Impacts of Taxation on Inequality and Income Distribution in Iran

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Abstract:

One of the governments' objectives is to guarantee justice and fair distribution of incomes among the citizens in the society. From a macroeconomic point of view, taxes, as one of the most important tools of financial and economic policies, can help governments to achieve this important objective. In practice, the impact of taxes on income distribution is mainly exerted through the transfer of income from the market to the government and from the government to the whole society. In this paper, the impacts of tax revenues on income distribution in Iran has been explored for the period 1971-2010 by employing an Auto Regressive Distributed Lag (ARDL) methodology. The results obtained suggest that direct taxes affect income distribution negatively due to tax evasion issues while indirect taxes have a positive impact on income distribution.

Key words:

Tax, unequal distribution, ARDL

1. Introduction

Optimal allocation of resources and income distribution are two main functions of economic systems. If they are realized, maximum economic welfare of a society can be expected. As income distribution is determined via sociological and social-value-based methods, the role of government is of great significance. As for the market deficiencies, in addition to shortcomings with regard to efficiency, resource allocation and economic stabilization, there are some other problems including inappropriate income distribution and the existence of poverty and inequality. Unfair distribution of income and wealth is a serious problem that may function as an obstacle to the economic progress and development in the long-run (Dadgar *et al*. 2008).

In recent decades, the extension of international interactions and the increase in the uncertainties resulted from it along with the existing evidences of income gap have aroused the economists' interests in such topics as income distribution, its changes and the factors involved in it.

There are different ways for a government to improve the income distribution in the society, including making use of fiscal policies. In this regard, taxes are one of the important tools that can lead to changes in the income distribution. It is through taxation mechanism that governments can take some part of the individuals' income in order to provide for various public services, help the low income people or directly transfer the income to the poor. As a matter of fact, the impact of taxation on income distribution is mainly exerted through the transfer of income from market to government and from government to the whole society members. Generally speaking, the amount of taxes transferred from market to government depends on the elasticity of supply and demand curves. In this way, governments are enabled to interfere with the economy via taxes, to meet their own expenses and to adjust income distribution. Separate research works conducted on the impact of taxes on income distribution in Sweden (Marten, 1996) and Bulgaria (Hassan & Bugtik, 2004) concluded that the tax reforms in Sweden and the introduction of a progressive taxation system in Bulgaria had positive impacts on the improvement of income distribution in those countries. The study carried out by Kiang Chu *et al* (2000) also indicates the positive impact of taxes on Gini coefficient in developing countries. Other studies, however, argue that taxation does not influence the situation of income distribution (see for example, Bird, 2005). In Iran, although the T/GDP ratio is currently very low (6.6 percent in 2010) and that taxes cover only 43 percent of the government's expenditure, the Fifth Economic, Social and Cultural Development Plan has required that the T/GDP ratio should raise up to 10 percent in future, covering 100 percent of the government's current expenditures. The realization of this goal needs some reforms in executive procedures, tax rates and resources, tax bases, etc. According to the latest official statistics, Gini coefficient in Iran equals to .03867 and all of the countries' policies are destined to improve income distribution and to decrease the Gini coefficient. Then, having in mind the important role played by taxes in the improvement of income distribution and the various impacts of different tax categories in this regard; it is of great importance to review the influence of the taxation system on the income distribution and on decisions to be made in respect of developing an optimal taxation model.

In this paper, I have first reviewed the existing literature on inequality and income distribution and their relationships with taxation and, consequently, I have cited some relevant empirical studies on the relationship between taxation and income distribution in Iran and other countries. Then, the Iranian tax system and the current situation of income distribution in Iran have been outlined, followed by the introduction of the model used for analyzing the impacts of taxation on income distribution in Iran. The paper moves on by estimating the model and ends up in some concluding remarks.

