Investigating Factors Affecting Income Distribution
(Case Study: Income Distribution during the Third and Fourth Plan of Economic Development in Hormozgan, Iran)

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ABSTRACT

Now a day, making improvement in the areas like income distribution, fighting against poverty, and reducing inequalities are among leading objectives of governments to the extent that success in reducing inequalities of income distribution is regarded as a success criterion in every economic system.

Studying income distribution may be divided to two aspects: first, "personal" or "sized" distribution, that is the amount income (independent of its source) every individual or group devote to themselves. Second, income distribution based on "production factors" through which share of each production factor is studied (work force, capital, management, land, etc.).

In this study, personal income (income distribution between individual and families) in units of urban and rural areas of Hormozgan province is investigated using Gini coefficient as a criterion during third and fourth Plan of development. Gini coefficient is calculated according to income units (paid employee in terms of by public, private and cooperative sectors) self-employed jobs (agriculture and non-agriculture) and miscellaneous income) Gini coefficient of expenses (in terms of food and non-food items) during the two Plans (2000-2009) then its changes are analyzed. Results obtaining from this analysis suggest more inequality in expenses and income distribution during the third and fourth Plan.

KEYWORDS: Income Distribution, Gini Coefficient, Hormozgan, Households's expense and income

1- INTRODUCTION

Now a day, making improvement in the areas like income distribution, fighting against poverty, and reducing inequalities are among leading objectives of every developmental Plan and it is one of the main responsibilities of governments to the extent that the status of income distribution of each society is regarded as a success criterion in every economic system.

In studying income distribution, distinction is to be made between two different aspects: first, "personal" or "sized" distribution of income; that is an amount of income (independent of its source) devoted to each individual or group. Second, income distribution based on "production factor" or share of production factors through which one can study the share of each factor (workforce, capital, land, management, etc.) of production (Todaro, 1994: 139, 145). Generally, economic theoreticians are interested in the second type of income distribution while economic development experts are more interested in the former one, i.e. personal distribution of income. The present study concentrates on personal income distribution (between family and individual) in units of urban and rural areas.

The main objective of this study is to see whether or not more equality is applied upon income distribution in Hormozgan during the third and fourth Plan of development. In this regard, previous studies in this ground will be reviewed at first. In part two, income distribution status of Hormozgan is compared with otherregions of the country. In its following section we will examine the method of calculating criterion of expenses and income distribution. In part four, Gini coefficients will be calculated and analyzed in terms of components of income and households' sources of income in the province under study (Hormozgan). Finally, findings and recommendations for the future study will be presented.

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2- LITERATURE REVIEW

2-1 Income Distribution Studies inside the Country

Arsalan Bod (2000) investigates goods and services distributions among households in two different aspects: a) distribution trends of consumption between urban and rural families and, b) changes in distribution of consumption material among urban and rural families of different countries. He concludes that, compared to rural families, urban households' expenditures had downward trend during 1965 to 1996; however, the gap is still large. Calculating Gini coefficients of 1986 to 1996 suggests that the index value has increased in 9 provinces and decreased in 15 provinces of rural areas of the province. Also, Gini coefficients has increased in 6 regions and decreased in 17 regions of urban areas.

Mahmoudi (2004) examines changes in income distribution during the first Plan of development in which he concludes that there is a large gap between levels of distribution in urban and rural areas. The first Plan, also, demonstrates increasing inequalities of income between urban and rural areas.

Abunouri and Khoshkar (2005) try to examine affecting factors of inequality across the country using simultaneous equations. Their findings indicate that tax revenues in relation to gross domestic products, inflation, and government expenditures have positive impact on inequality.

ZakerHanji (2007) investigates income inequality in Iran making use of three indices of Gini coefficient, Atkinson, and Tile, during 1984-2004. Finally, he argued that the highest level of inequality in urban areas belongs to 1987, 1990, and 1991, while the lowest levels of inequality occurred in 2003 and 2004. On the other hand, the highest and lowest levels of inequality belongs to 1986- 1990- 1991, and 2003 - 2004, respectively.

Ghafari (2008) compares income distribution status of Markazi with other provinces of the country. Results are indicative of the fact that level of inequality between urban and rural areas of this region is lower than other provinces of the country.

In "Reviewing and Estimating Gini Coefficient in Iran", Jalali (2008) introduces a generalized index for Gini coefficient in order to better analyze income distribution all over the country. According to this criterion, in 2004, transportation and tobacco had the highest and lowest shares of income, respectively, in calculatingGini coefficient.

Raghfar and Ebrahimi study Iran's inequality of income during 1984 – 2006 using Gini coefficient, coefficient of variation, relational mean deviation coefficient, Tile and Atkins indices. Despite having so many ups and downs during this period, their finding suggests that computational indices had a downward trend, expect for the last two years.

In a study carried out by Shahikitash and Dehghani (2008), changes in income distribution is investigated in Iran during the Plans of development. In doing so, they used Gini and Tile coefficient, the ratio of tenth decile to the first decile, the focus ratio of four top and bottom decile to the average households as a criteria in three time periods: 1969 – 1979, 1979-1988, 1989 – 2004. Their research suggests that most inequality indices have had upward trend until 1982, since then it has demonstrated a downward trend until 2004.

2-2 Review of Literature: Income Distribution in Hormozgan

"Investigating Income Distribution Based on Gini, Atkinson, and Tile Coefficient in Hormozgan" is a research carried out in 1999 by Moghiminia. In his study, he tries to calculate indicators of income distribution of urban and rural areas of Hormozgan, in 1995. According to this study, Gini coefficient for rural and urban areas equals to 0.37 and 0.38, respectively; which is indicative of almost equal distribution of income in rural areas. As the study shows, other indices are more or less the same. With refer to the findings of this study, Moghiminia concludes that the economic situation of households in Hormozgan has improved during 1991-1997. Also, income distribution in areas under study was more equal than the rest of the country.

In another study, Yazdan Panah and Sotoudenia (2006) try to calculate Gini coefficient for urban and rural areas of the province during the third Plan of development. Results suggests more inequality in the years under study. Meanwhile, because of employing third Plan policies, income distribution improves a little better across the country.

