959	27
Golestan	0.883	22
Gilan	0.739	5
Lorestan	0.894	24
Mazandaran	0.748	6
Markazi	0.759	7
Hormozgan	0.897	25
Hamadan	0.814	15
Yazd	0.595	1

Source: (Anonymous, 2005; 2006a,b)

According to the statistical data of 1959 and 2001, equation 4 has been explained as follows:

- GGDP: Non-oil-gross domestic product growth
- DLGDP: The ratio of labour power variation to GDP
- DKGDP: The ratio of stuck capital variation to GDP
- DCGGDP: The ratio of changing consuming expenses of government to GDP (human being capital)
- RX: Non-oil exportation growth
- CP1: The ratio of inflation
- DUM: The dummy variable which stands for political instability.

In this research, regarding the development, Tehran is very different from other provinces. And other hand, In this research, SPSS software has been used for "factor analysis" and "cluster analysis" (Figure 1).

DISCUSSION AND DATA ANALYSIS

According to different regressions and introduced variables, the best models have been chosen as follows (the common criteria were based on R^2 , the ratio of F

and the significant relationship of coefficient):

$$(5) \quad GGDP = 0.042 + 0.016DLGDP + 0.319DKGDP + 0.010DCGGDP$$

$$t = \quad (2.59) \quad (2.24) \quad (3.21) \quad (2.08)$$

$$+ 0.001RX - 0.001cpi - 0.035DUM$$

$$(5.32) \quad (-2.45) \quad (-2.56)$$

$$R^2 = 0.84 \quad R_a^2 = 0.82 \quad DW = 1.65 \quad F = 32.53$$

F (White heteroskedasticity test) = 1.14
 F (LM Test) = 0.54

Credibility of the model

As can be seen, there is a certain expected coefficient. R^2 shows that 84% of economic growth variable changes

Table 2. Final taxonomy and development grade of the provinces of the country using the statistics of 1976. Mohammad Ali Feizpoor. (quoted from the resource No. 16).

Provinces' names	Rate of development	Grade
East Azerbaijan	0.789	12
West Azerbaijan	0.801	13
Isfahan	0.654	2
Ilam	0.930	23
Booshehr	0.832	16
Chahar Mahal and Bakhtiari	0.843	17
Khorasan	0.772	10
Khozestan	0.687	3
Zanjan	0.876	20
Semnan	0.742	7
Sistan va Baloochestn	0.912	21
Fars	0.721	6
Kordestan	0.861	19
Kerman	0.747	9
Kermanshah(Bakhtaran)	0.773	11
Kohkilooyeh va Booyer Ahmand	0.923	22
Gilan	0.710	5
Lorestan	0.825	15
Mazandaran	0.742	8
Markazi	0.367	1
Hormozgan	0.858	18
Hamadan	0.805	14
Yazd	0.689	4

In this research, regarding development, Tehran is very different from other provinces.

have been explained by the independent variables. This criterion which is a static model has been considered as a good coefficient. D.W and LM test shows that there is not significant relationship between disturbing elements. In other word, By LM –Barivesh-Gadferi test, there is not significant relationship between them.

F shows that regression itself is very important and according to Heteroskedasticity test there is variable coefficient between them. The important point which has been concluded in this research is that there is not significant relationship between DUM and economic growth in mentioned periods. The long term relationship shows that the stuck capital variable coefficient is equal to 0.319, i.e. by increasing one billion Riyals investment, gross national product is also increased by 0.319. Here, the coefficient of labour power is 0.016.

The results show that, in Iran, the effect of physical capital on economic is greater than the labour power. In other word, for producing a unique production in macro-economic, investment has more effect on production than labour power. In this model, the effect of human being capital (consuming expenses) is 0.01. Although educational and health expenses are considered as one part of common expenses of government and the main part of human capital, they are also considered as productive

expenses. However, the results show the positive effect of human being capital (common expenses of government) on economic growth and production.