2. A Review of Literature and Empirical Studies

2.1. Inequality and Income Distribution

As mentioned above, one of the functions of governments is the distribution of income and wealth in the society. An appropriate income distribution has various dimensions. Social science scholars make use of income inequality indices or income distribution criteria for measuring the status of income distribution. There are several theories about the factors involved in income inequality. Whatsoever the reasons, the measurement criteria do measure the income differences among various social groups merely through displaying the facts.

Undoubtedly, the nature of income distribution has always been taken into account by policy makers. Classic economists like Adam Smith and David Ricardo have shifted their attention towards factor income distribution and have taken each income factor as an important issue. Nowadays, although income distribution is still paid attention to, the focus is mostly shifted towards the household income distribution.

The method adopted for income distribution in a society is mainly a function of the method of production resources distribution (including physical capital, human capital, land resources, energy, etc.) and of the return rates of these resources. Some part of these parameters is related to the society's historical and social backgrounds and some other part relies upon the productivity of production factors especially human resources. Nevertheless, the public sector policies can affect the income distribution allocated by the market both through making changes in the distribution of production resources and their return rates and through income redistribution procedures. Thus, governments may affect the conditions involved in permanent income inequality in the society by adopting appropriate policies (Cubero & Vladkova Hollar, 2010).

Generally speaking, the following factors play roles in creating income inequality:

A) Economic Policies

Various economic policies including financial and monetary ones can increase inequality. For example, an increase in the number of jobs with low incomes, a decrease in the government subsidiary aids, an increase in the interest rates, and a decrease in the income tax rates all lead to the decrease of income share of low-income groups and the increase of inequality of income distribution in the favor of high income groups.

B) Market Structure

A considerable amount of inequality of incomes may be associated with the economy's market-based performance in relation to production and distribution. Based on theories of microeconomics, the most important factor determining income distribution in a market system is the final value of the product resulted from production factors; therefore, due to its governing rules, the market system causes inequality in the income distribution.

C) Type of Income

Another factor involved in the inequality of incomes is the way incomes are acquired by individuals. For example, such incomes as interest, dividend, capital gains, inheritance, etc. can affect income inequality levels. Even if these incomes are divided equally among the people, there will be income inequality resulted from job activities, since all people face with the inequality of income incurred by jobs due to their different capabilities, skills, job types, willingness to work, levels of risk-taking, levels of education, etc.

D) Economic Development Conditions

Studies conducted by the World Bank and some other research works stress inequalities in the income distribution mostly occurs in the countries involved in industrialization processes. In other words, middle income countries, especially those located in Latin America severely suffer from inequality of income distribution. Economic development seems to increase inequality temporarily and then by increasing the income share of the workforce, it will lead to a gradual decrease in the inequality.

E) Discrimination

Race and sex discrimination are among the factors involved in the inequality of income. Historical evidence shows that all through the history, some people have been deprived of high-income jobs due to race discrimination and consequently, incomes acquired by minorities have been low. Low wages for women in the labor market are also involved in the increase of inequality of income distribution. As an example, the increase in the number of families with a female head has been taken as one of the causes of the increase in inequality (Jafari Samimi, 1988).

2.2. Income Distribution Measurement Methods

Amartya Sen categorizes inequality factors into two main groups:

- indices that measure inequality as an objective concept, such as variance indices, variance coefficient and Gini coefficient; and

- indices that measure inequality based on a normative concept of social welfare, in which the level of inequality indicates lower levels of social welfare for certain levels of income, such as Atkinson index;

However, a full differentiation between these two groups is not possible. For example, Gini coefficient introduced in the first group can also be attributed to particular social welfare levels and as such, it can be included in the second group as well.

In sum, there are various criteria for measurement of income inequality, including Gini index or Gini coefficient, Theil index and Hoover index. Gini coefficient is the most common inequality measurement index introduced in 1912 by Corrado Gini, an Italian statistician. It is mostly based on Lorenz curve, taking a figure between zero and one, indicating the ratio of area between the equality line and Lorenz curve. Lorenz curve shows the cumulative percentage of income against the cumulative percentage of population. For example, any particular point on this curve shows what percentage of income is in the hand of what percentage of the society members. If the distribution is completely equal, Lorenz curve is completely adjusted on the square diameter and if inequality increases, Lorenz curve turns downwards.