Research department of Statistical Center of Iran (2010) study poverty threshold of Iranian households, during 2005 – 2008, which was called "Studying Poverty and Its Indices in Hormozgan". The outcomes of this study indicate that, in comparison with 2005, poverty gap has increased in 2008. What is more, the gap in urban areas is larger than rural regions. Also, the rate of poverty has increased in the years under study in both urban and rural areas.

While using experiences of previous studies to better analyze changes of income distribution, the current study estimates Gini coefficient for different expenditure (divided by food and other items), income sources (paid salaries, self-employed jobs, etc.). This division aids us to better explain reasons behind changes in income distribution.

3- Income Distribution in Hormozgan

The way of distributing income determines level of per capita welfare. It may happen that lower per capita income with more equal distribution creates more welfare than higher per capita income with unequal distribution. Table (2) describes the only available official report of the Statistical Center of Iran obtained through calculating Gini coefficients of different regions of the country. According to this report, Hormozgan ranks as the first province of the country with regard to inequality of income distribution in rural areas (i.e. the worst situation). When compared to urban areas, it goes to the second place, after Sistan and Balouchestan.

Inequality in income distribution leads to intensified poverty in this region. It is in such a way that,since 2005, the ratio of the urban poverty line has increased from 12.8% to 46% in 2008. At the very same time, 11.5% of households were under poverty line in rural areas, in 2005, which amounted to more than 33.7% in 2008 (table 1). Comparing the poverty situation in this province with the countryis indicative of its severity in the former one. However, Hormozgan is the eleventh city of the country with regard to gross product (income) per capita (table 3). Therefore, it is concluded that sever poverty in this province is mainly brought about by unequal distribution of income. So, in order to reduce poverty in this region, it is necessary to reduce inequalities. To do so, starting point of each policy is identifying the reasons. Indeed, making use of Gini coefficient and share of deciles, this study is an attempt to investigate the reasons of inequality in distributing households' expenditure and income in terms of their component.

Table 1: A Comparison between Households in Hormozgan and Iran that are under the absolute poverty line, based on 2300 calorie during the fourth Plan of development

Title	2005		2006		2007		2008	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Hormozgan	11.5	12.8	12.3	21.7	20.3	32.4	33.7	46
Iran	9.85	10.21	11.04	10.58	10.07	9.12	13.82	9.34

Source: Statistics and Information Center of Hormozgan, 2010:58-59

Table 2: comparing Gini coefficient and its categorization according to rural and urban gross cost per capita in 2007

ردیف	Provinces	Urban	Rural
	Iran(Total)	0.412	0.3923
1	Hormozgan	0.428	0.434
2	Tehran	0.4064	0.4039
3	Esfahan	0.3919	0.4031
4	Golestan	0.3976	0.4025
5	Sistan and Balouchestan	0.4314	0.3989
6	Markazi	0.3928	0.3982
7	West Azarbayejan	0.389	0.3944
8	Kerman	0.3773	0.3917
9	Yazd	0.3992	0.3907
10	Fars	0.3961	0.3879
11	North Khorasan	0.3295	0.3841
12	RazaviKhorasan	0.428	0.3826
13	Kohgiluyeh	0.4205	0.3808
14	Ardabil	0.3486	0.3707
15	Qazvin	0.3326	0.3706
16	Hamadan	0.4074	0.3666
17	Gilan	0.4239	0.3652
18	Mazandaran	0.411	0.3633
19	Qom	0.3445	0.3619
20	Zanjan	0.3617	0.3601
21	East Azarbayejan	0.4136	0.3546
22	Kermanshah	0.3579	0.3499
23	Semnan	0.3319	0.3338
24	South Khorasan	0.4009	0.3292
25	Khozestan	0.3689	0.3217
26	Bushehr	0.339	0.3154
27	Ilam	0.3932	0.3102
28	Kordestan	0.3195	0.289
29	Chaharmal	0.2673	0.2729
30	Lorestan	0.3459	0.2525

Source: Statistical Center of Iran, 2010.

Table 3: Comparing per capita GDP in Hormozgan with other provinces of the country (thousand Rls)

ردیف	Name of Provinces	The First Four Years of fourth Plan			
		2005	2006	2007	2008
	Iran(total)	27,975	33,799	42,958	50,355
1	Kohgiluyeh	127,931	142,967	144,023	145,331
2	**Khozestan**	72,311	85,971	112,019	119,350
3	**Bushehr**	47,703	54,274	83,904	93,064
4	**Ilam**	35,993	48,971	69,994	73,573
5	**Tehran**	36,279	44,276	55,966	70,221
6	**Esfahan**	26,547	31,392	42,290	50,453
7	**Markazi**	28,486	36,558	43,989	49,500
8	**Semnan**	26,075	31,739	39,268	49,141
9	**Yazd**	23,578	30,658	38,320	46,774
10	**Qazvin**	23,025	28,551	34,354	44,538
11	**Hormozgan**	26,111	29,772	34,763	43,090
12	**Mazandaran**	22,255	25,914	33,053	43,090
13	**East Azarbayejan**	19,107	23,102	29,618	35,482
14	**Gilan**	17,374	20,627	27,201	33,816
15	**South Khorasan**	14,360	18,407	24,347	32,947
16	**Fars**	18,485	22,883	28,366	32,505
17	**Zanjan**	17,873	21,910	25,812	31,766
18	**Kerman**	19,056	25,912	31,714	31,622
19	**Qom**	17,546	20,480	25,890	30,755
20	**RazaviKhorasan**	16,901	20,681	26,083	29,790
21	**Ardabil**	14,463	18,053	23,062	28,820
22	**Hamadan**	15,348	19,032	24,749	28,512
23	**Kermanshah**	14,878	17,900	22,475	27,510
24	**North Khorasan**	14,585	19,622	23,278	27,243
25	**Golestan**	15,451	17,766	22,734	27,175
26	**Chaharmahal**	13,662	17,044	21,569	26,563
27	**WeastAzarbayejan**	13,176	16,339	19,251	23,326
28	**Lorestan**	13,002	16,544	19,652	23,019
29	**Kordestan**	12,218	15,490	19,624	22,785
30	SistanvaBaluchestan	8,572	9,615	11,189	13,734
Source: Calculation based on Regional Accounting of Statistic Center of Iran					

4- Theoretical Framework

Basically, the present study is grounded on income distribution theory. Income distribution refers to division of Gross Domestic Products between producer agents or individuals that are involved in formation and development of products. As mentioned before, the present research is concentrated on income distribution between families and individual (sized distribution) which is studied through Gini coefficient and the share of deciles.