Adding up the achieved results from the data analyses and comparing results in 2006 with the results from maiden studies in 1976, (Tables 1 and 2) and others (Figures 2 and 3), clearly expresses that:

1. Regional inequalities have been reduced, in other words, development rate of the first province(Yazd) with figure (0.59) bears less difference from that of development rate of the last one (Sistan va Baloochestan) with figure (0.99) in comparison with similar figures in 1976, and this can be due to the policies of unbalanced development.
2. It can also be said that the welfare level in 2006 in comparison with 1976 shows a reduction because the rate of development in Yazd (0.59), and Isfahan (0.66) provinces, with grades first and the second, respectively, and also the rate of development in Sistanva Baloochestn (0.99), Boyer Ahmad (0.95), and Kordestan (0.92) provinces with the last grades in comparison with similar figures in 1976 has considerably increased, and this shows that the welfare and enjoyment level in 2006 compared with 1976 has reduced. Data analyses also shows

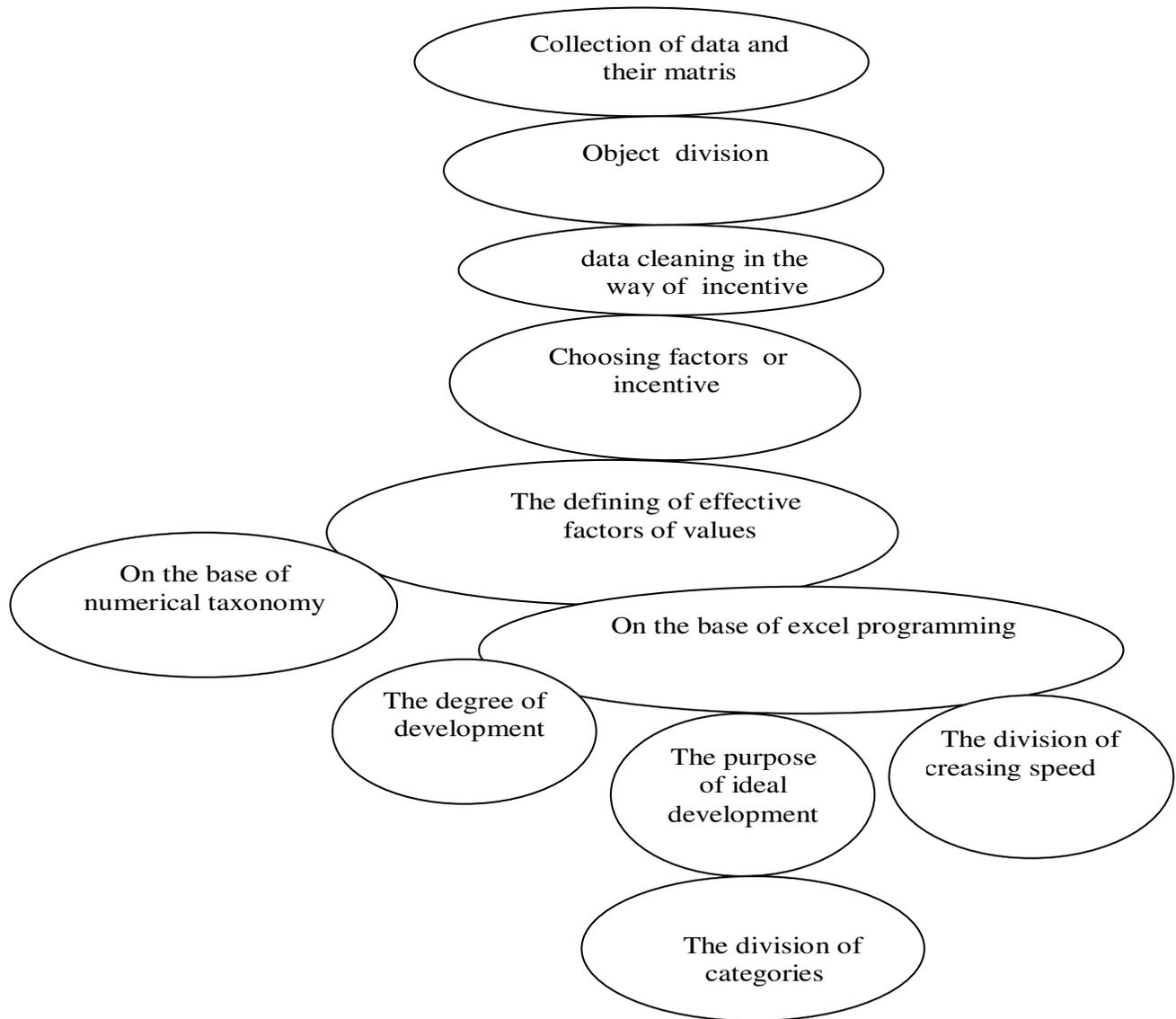


Figure 1. The process of data analysis.

analyses also show that most of the border provinces are among the deprived and underdeveloped provinces (Map Iran; Figure 4).

Conclusion

For investigating the procedures of each economic system, we consider some indicators. One of these indexes is the actual gross domestic product (G.D.P) which shows the total economic activity of the country. By the actual gross domestic product index, we can determine the ratio of the process of progression, depression, and economic recession. In fact, this index shows the productive processes of goods and services.

The long-term estimated results can be shown as

follow: the variable coefficient of stuck capital is equal to 0.319, the dummy variable coefficient is -0.035, the variable coefficient of labour power is 0.016, the variable coefficient of human being capital is 0.01, the variable coefficient of export is 0.001 and the variable coefficient of inflation is -0.001.

The forecasted results of this research show that the annual growth of Iran is about 7.12. In fact, this mount is 1.24% which is greater than the medium annual growth i.e. 5.88, and it is matched with the first two-year of fourth program. Furthermore, all the forecasted criteria have accepted this result and all of the tests prove it.

The achieved result shows that among the third-world countries together with increase in enjoyment and welfare, the rate of inequality is increased and with welfare reduction the rate of inequality is reduced. So,