In the Theil index, the concept of entropy is used. Entropy in thermodynamics is used to measure irregularities and since inequality of income is actually an irregularity in income distribution, Theil employs it for measuring income inequality. Theil index estimated as zero indicates full income equality. This index can be converted into Atkinson index ranging between zero and one, where "one" shows full inequality. Hoover index is the simplest index among all indices of income distribution measurement. It shows the income levels needed to be taken from the rich in order to be paid to the poor for achieving full equality in income distribution. In this index, the longest line is between Lorenz curve and full equality line (45 degrees).

Deciles ratio is one of the most well-known indices available for showing income inequality of expense deciles whereby the ratio of the tenth deciles expenses to those of the first one or the ratio of expenses of tenth deciles to those of the first two deciles is taken as an inequality criterion. This index is derived from an intuitive understanding of the concept of income inequality. Most people do consider the difference between income levels of the rich and the poor as the criterion for class distinctions: an increase in the difference between the richest and the poorest individuals' levels of income would mean an

increase in the inequality. Although this index is commonly used for its simplicity, it has an important deficiency: being non-sensitive to median income distribution.

2.3. Taxes and Inequality

Kuznets (1955) founded the study of impacts of macroeconomic variables on income distribution through reviewing the impact of economic growth on income. His studies show that in initial stages of economic growth, income distribution is unequal but in the long-run, this inequality decreases as the economic growth keeps increasing. This finding was later on supported or rejected by many researchers and finally, following the extension of the research literature, the role of governments was highlighted. The governments can give rise to the difference between income classes by accepting various expenses or may affect income distribution through their revenues in the form of taxes or transfer payments; the arguments for the role of taxes in income redistribution have been raised due to this issue (Jarjarzadeh and Eqbali, 2005).

The free market system advocates emphasize on the necessity of the government involvement in income distribution and argue that the government should guarantee more equality in income distribution through direct interference with the market. In fact, during the last centuries, the governments have always been present every where, being capable of both developing more equal distribution of income in the market, and moving incomes towards ineffectiveness and inequality. However, what is important is the combination of government and market, the effectiveness of the governments and their type of involvement in the market. The levels and method of involvement can affect severely the rate of inefficiency. Nevertheless, the extensive involvement of the government in the income and wealth redistribution decreases economic effectiveness and may be followed by welfare damages to the society. Therefore, the extent of government's involvement to achieve a more equal income distribution should be controlled at a limited level (Zamanzadeh, 2009).

What matters more than the extent of government involvement is the way through which this involvement is carried out. The best tools for achieving equality in the income distribution are those that 1) do not disturb the mechanism of prices in the market and 2) do not disturb competition in the markets. Among these instrument, taxes and subsidies are the best and among the fiscal tools having less impacts on prices and competitiveness are income tax, inheritance tax and income subsidies, while consumption or production taxes or subsidy payments for the consumption of certain goods can affect negatively the efficiency of the price mechanism.

Taxes can affect the income distribution in two ways: first, through the government budget whereby the government imposes taxes on people via income resources inserted in the annual budget and spends the tax revenues derived in accordance with the relevant laws and regulations; second, through taxation of economic performance resulting in changes in the income of owners of production factors via changes in the transaction relations among various production sectors.

However, the impact of various tax categories on the income distribution depends on the extent to which tax burden may be transferred. Theoretically, a direct taxation system with progressive rates has more impacts on income redistribution while an indirect taxation system, due to its direct influence on the household consumption, can affect the income distribution and the income transfer from higher classes to lower ones providing that: 1) there is a complete awareness about the process of indirect tax transfer and the extent to which various factors are affected by it, and 2) the consumers of any particular product and the individuals' levels of income are clearly identified.