4-1 Categories ofInequality Indices

Categories mostly used in distributing income include:

1- Decile (each decile include 10% of a society)
2- Quintile (each quintile include 20% of a society)
3- Quarter (each quarter include 25% of a society)

In describing income distribution, combined and extended form of categories also used, such as 40% of low-income people, 40% of mid-level people, and 20% of high-paid people. In case of having obtained data from the entire population, estimating considered categories is simply possible by arranging all individuals'income in ascending order. In this case, the first and last categories include the poorest and richest people of a society, respectively.

4-2- Lorenz Curve

Max O.Lorenz was an American economist who proposed a simple curve in 1905 which is now widely used as a key tool of describing income inequality. In fact, Lorenz curve shows graphical distribution of people's real income in region or a country which refers to the relation between cumulative proportion of income holders (on horizontal axis) and cumulative proportion of obtainedincome (on vertical axis); provided that income holders have become arranged in ascending order according to their level of income. Thus, each point on this curve indicates a share of total income of the society that is obtained by a proportion of individual in a society. If the share of obtained income be exactly equal to the share of income holders, Lorenz curve would lie on 45° line (equal to ON diameter in figure 1). But, if one person of family receives the full income while others have no sources of income, in this case the curve changes to a broken line of OMN (perfect inequality). Although, the curve lies somewhere between the

two limits at all cases. In the following figure, area A indicates inequality of income distribution between people of a society. Therefore, the greater is the distance (more A area) between curve and 45° line (perfect equality), the more inequality in income distribution would occur (World Bank, 2005).

Figure 1: Lorenz Curve
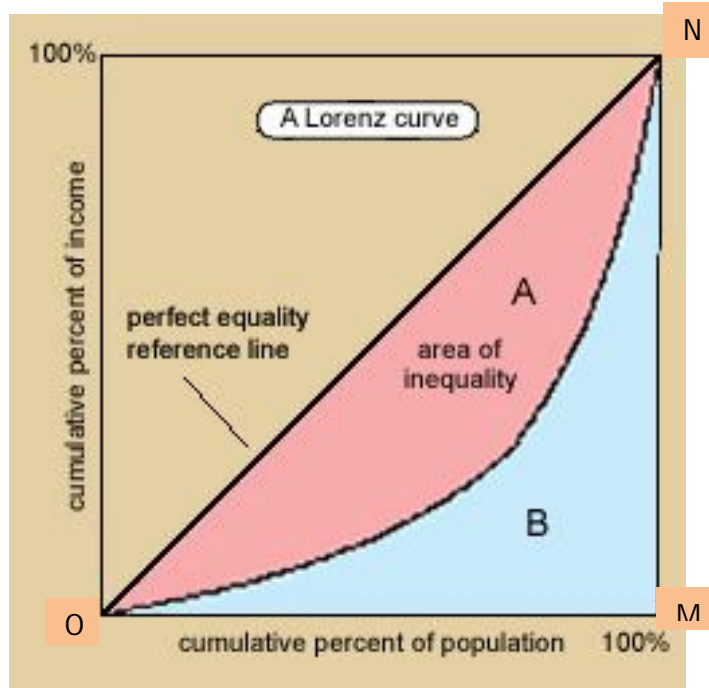
4-3 Gini Coefficient

CorradoGini was an Italian statistician who proposed Gini coefficient or Gini Concentration Ratio in 1912. This coefficient is the most popular and common measure of income inequality which is based on Lorenz curve and the result is a number calculated as follows:

$$G = \frac{the\ area\ between\ 45°\ line\ \ and\ Lorenz\ Curve(A)}{the\ triangular\ area\ under\ 45°\ line(A+B)}$$

Since area of the square equals to 1, the Gini coefficient is defined as twice the area between Lorenz curve and the line of complete equality. Different methods are presented for calculating Gini coefficient; the most known method is Morgan and Miller's Triangles and Trapezoids. Also, there are other popular ways such as Gast Wirth, Sholtz, andGarvyfor measuring income distribution. According to Miller's method Gini coefficient equals to:

$$G = 1 - \sum_{i=1}^{k}(p_i - p_{i-1})(\varphi_i + \varphi_{i-1})$$

Where G represents Gini coefficient, p_i and φ_i are the cumulative percentage of households and cumulative percentage of income for i[th]level of society. Let $i = 1,....,k$.

Layard and Walters (1978), also introduced a way for calculating Gini coefficient:

$$1 + \frac{1}{n} - \frac{2}{n^2}(y_1 + 2y_2 + \cdots + ny_n)$$

Where: y_1 is the richest person income (or average of the richest group's income), $y_2$is the second richest person income and etc. so y_n is the poorest income (or average income of the poor), where n represents the number of people in a society (group), and $\bar{y}$ is total income of population of a society on average. The present study undertakes this equation for calculating Gini coefficient.

So far, Gini coefficient has been calculated for many countries. An empirical range is defined for this coefficient which is demonstrative of equal and unequal distribution of income. Todaro, for instance, considers a range between 0.2-0.35 for countries with fairly equal income distribution. While, generally, the range changes between 0.5-0.7 for countries with unequal distribution of income (Todaro, 1994:145).

5- Gini Coefficient: Measure and Analysis

According to what is said so far, this project incorporates Gini coefficients and the deciles' share in order to study income distribution. To have a more realistic insight of income distribution, Gini coefficients of urban and rural areas are analyzed both for incomedeciles (in term of income sectors) and expendituredeciles (in terms of food and other items). These divisions, added to demonstrating a more realistic picture of inequality, helps us to give more practical policy recommendations that are consistent with realities of this province.

5-1 Gini Coefficient for Income Distribution

As you see, table (4) and (5) demonstrate an overview of Gini coefficients analyzed divided by income levels during 2000 – 2007. Income levels include paid salaries which are divided to public, private, and cooperative sectors. Sector belongs to income from self-employment include agricultural, non-agricultural and miscellaneous income. In order to obtain a better view of the way income is distributed, Gini coefficient is calculated for each sector, in terms of monetary and non-monetary income.