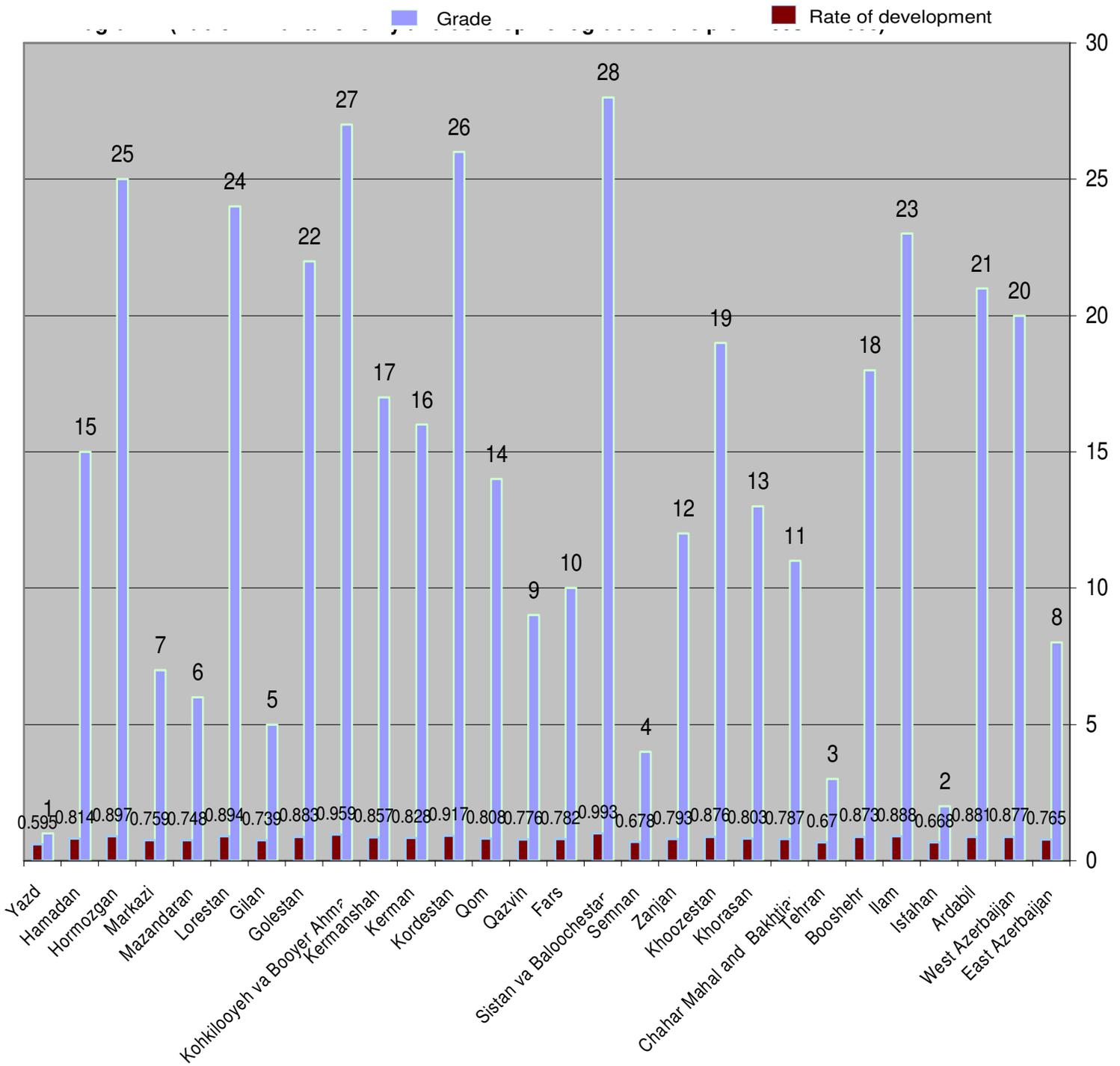


Figure 2. Final taxonomy and development grade of the provinces in 2006.

regarding the comparative results and by studying the power and weak points of the above said process, it is necessary for policymakers and programmers to consider some programs in order to increase the welfare level and

reduce the regional inequalities. Analysis also show that in 2006 in comparison with the year 1976 despite the reduction in welfare level of the society, regional inequalities have been reduced and increase in welfare