For distributing a given level of income, the distributive impacts of taxes depend on two important factors: 1) T/GDP ratio, and 2) attribution of taxes to various income groups. Nevertheless, it is worth mentioning that a progressive income tax system may impose a heavier tax burden on high-income individuals and decrease inequality in the income distribution, but if the final tax rate is very high, it may even give rise to inequality due to the impacts of taxes on production, goods supply, work supply, savings, etc. In addition, for many developing countries, inequality is a structural problem and in many cases, taxes neither affect substantially income redistribution, nor play any roles in income generation (Mohamamd Ghaffari, 2005).

Generally speaking, the existing empirical evidence both in developed and developing countries indicate that overall impacts of taxes on income distribution are generally limited and that even fundamental changes in the tax structures have little distributive impacts. On the contrary, distributive impacts of public expenses especially targeted social costs may have positive major impacts on justice and as such, they can decrease poverty (Chu, Davoodi, and Gupta, 2000). Nevertheless, the distributive impact of taxes on income distribution is a tax-relevant question, especially in the areas of tax occurrence and tax justice. As Bird (2005) suggests, "the issues related to income distribution not only are relevant to tax policy, but also they affect the minds of policy makers in this regard" (vertical and horizontal justice). In fact, a proper understanding of distributive impacts of ordinary taxes and their different dimensions can be helpful in moving towards justice-oriented tax systems, without sacrificing the efficiency.

2.4. Findings of Some Empirical Studies

Several researchers have explored the impacts of financial policies (including tax policies) on income distribution. Through comparing Gini coefficients and the shares of different classes before and after taxation, Parvin (1993) in her thesis entitled *Economic Grounds of Poverty in Iran* shows that Iranian tax policies have not had any balancing impacts on the income distribution. The research conducted by Naseri Golozari (1994) on the impacts of various types of taxes on inequality indices reveals also that taxes can improve inequality indices in the income distribution. In this regard, the impacts of "income taxes" and "consumption taxes" on Gini coefficient are reverse while the effect of "corporate tax" on Gini coefficient is positive.

Using the data and statistics gathered from 1971-1991, Abounouri (1997) studies the impacts of main economic variables including workforce productivity, employment ratio, inflation, transfer payments to households, and public expenses for households on the income distribution. Analyzing "the impact of macroeconomic variables on income distribution in Iran", he concludes that in return for one percent unit increase in the total taxes collected from one single family, more than 0.81 percent is added to the income inequality level in the subsequent year. The results of this study indicate that an increase in the employment rate and in the efficiency of labor force decreases the inequality in income distribution, while an increase in the public expenses and taxes decreases the inequality. Abounouri has finally concluded that the tax system has increased the economic inequality instead of decreasing it.

Tajeddin (1997) explores the direct impact of inflation on inequality and income distribution in rural and urban regions by using cross-sectional data of the details of Iranian families' budgets. The results obtained show that during 1972-1994, the inflation has increased income inequality in urban areas and has decreased it in rural regions. The maximum impact of inflation in rural and urban areas has been witnessed on the cost share of the first 20 percent of the population, while the minimum impact in both areas has been on the cost share of the third and the fourth 20 percents of the population.

Jarjarzadeh and Eqbali (2005) in a study titled as "The impact of oil revenues on income distribution in Iran" have used the Gini coefficient and employed an econometric model to show that during 1968-2001, per capita GDP, private sector investment, tax revenues and capital expenditures have had a positive impact on the income distribution, while inflation, unemployment, oil revenues and government current expenditure have had negative effects on it.

In his study on the impact of tax inequality and income distribution in Iran, Asadollahzadeh Bali (2008) shows that during 1976-2005, there have been no short-term relationships between taxes and Gini coefficients.

Marten (1996), in his study titled as "income distribution effects: the Swedish reform", explores the two periods before and after tax reforms in Sweden and concludes that tax reforms have led to the adjustment of income distribution in that country.