It should be noted that the number of income and expenditure projects used for calculating Gini coefficient are not optimal. It is one of the limitations of this study that should be regarded in generalizing the result to an entire society.

5-1-1 Gini Coefficient for Urban and Rural Areas

With respect to data obtained from table (4) and (5), Gini coefficient in the province has increased from 0.34 in 2000 to 0.43 in the end of the third plan of development. It indicates that income distribution has become more unequal in urban areas of this province. Gini coefficient continued to increase until 2005 and reached 0.48; however, the number decreased to 0.44 in 2007. This number, in rural areas of the province, increased from 0.45 in 2000 to 0.50 in 2004. During the fourth Plan of development the number was tempered with some variations so it increased from 0.47 in 2005 to 0.48 in 2007.

5-1-2 Gini Coefficient for Income Sectors of Hormozgan

Gini coefficient of income sectors include: monetary or non-monetary wages and paid salaries (public, private, cooperative), self-employed (agriculture or otherwise), and miscellaneous income. In 2000, Gini coefficient leaped from 0.46 to 0.56 in public sectors indicating unequal distribution of income in public sectors. In other words, during the third Plan f development the gap between employees' salary has increased within the public sector. Furthermore, non-monetary income has become more unequal in urban areas leading up Gini coefficient from 0.52 in 2000 to 0.75 in 2004. It seems that non-monetary sources of income are distributed more unequally in urban areas.

Findings on cooperative sources suggest also that income is distributed more unequally (especially in urban areas) during the third Plan of development. Statistics of private sectors reveal improved income distribution such that Gini coefficient of urban areas dropped from 0.15 in 2000 to 0.14 in 2004. Yet, during the fourth Plan of development income distribution has become even more unequal in urban areas. That is, income distribution, either in monetary sectors (cash) or innon-monetary sectors (service and product) is become more unequal during the fourth Plan of development.

For self-employed jobs (agriculture and non-agriculture) in urban areas, Gini coefficientraised from 0.61 in 2000 to 0.65 in 2004. Similar statistics in rural areas is indicative of increasing inequality so that rate of inequality increased from 0.61 in 2000 to 0.70 in 2004. While decreasing in urban areas, above mentioned statistics has increased in rural areas during 2005-2007, which means improvement in income distribution of urban areas and more inequality in rural areas.

During the third Plan of development, miscellaneous income,including income derived from movable and immovable properties, pension and etc., is distributed more unequally both in urban and rural areas. Although Gini coefficient in urban areas is improved during the fourth Plan of development, no such improvement is witnessed in rural areas.

5-1-3 a Comparison between the Two Plans

Results obtained from the present study reveal the fact that Ginicoefficient, during the third Plan of development, increased both in urban and rural areas of Hormozgan; i.e. income distribution is become more unequal. During the fourth Plan of development, Gini coefficient of urban and rural areas leaped from 0.40 and 0.42 in 2005 to 0.44 and 0.44 in 2007, respectively. This figures show more unequal income distribution during the third and fourth Plan of development in Hormozgan. However, compared to the third Plan, Gini coefficient is decreased in rural areas. Generally, coefficients are decreased with regard to the beginning of the Plan and indicate that income distribution policies were unsuccessful in this province.

Table 4: Changes in Gini coefficient of income during the third Plan of development in different Hormozgan's section of income

Year		2000		2001		2002		2003		2004	
Rigion		**Rural**	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Total		0.45	0.34	0.48	0.41	0.47	0.39	0.46	0.42	0.50	0.43
Salaryincome		0.47	0.30	0.55	0.39	0.50	0.40	0.35	0.33	0.43	0.38
Public sector	pecuniary	0.73	0.56	0.78	0.58	0.79	0.59	0.76	0.50	0.69	0.56
	Non-pecuniary	0.72	0.61	0.85	0.66	0.82	0.70	0.76	0.58	0.75	0.61
Cooperative	pecuniary	0.83	0.33	*	*	*	*	*	0.14	0.75	0.33
	Non-pecuniary	*	0.32	*	*	*	*	*	0.56	0.57	0.32
Private	pecuniary	0.36	0.14	0.43	*	0.38	0.15	0.17	0.10	0.27	0.14
	Non-pecuniary	0.40	0.33	0.66	0.10	0.63	0.26	0.58	0.34	0.70	0.33
Self-employmentincome			0.61	0.62	0.49	0.69	0.46	0.68	0.58	0.70	0.65
Agriculture	pecuniary	0.24	0.65	0.54	0.50	0.51	*	0.61	0.45	0.70	0.65
	Non-pecuniary	0.32		0.26	0.39	0.50	0.60	0.32	0.53	0.29	
Non- Agriculture	pecuniary	0.75	0.65	0.72	0.49	0.80	0.47	0.77	0.59	0.72	0.65
	Non-pecuniary	0.84	0.72	0.61	0.02	0.57	0.52	0.45	0.23	0.34	0.72
Sundry Revenues										0.24	0.27
pecuniary		0.16	0.22	0.10	0.36	0.20	0.38	0.16	0.50	0.26	0.31
Non-pecuniary		0.18	0.19	0.18	0.35	0.18	0.26	0.17	0.29	0.18	0.22

Source: Researchers calculations based on income and expenditure information in Hormozganin different years

Table 5: Changes in Gini coefficient in Hormozgan's different sources of incomeduring 2005-2007

Years		2005		2006		2007	
Region		**Rural**	**Urban**	**Rural**	**Urban**	**Rural**	**urban**
Ratio of richest to poorest deciles		14.58	19.70	17.73	15.87	19.68	16.17
Ratio of two richest to two poorest deciles		8.63	10.22	9.02	9.06	10.34	8.88
Total		0.47	0.48	0.48	0.48	0.48	0.44
Salaryincome		0.42	0.40	0.44	0.46	0.44	0.44
Public sector	pecuniary	0.80	0.59	0.85	0.66	0.82	0.62
	Non-pecuniary	0.78	0.64	0.88	0.68	0.86	0.66
Cooperative	pecuniary	0.78	0.68	0.81		0.33	-0.11
	Non-pecuniary		0.78	0.54	0.03	0.33	-0.11
Private	pecuniary	0.20	0.14	0.20	0.27	0.25	0.29
	Non-pecuniary	0.52	0.27	0.52	0.33	0.52	0.32
Self-employmentincome		0.70	0.69	0.70	0.73	0.76	0.61
Agriculture	pecuniary	0.73	0.58	0.60	0.51	0.69	0.17
	Non-pecuniary	0.35	0.61	0.40	0.45	0.34	0.96
Non- Agriculture	pecuniary	0.71	0.69	0.74	0.74	0.79	0.59
	Non-pecuniary	0.63	0.67	0.46	0.21	0.76	0.61
Sundry Revenues		0.22	0.36	0.31	0.28	0.22	0.32
pecuniary		0.20	0.44	0.43	0.32	0.24	0.42
Non-pecuniary		0.23	0.27	0.16	0.22	0.19	0.23