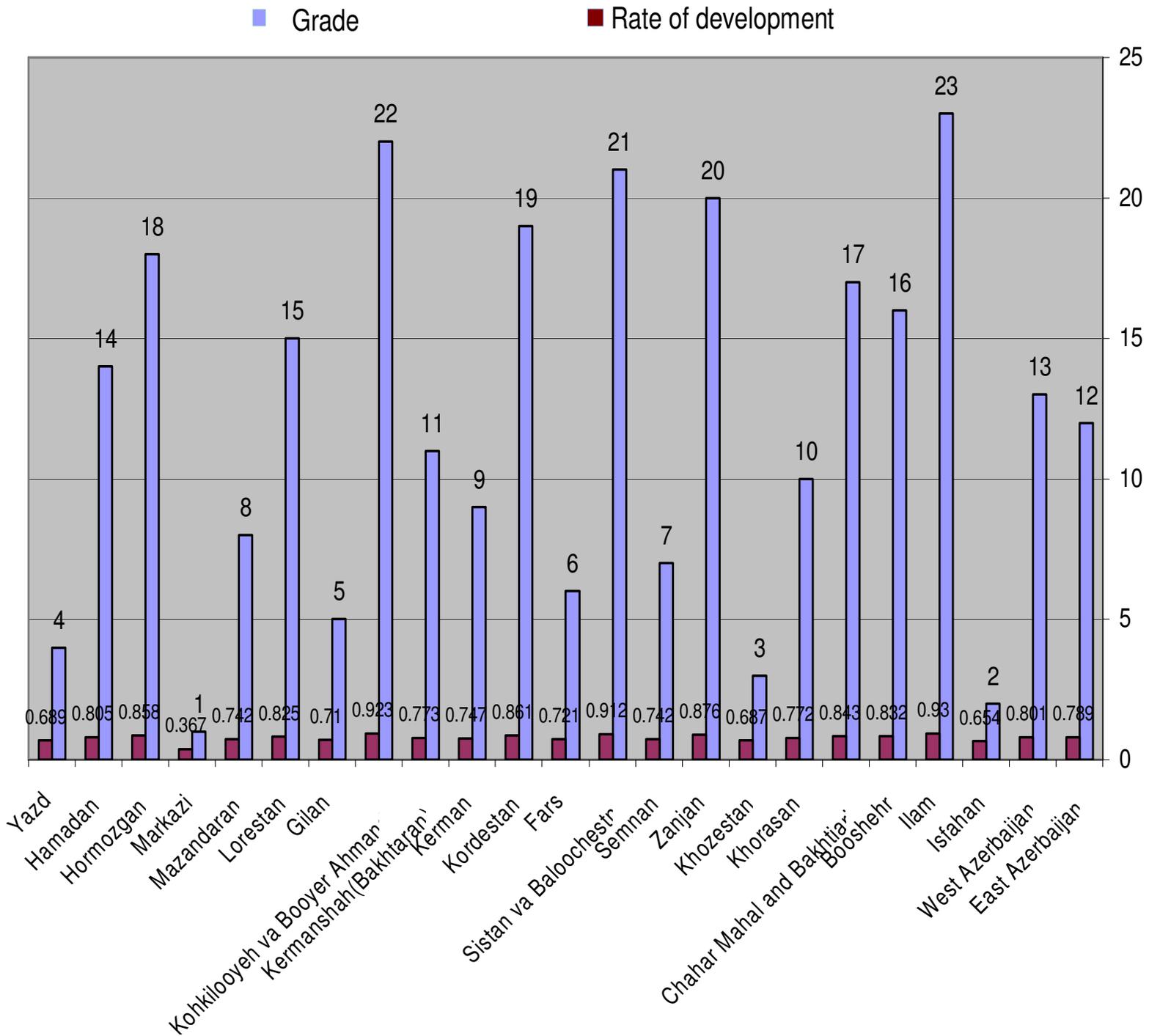


Figure 3. Table 2-final taxonomy and development grade of the provinces of the country using the statistics of 1976.

level and its just distribution, which have always been objectives of regional planning, have not completely been realized. Thus, a revision is necessary in executing the regional planning in and accurate manner, and its operational techniques should be considered in all programs. In this case the aforesaid process will be led to its required and ideal level.

PROPOSALS

Regarding the achieved results from this research some proposals are offered as follows:

1. Creating some situations that are required for private investment in underdeveloped regions and undesired for



Figure 4. Map of Iran.

similar investment in developed regions (promotional and exciting policies of the government for investment in deprived regions and creating barriers for investment in prosperous regions).

2. Using special policy for world-wide businesses that is, application of exceptional subsidiary in undeveloped regions.

REFERENCES

Anonymous (1983). The first program of economic, social and cultural development of the country (1989-1993). Tehran, plan and budget organization of the country.

Mirnasar M (2008). Analysis Factors influencing on the Economical development , Physic -Mathematical Sciences Series , BDU, 4 , PP. 90-96.

Mirnasar M, Tagiev N (2009). Reviewing and Analyzing the Economic growth and Economic structure of Iran, Transactions of National Academy of Sciences of Azerbaijan series of Economic , 1 , pp. 126-130.

Nili M (1997), "Economics of Iran". Tehran, planning and budgeting organization. Research institutions, 490 P.

Romer D (1958) The developed macroeconomic. Translated by Mehdi Tagavi. Tehran, Islamic Azad University, Research and Scientific branch. 1: 4-6.

Ziari K (1999). Principles and methods for regional planning, Yazd, Yazd University.

Sarrafi M (1998). Foundations of regional development planning, office of regional logistics and planning, Tehran, plan and budget organization.