Through reviewing the distributive impacts of income tax in Bulgaria based on the data of urban and rural family expenses, Hassan and Bogetic (2004) declare that the poor (i.e. the two lower income deciles) pay 1.4 percent and the wealthy (i.e. the upper deciles) pay 6 percent of their per capita income as tax and that rural and urban citizens respectively pay 5.3 percent and 2.4 percent of their per capita income as tax; so, they show that the imposition of a progressive income tax system has a great decreasing effect on the income inequality.

Young *et al.* (2000) explore the income distribution in developing countries during the recent decades, more particularly in the periods before and after taxation, and show that Gini coefficient has averagely decreased after taxation. This improvement in the income distribution in industrialized countries is higher than that of developing countries as a result of the countries' tax structures.

Engle *et al.* (2000) review the impacts of taxes and four essential variables existing in the tax system of Chili on the income distribution in that country and show that, in contrast to what is expected, a flat tax rate system has a more distributive impact and that transfer payments have a more negligible distributive impact than the income taxes.

Finally, Bird (2005) shows that in developing countries, income tax is incomplete and unprogressive and that executive and political costs of the enforcement of a progressive tax system are very high; therefore, such a tax system cannot be used to improve income distribution. He proposes consumption taxes and cost policies in favor of the poor as the alternative methods for decreasing poverty and inequality.

3. Taxation and Income Distribution in Iran

3.1. A Brief Outline of the Iranian Tax System

Tax revenues in the Iranian economy consist of direct and indirect taxes. The direct taxes include taxes on wealth, corporate income tax and individual income taxes, and the indirect taxes include taxes on imports, and GST (replaced by VAT in 2008). While in 2001, 54.4 percent of the collected taxes included direct

taxes and 45.6 percent consisted of indirect taxes, these shares in the year 2010 have been respectively 59.8 and 40.2 percent.

Wealth taxes include inheritance tax, incidental income tax, goodwill tax, stocks and securities transfer tax, real estate transfer tax, and stamp duties. In 2001, inheritance tax, goodwill tax, and stamp duties have respectively covered 12, 47 and 41 percent of the total wealth tax but these percentages changed into 11, 16 and 47 percent in 2010. The share of other taxes of the wealth tax category has been only 0.3 percent in 2001 but it has increased into 26 percent in 2010. Generally speaking, the wealth tax has not a considerable share in the taxes collected in Iran. While in 2001, only 8.3 percent of direct taxes and 5.2 percent of all collected taxes consisted of wealth tax, this inconsiderable share decreased respectively by 6.6 and 4 percents in 2010.

Corporate income tax includes on account tax of governmental legal persons, income tax of governmental legal persons, the Islamic Revolutionary foundations, income tax of non-governmental legal persons, and taxes derived from oil revenues. In 2001, the corporate tax of governmental and non-governmental legal persons covered respectively 36 and 46 percents of the total taxes imposed on legal persons, but these figures changed into 9.5 and 59.6 percents in the year 2010. It is interesting to know that 53.8 percent of direct taxes and 29.3 percent of the total tax revenues in 2001 have been collected from legal persons, and that these percentages changed into 69.2 and 41.4 percents in 2010.

Income tax includes tax on salary income, tax on the income of businesses and professions, real estate income tax and tax on miscellaneous income. Among these tax categories, the greatest share has been devoted to the tax on salary income and the tax on the income of businesses and professions. While in 2001, these two tax categories covered 53.7 and 39.4 percents of the total income tax respectively, they increased up to 62.1 and 33.6 percents in 2010. The share of other tax categories has been 7 percent in 2001 and a little more than 4 percent in 2010. Generally speaking, the income tax in 2001 covered 37.3 percent of the direct taxes and 20.3 percent of the total taxes collected but their shares decreased down to 24.2 and 14.5 percents in the year 2010.