Source: Researchers calculations based on income expenditures information in Hormozgan during different years

5-2 Gini Coefficient based on expenditure

It is experimentally proved that respondents to income – expenditure questionnaires at Statistical Center of Iran express expenditures more accurately than revenues. Accordingly, policy makers and economists are more interested in cost related findings than revenue procedure. Therefore, this study incorporates Gini coefficient based on expenditure deciles.

5-2-1 Gini Coefficient for Urban-Rural Areas of Hormozgan

During the third and fourth Plan of development, Gini coefficient improved from 0.43 in 2000 to 0.40 in 2004 in country wide (Majlis Research Center, 2000:16-17). but, income distribution has become more equal during thirdPlan than fourth plan. Yet during the fourth Plan of development, Gini coefficient raised from 0.38 in 2005 to 0.40 in 2009 which reveals the fact that income distribution has become more unequal during this period. Table (6) and (7) describe results obtained through calculating Gini coefficient divided by food and non-food items during the third Plan of development. As the tables show, Gini coefficient in urban areasis almost constant during the third Plan of development but it changes toward more equality in rural areas so that rural Gini coefficient decreased from 0.37 in 2000 to 0.31 at the end of 2005. After so many fluctuations during the fourth Plan of development, Gini coefficient in urban areas raised from 0.34 in the first year to 0.42 in the final year. With similar fluctuations in rural areas, the number raised from 0.28 in 2005 to 0.42 in 2009, i.e. income distribution becomes more unequal both in urban and rural areas. In order to better understand the reasons of these changes, we are going to study Gini coefficients divided by food and non-food items.

5-2-2 Gini Coefficient Divided by Food and Non-food Items

Findings of the present study indicates that during the third Plan of development Gini coefficient for food items (Dietary Energy Consumption) has been nearly constant in urban areas and trends toward more equality in rural areas, therefore Gini coefficient for these items drops from 0.33 in 2000 to 0.24 in 2004. Gini coefficient for non-food items (including entertainment, education, training and etc.) decreased in both urban and rural areas during the third Plan of development which means more equal income distribution. Information needed to calculate Gini coefficient divided by food and non-food items is not available for 2009. Carried out analysis up to 2008 suggests that while during the fourth Plan of development, income distribution for food and non-food items has become more equal in urban areas, it has become more unequal in rural areas.

5-2-3 a Comparison between the Two Plans

Comparing the province's Gini coefficient performance during the third and fourth Plan of development indicates no changes of income distribution in urban areas during the third Plan compared to its beginning years but it has become more unequal for rural areas. Also, according to the finding of this research during the fourth Plan of development, urban areas income distribution become more equal compared to rural areas in which despite of supportive government policies income distribution trends toward inequality.

Table 6: Changes of Gini coefficient during 2000-2004 in terms of food and non-food items in urban and rural areas

Title	2000		2001		2002		2003		2004	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Food	0.33	0.21	0.29	0.19	0.27	0.18	0.19	0.19	0.24	0.21
Non Food	0.41	0.35	0.34	0.38	0.31	0.31	0.34	0.34	0.35	0.33
Total	0.37	0.30	0.32	0.32	0.27	0.27	0.28	0.29	0.31	0.30

Source: Findings of the present research

Table 7: Gini coefficient changes during 2005-2008 in terms of food and non-food items in urban and rural areas

Title	2005		2006		2007		2008		2009	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Food	0.23	0.24	0.24	0.23	0.33	0.28	0.27	0.15	-----	-----
Non Food	0.31	0.38	0.34	0.35	0.50	0.47	0.40	0.32	-----	----
Total	0.28	0.34	0.30	0.32	0.44	0.42	0.35	0.28	0.42	0.42

Source: Findings of the present research

6- Measurement and the Share of Expenditure Deciles

6-1 Comparing the Share of Expenditure Deciles

Comparing the share of households' expenditure decilesin rural and urban areas of Hormozgan during the third Plan of development suggests that share of 10% of the poorest population to total expenditures of the province is less than 3.5%, on the other hand, share of 10% of the richest population to total expenditures is more than 20%. Also, expenditure share of the first decile in rural and urban areas during the third Plan of development is less than 2% and 3.7%, respectively; however, share of the tenth decile in urban and rural areas is more than 21% and 20%, respectively. Findings also reveal share of the first and second decile for urban areas which is less than 9% at the beginning of the third Plan and reaches 10% at the end the same Plan. The ninth and tenth decile in urban areas improved in real terms to more than 36% at the beginning and reached to 36.2% at the end of Plan. For rural areas, rate of the first and second decile increases from 6%, at the beginning, to 10% at the end of the Plan. Share of the ninth and tenth deciles, which was more than 40% at the beginning dropped to 37% at the end of third Plan of development. During the fourth Plan of development, share of the first expenditure decile increased for urban areas but decreased for rural regions. What is more, share of the tenth decile, during the fourth Plan of development decreased for urban areas but increased for rural ones (table 8).

Table 8: A comparison between expenditure deciles of sample households during the third and fourth Plan of development, in Hormozgan.

Period		Region	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10
Third Plan	2000	Urban	3.33	4.95	6.16	7.57	8.78	9.80	10.91	12.30	14.83	21.39
		Rural	2.00	3.94	5.24	6.65	8.07	9.39	10.96	13.15	15.93	24.67
	2001	Urban	3.73	5.01	6.98	6.86	7.39	8.66	9.00	12.33	15.94	24.10
		Rural	3.12	5.36	6.00	6.60	7.59	9.13	9.80	15.78	14.73	21.89
	2002	Urban	3.89	5.54	6.61	7.82	9.78	9.46	10.27	11.54	12.83	22.27
		Rural	2.75	4.15	5.98	6.40	8.46	10.64	10.31	13.47	17.79	20.05

	Period	Region										
	2003	Urban	3.73	5.64	6.20	7.47	7.67	8.95	10.78	13.07	16.85	19.64
		Rural	3.63	6.05	6.77	6.64	9.51	9.34	10.80	10.94	16.22	20.10
	2004	Urban	4.60	5.03	5.03	6.87	9.17	8.98	11.27	13.04	15.05	20.96
		Rural	4.39	5.95	5.65	7.03	7.52	7.77	9.88	13.58	15.32	22.90
Fourth Plan	2005	Urban	2.82	3.90	5.69	7.95	8.29	9.15	10.94	12.87	14.18	24.20
		Rural	4.02	5.05	6.77	8.26	7.93	7.97	11.51	13.14	16.54	18.81
	2006	Urban	3.96	4.69	5.81	6.20	7.33	9.69	12.31	13.65	14.39	21.94
		Rural	3.14	5.81	5.88	7.48	8.46	8.71	11.20	13.33	13.85	22.16
	2007	Urban	1.95	3.55	4.66	5.81	7.30	8.76	10.22	12.67	16.93	28.16
		Rural	1.73	3.42	4.52	5.74	7.00	8.57	10.35	12.70	16.73	29.24
	2008	Urban	3.70	5.14	6.05	6.74	8.35	11.24	12.42	12.34	14.63	19.38
		Rural	2.85	4.30	5.89	6.14	7.34	9.25	11.49	14.10	15.41	23.23

Source: Findings of the present study

6-2 Comparing the Share of Income Deciles

Comparing the share of income deciles of urban and rural households during the third Plan of development indicates that in both areas share of the first decile has an increasing trend. Also, the richest decileshare of income (the tenth decile) increased for both urban and rural areas during the third Plan of development. During the fourth Plan, urban share of the first and second decile was more than 4.5% at the beginning of the Plan and improved to 5% at the end of the Plan.in rural areas, share of the first and second decile decreased from 5.72%, at the beginning of the Plan, to 4.8% at the end. Share of the tenth decile of income was 36% in urban areas during the fourth Plan of development but the rate declined to 31% at the end of 2007. For rural areas, share of the tenth decilehad also a decreasing trend during the fourth Plan of development (table 9).

Table 9: Comparing sample households' shares of income deciles for both urban and rural areas of Hormozgan, during the third and fourth Plan of development

	Period	Region	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10
Third Plan	2000	Urban	2.83	4.96	5.95	7.12	8.20	9.37	10.39	11.61	13.53	26.02
		Rural	1.75	3.36	4.39	5.41	6.76	8.34	10.23	12.79	17.12	29.85
	2001	Urban	2.29	3.90	5.08	6.02	7.24	8.70	10.09	12.19	15.64	28.86
		Rural	1.76	3.20	4.07	4.83	6.17	7.65	9.69	13.03	18.29	31.31
	2002	Urban	2.26	4.14	5.31	6.44	7.49	8.96	10.39	11.84	15.01	28.16
		Rural	1.65	2.87	4.02	5.13	6.49	7.93	10.10	13.77	17.12	30.91
	2003	Urban	2.12	3.79	4.90	6.01	7.23	8.37	10.37	12.34	15.69	29.17
		Rural	2.12	3.58	4.47	5.37	6.46	7.71	9.37	11.92	15.76	33.24
	2004	Urban	2.29	3.75	4.77	5.72	6.97	8.47	10.03	12.00	15.16	30.85
		Rural	1.93	3.18	4.02	4.81	5.85	7.25	8.90	11.48	16.40	36.18
Fourth Plan	2005	Urban	1.84	3.08	4.41	5.42	6.50	8.06	9.39	11.04	14.09	36.18
		Rural	2.24	3.48	4.36	5.15	6.10	7.33	9.29	12.77	16.67	32.62
	2006	Urban	2.25	3.33	4.23	5.22	6.23	7.59	9.06	11.56	14.83	35.69
		Rural	2.05	3.61	4.36	5.16	6.17	7.33	8.92	11.31	14.76	36.33
	2007	Urban	1.90	3.37	4.63	5.74	7.11	8.39	10.06	11.98	16.08	30.73
		Rural	1.68	3.12	4.09	5.05	6.37	7.70	9.61	12.76	16.59	33.04

Source: Findings of the present study

7- Comparing Different Measures of Income Distribution

Table 10 compares different indices calculated for income distribution in Hormozgan during the two Plans. As you can see, during the third Plan, Gini coefficients calculated, based on information about households' income, have an upward trend both in urban and rural areas. In other words, Gini coefficient, based on households' income, is indicative of increasing inequality for both urban and rural areas during the third Plan of development. Although Gini coefficient, obtained using households' expenditure data, is almost constant four urban families, it is declining for urban regions. In other words, households' expenditure data demonstrate no changes of inequality among urban households, yet shows a decreasing trend for rural ones.

Table 10 demonstrates shares of the richest decile to the poorest deciles and calculates the relation between two rich deciles and two poor deciles in terms of income and expenditure deciles. The obtained proportions suggest that 10% and 20% of the richest people earn many times more than 10% and 20% of the poorest people, respectively. As shown, share of the richest person income decile to the poorest in urban areas raises to 13.47 units in 2004 from 9.19 units at the beginning of the Plan which reveals increasing inequality during the years under investigation. It means that, in 2000, 10% of the rich earned nine times more than 10% of the poor. These findings are consistent with the results obtained through calculating Gini coefficient of income. Having passed through some fluctuations, income share of two richest deciles to two poorest deciles raised in urban areas from 5.08 units in 2000 to 7.62 units at the end of the third Plan which is consistent with the results obtained using Gini coefficient of income and the share of deciles.

Although calculated proportions of rural families in this province demonstrate similar trend, by carefully analyzing the figures one understands that income gap is larger among rural areas. For instance, urban share of the tenth decile to the first decile was equal to 9.19 in 2000, while the similar rate reaches to 17.06 in rural areas of the province. It means that 10% of the richest population in urban areas earns 9.2 times more than 10% of the poorest people. Yet the number is 17 times higher in rural areaswhich represents larger income gap for rural areas compare to urban regions.