The share of tax revenues in the annual budgets and the T/GDP ratios have been shown in table (1) below:

Table (1): Taxes in Iran

Share of Wealth Tax in Total Tax Revenues*	Share of Consumption Tax in Total Tax Revenues*	Share of Income Tax in Total Tax Revenues*	T/GDP Ratio	Ratio of Tax to Current Expenditure	Ratio of Tax to Government's Annual Budget	Year
5.2%	3.5%	58.8%	6. 4%	41%	33%	2001
5.8%	3.3%	55.2%	5.6%	34%	22%	2002
4.1%	16.4%	45.1%	5.8%	37%	24%	2003
4.9%	11.2%	44.8%	5.8%	36%	25%	2004
4.2%	14.2%	46.6%	5.5%	31%	22%	2005
4.3%	11.3%	52.7%	5.6%	30%	22%	2006
4.8%	10.2%	54.9%	5.6%	39%	26%	2007
3.8%	7.8%	60.4%	5.5%	35%	24%	2008
3.0%	10.8%	62.5%	6.2%	41%	29%	2009
3.9%	13.0%	55.9%	6.6%	43%	24%	2010

Source: Statistics of Central Bank of the Islamic Republic of Iran and INTA's Statistics

* Taxes derived from oil revenues have not been included in the table.

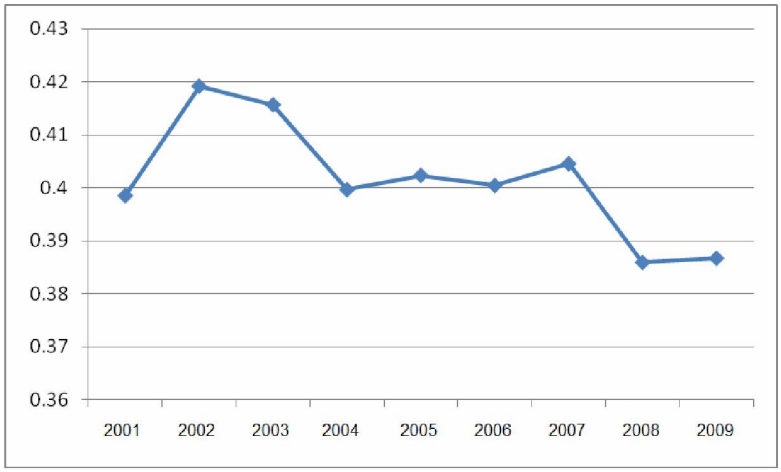
3.2. Inequality Indices and Their Trends

Fluctuations of Gini coefficients in the country during 2001-2010 indicate that the income distribution in Iran is improving. The income share of the wealthiest 10-percent of the population to the income share of the poorest 10-percent has been improving in recent years. In the UN HDR, 2010, the Gini coefficient of Iran has been reported to be 38.3, locating Iran at the 63rd rank among 146 countries.

Table (2): Income Distribution in Iran

The income share of the wealthiest 10-percent of the population to the income share of the poorest 10-percent	Gini Coefficient	Year
14.4	03985	2001
16.9	0.4191	2002
16.2	0.4156	2003
14.6	0.3996	2004
14.5	0.4023	2005
14.9	0.4004	2006
15.2	0.4045	2007
13.5	0.3859	2008
	0.3867	2009

Diagram (1): Gini Coefficient Trends during 2001-2009



All in all, on the basis of Gini coefficients and recent global statistics, Iran is one of the countries in which income inequality is still quite tangible and this issue can be regarded as a serious economic deficiency.

4. The Relationship between Taxation and Income Distribution in Iran

The Iranian tax system can improve income distribution in several ways: first, through the application of tax exemptions: tax exemption thresholds have considerably been amended as from the late 2001 in favor of low-income poor classes. Moreover, imposing income taxes on high-income individuals decreases their shares of the whole national income. Furthermore, the exemption of most essential goods in the VAT Act can improve the income distribution in Iran. Second: through the application of a progressive income tax

system in which the increase of individuals' income beyond certain thresholds will increase the rate of the tax on income as well.