Trends of expenditure deciles for 10 and 20% of the richest group compared to 10 and 20% of the poorest was contrary to the shares of income decilesduring the third Plan of development which is indicative of decreasing inequality of that time in urban and rural areas. Indeed, this outcome is in line with Gini coefficient analysis of expenditures. In the first three years of the fourth PlanGini coefficient of income for urban areas suggest lowered gap while derived expenditure coefficients shows vice versa results. In rural areas, Gini coefficient of income remained almost constant but Gini coefficient of expenditures represents more significant increase of inequality.

Generally, it can be said that in 2005 (beginning of the fourth Plan) compared to 2004 (last year of the Plan) nearly all indices of income distribution suggested more inequality in urban areas and less inequality for rural areas of the province. Somehow, the process changed in diverse direction in 2006, i.e. inequality slightly increased in rural areas while there was an amount of decrease in urban areas. In 2007, with highly increasing inflation, inequality increased, as well. So, all indices of inequality showed increasing trend both in urban and rural areas except for Gini coefficient that went through a downward direction in urban areas. It seems that high rate of inflation during the years under investigation is the main reason for contrary result of income and expenditure distribution with relation to each other. Since inflation rate, especially increasing prices of land and house in the years of study, resulted in increased asset value for upper level of income and led to cost increase among households with high levels of income. But, lower level households do not generally have valued properties, like land or house (or at least it is negligible compared to the rich) to gain added value with increasing inflation. Therefore, their purchasing power declines which not only prevents households' real expenditures to increase, but it may also decrease their sound expenditures. These changes in purchasing power and the resulting expenditures of households led to more expenditure inequality which is evident in increased rate of Ginicoefficient for expenditures. On the contrary, you can think of a situation when there is a low inflation rate.

Table 10: A comparison between different indices of income distribution derived from income and expenditure data

Title			Gini Coefficient		Ratio of richest deciles to poorest deciles		Ratio of two richest deciles to two poorest deciles	
			Base on Income	Base on expenditure	Base on Income	Base on expenditure	Base on Income	Base on expenditure
Third Plan	2000	Urban	0.34	0.3	9.19	6.42	5.08	4.37
		Rural	0.45	0.37	17.06	12.34	9.19	6.84
	2001	Urban	0.41	0.32	12.60	6.46	7.19	4.58
		Rural	0.48	0.32	17.79	7.02	10.00	4.32
	2002	Urban	0.39	0.27	12.46	5.72	6.75	3.72
		Rural	0.47	0.27	18.73	7.29	10.63	5.48
	2003	Urban	0.42	0.29	13.76	5.27	7.59	3.89
		Rural	0.46	0.28	15.68	5.54	8.60	3.75
	2004	Urban	0.43	0.3	13.47	4.56	7.62	3.74
		Rural	0.5	0.31	18.75	5.22	10.29	3.70
Fourth Plan	2005	Urban	0.48	0.34	19.66	8.58	10.22	5.71
		Rural	0.47	0.28	14.56	4.68	8.62	3.90
	2006	Urban	0.48	0.32	15.86	5.54	9.05	4.20
		Rural	0.48	0.3	17.72	7.06	9.03	4.02
	2007	Urban	0.44	0.42	16.17	14.44	8.88	8.20
		Rural	0.48	0.44	19.67	16.90	10.34	8.93
	2008	Urban	*	0.28	*	5.24	*	3.85
		Rural	*	0.35	*	8.15	*	5.40
	2009	Urban	*	0.42	*	*	*	*
		Rural	*	0.42	*	*	*	*

Source: Researcher's Calculation   *: There is no data available

8- Describing the Status of Income Distribution

Assuming a fixed price index, income distribution is a function of production structure and economic growth of added value. Hence, describing the status of income distribution requires considering added value and it growth rate during years of a research. Table (11) shows the rate of value added in term of economic activity during 2001-2007. As it shows, increasing trend of added value in agriculture during the years of study is mainly negative or

negligible. Since agricultural products provide a large share of rural income, it is natural to see that decreasing growth rate threats income earned by rural households. However, other sectors also bear the same fluctuations. It should be added that other sectors with a significant growth rate, also do not have a meaningful relationship with economy of the province. As for example, activities related to Oil and Gas industry, including pipe transportation, are the type of activities that have experienced significant increase in some years. Theoretically, added value in production line is spent for production factors such as capital, land and work force. Among the three factors, work force is an important criterion in determining the role of each industry in decreasing inequality. The present statistics do not give us an opportunity to determine the role of this criterion. AbasiNejad and Varmarzyar (2007, 218) estimate shares of each industry activity contributing to compensate for services of the province.Here,we are going to determine labors' share of total added value using these estimation and dividing them by added value of each sector in that year (2003). Table (12) demonstrates share of compensation services contributed to total added value of each industries'' activity. As described in this table. Work force comprises the largest share in subcategories of service activities. As a result, growing added value of these activities affects the most on the provinces' economy and led to decreased inequality in this region. Assuming that other factors are constant, Gini coefficient of income is expected to decrease in case of giving the highest priority to these activities in employed policies to have the most share of growth.

They also estimated the share of civil and current expenditures of government to growth in different sectors in table 13 (2007: 267-8). This table indicates that: first, the share civic expenditures to growth of other sectors is more than the share of current expenditures. Second, civil and current credits affect different sectors in a different way so that income distribution is influenced by government's expenditures. The way civil credits are distributed also affects income distribution with regard to different budgetary sectors

Using data panels of different cities, AbasiNejad and Ahrari (2007: 136-149), examined the share of credit distribution in different sectors to Gini coefficient and their findings are presented in table (14) and (15). According to what was expected, civil credits in agriculture sector highly decreases Gini coefficient. Since the section experienced a downturn during the years under investigation, it makes the assumption more acceptable that agricultural downturn led to income gap in Hormozgan.

Table 11: growing added value of economic activities at constant prices during 2001-2007

Title	2001	2002	2003	2004	2005	2006	2007
Agriculture, hunting, forestry	10	33	-13	6	8	-24	-10
Fishing	-5	-20	5	-17	29	15	6
Extraction of crude petroleum and natural gas	115	-43	137	-6	42	-7	29
Other mining	-1	14	4	-33	-40	75	56
Manufacturing	24	-49	43	27	-16	37	-3
Electricity, gas and water supply	-36	53	32	-4	43	-32	58
Construction	-11	-11	-12	88	-10	10	-13
Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	23	2	17	18	11	7	6
Hotels and restaurants	10	18	6	-12	3	60	10
Transport, storage and communications	-3	4	10	3	-2	1	12
transport via pipelines	110	319	3	458	-1	-1	17
Financial intermediation	37	-18	-10	15	53	4	-5
Real estate, renting and business activities	8	-10	12	3	-7	0	7
Public administration and defence; compulsory social security	8	-7	7	-7	-16	-3	15
Education	4	7	8	-9	34	22	-16
Health and social work	14	10	11	-4	-5	6	8
Other community, social and personal service activities	33	-2	1	40	31	14	14

Source: Researchers' Calculation using regional account data – the Statistic Center of Iran

Table 12: The share of compensatory services to total added value in economic activities of Hormozgan(2003)

Title	Number of employees (persons)	Employment share (percent)	Average compensation per person (Thousand Rials)	Value added (million rials)	Compensation share from value added (percent)
Agriculture, hunting, forestry	46370	16.82	11.50	2491574.7	21
Fishing	18701	6.78	12,419	543,709	43
Extraction of crude petroleum and natural gas	2176	0.79	49,245	263,486	41
Other mining	524	0.19	81,313	81,820	52
Manufacturing	16327	5.92	44.95	2830718.9	26
Electricity, gas and water supply	5871	2.13	76.64	1012859	44
Construction	31848	11.55	11.28	881432.71	41

Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	31894	11.57	10,969	2,534,203	14
Hotels and restaurants	4277	1.55	12.67	297165.35	18
Transport, storage and communications	34010	12.33932	37.53	6793311	19
transport via pipelines	36	0.01	76,694	5,295	52
Financial intermediation	3677	1.33	44.71	256007.59	64
Real estate, renting and business activities	4552	1.65	52.80	1680765.4	14
Public administration and defence; compulsory social security	32360	11.74	20.98	1162556.2	58
Education	27439	9.96	18.83	737931.27	70
Health and social work	8091	2.94	28.77	645313.03	36
Other community, social and personal service activities	7509	2.72	9.74	150565.05	49
Total	275623	100.00	21.93	22,363,418	27

Source: Researchers' analysis using regional report of Statistic Center – AbasiNejad and Varmarzyar, 2007: 218

Table 13: changes in added value due to increased govenmental budget, up to 20%Million Rls/percent

Title	government consumption budget			government investment budget		
	Before policy	**After policy**	**Growth (percent)**	**Before policy**	**After policy**	**Growth (percent)**
Agriculture, hunting, forestry	8027391	8059553	0.4	8027391	8070776	0.54
Fishing	618014	618918	0.15	618014	621534	0.57
Other mining	653993	656346	0.36	653993	660258	0.96
Manufacturing	25584426	25649650	0.25	25584426	25941547	1.4
Electricity, gas and water supply	3381097	3434323	1.57	3381097	3452010	2.1
Construction	1441427	1485956	3.09	1441427	1560757	8.28
Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	3916261	3942315	0.67	3916261	3973359	1.46
Hotels and restaurants	302492	310609	2.68	302492	307677	1.71
Transport, storage and communications	15178215	15245413	0.44	15178215	15581101	2.65
Financial intermediation	375907	381530	1.5	375907	401155	6.72
Real estate, renting and business activities	2006689	2026376	0.98	2006689	2020475	0.69
Public administration and defence; compulsory social security	1104153	1289798	16.81	1104153	1133495	2.66
Education	776343	886593	14.2	776343	797809	2.76
Health and social work	606529	654089	7.84	606529	639783	5.48
Other community, social and personal service activities	175041	187082	6.88	175041	180035	2.85
Total	64147978	64828551	1.06	64147978	65341773	1.86
Source: Abasi Nejad and Varmarzyar, (2007: 267-68)						

Table 14: Budgetary sectors influencing Gini coefficient in rural areas

Sector	Level of Contribution
General affairs	0.9
Public education center	1.6
Art and culture	0.5
Multi-dimensional operations of regional development	1.05
Technical and vocational education	0.27
Research and Higher education	0.29
Water Resources	2.44
Business	0.35
Transportation	0.6
Post and telecommunication	1.3

Source: AbasiNejad and Ahrari, 2007: 147

Table 15: Budgetary sectors influencing Gini coefficient in urban areas

Sector	Level of Contribution
General affairs	0.61
Public education center	0.33
Housing	0.2
Multi-dimensional operations of regional development	0.76
Technical and vocational education	0.1
Research and Higher education	0.24
Agriculture and natural resources	1.2
Water resources	0.8
Business	0.14
Transportation	0.26
Post and telecommunication	1.22

Source: AbasiNejad and Ahrari, 2007: 149

9- RESULTS AND CONCLUSION

The current study aims to investigate income distribution during the third and fourth Plan of development in order to better visualize a picture of income functions in Hormozgan. With this purpose in mind, Gini coefficient and deciles' share are selected and calculated in terms of components of income and expenditure during the third and fourth Plan of development.

Although Gini coefficient is mostly used as a useful tool for measuring income distribution, studied carried out so far has rarely questioned the way of distributing components of income and expenditure. Measuring Gini coefficient in terms of expenditure components and income sectors as an index of income distribution represents it in a more tangible way.

This research, carried out to provide clearer picture of external facts calculates Gini coefficient for expenditure components (food and non-food items) and income sectors (paid salary, self-employed and miscellaneous income) in units of urban and rural areas to analyze its changes during the two Plan. Finally, deciles' shares and their changes during the selected period are measured.

According to outcomes of this study during the third and fourth Plan of economic, social and cultural development , income has more unequally distributed in Hormozgan so that Gini coefficient increased both in urban and rural areas.

Hormozganis among the ten first provinces of the country with regard to per capita income; however, with regard to income distribution, it is among the provinces with the most unequal condition. In order to explain the reason behind this, some factors affecting income distribution are mentioned and their condition is analyzed for the province under study. The current study provides documents in relation to these determining factors which include value added by different economic activities during the years under investigation, compensatory services (money paid to work force) share of total value added by economic activities of Hormozgan, amount of civil and expenditure budget of government, and distribution status of civil credits in terms of budgeting sectors.

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