In the next section, in order to find a relationship between taxation and income distribution in Iran, we make use of an econometric model, the details of which are presented below.

4.1. Specification and Estimation of the Model

In this paper, to explore the impacts of taxes on the income distribution in Iran during the period 1971-2010, we use Cub Douglas's model which has already been employed by other researchers as well (see for example, Abounouri, 1998). The default formulation of the model is as follows:

(1) $$Gini = f(Dt, Int, Oi, P, Cg);$$

where

Gini: Gini Coefficient

Dt: Direct Taxes in terms of fixed prices of the year 2004

Int: Indirect Taxes in terms of fixed prices of the year 2004

Oi: Oil Revenues in terms of fixed prices of the year 2004

P: Inflation Rate

Cg: Current Government's Expenditure in terms of fixed prices of the year 2004

Cub Douglas's reformulation of the above model is as the equation (2):

(2) $$Gini = \alpha_0 Dt^{\alpha_1}.Int^{\alpha_2}.Oi^{\alpha_3}.P^{\alpha_4}.Cg^{\alpha_5}$$

Through the natural logarithm of both sides of the equation (2) along with the addition of an error component, the equation (3) is resulted as below:

(3) $$LGini = \alpha_1 LDt + \alpha_2 LInt + \alpha_3 LOi + \alpha_4 LP + \alpha_5 LCg$$

To avoid such problems as self-correlation and endogeny, we use a modern econometric technique called "Auto-Regressive Distribution Lags" (ARDL), the results of which being unbiased and efficient. Pesaran and Shin has proved that if the convergence vector is obtained via the least squares methodology based on a self-ARDL technique whereby the distributive lags are well-specified, then not only it will enjoy the least normal distribution, but also, in case of small samples, it will be less biased and more efficient. Another advantage of the above-mentioned method is to obtain consistent estimation of long-run coefficients regardless of the variables being I(0) and I(1). Then, without any concerns about the unreliability of the variables involved and the related tests, here we are not required to conduct a reliability test.

The general form of the model ARDL (p,q1,q2,…,qk) is as follows:

$$\varphi(L,P)Y_t = \sum_{i=1}^{k} \beta_i(L,q_i)X_{it} + \delta W_t + \mu_t$$

(4) $$Q(L,P) = 1 - \varphi_1 L - \varphi_2 L^2 - ..... - \varphi_p L^p$$

$$\beta_i(L,q_i) = \beta_{i0} + \beta_{i1}L + ... + \beta_{iq_i}L^{q_i} \qquad \text{i=1, 2, ……., k}$$

where L shows the indicator of the first order distributive lag operator; $LY = Y_{t-1}$ and Y_t stand for dependant variables, X_{it} for the explanatory variable vector, $qi(i = 1,2,....,k)$ for the number of optimal lags relevant to each of explanatory variables, p for the number of optimal lags for the dependent variable and W_t for the vector of definitive variables including intercept, seasonal variables, time trend or endogenous variables with fixed lags.

The equation (4) is calculated by using the Micofit software which estimates the ordinary least squares (OLS) for all values of p = 0, 1, 2 ,.., m, q = 0, 1, 2, …, m and I = 1, 2 ,…, k, namely, for a number of $(m+1)^{(k+1)}$ various regressions. In addition, through using the Schwartz-Bizin criterion (taking into account the criterion proposed by Pesaran and Shin), one of the regressions which has already been estimated based on the OLS method is selected and the model's optimal lag is determined. Since the sample is quite small, this criterion saves the number of lags in order to lose fewer degrees of freedom. In this model, the maximum length of lag is assumed to be 2.

Moreover, through employing the ARDL method, a long-term equilibrium relationship among the variables can be established. Nevertheless, before the estimation of the long-term relationship, it is necessary to test the existence or lack of a long-term relationship among the dependant and independent variables. Then, a null hypothesis test should be conducted for the long-term co-integration relationship. Then, the prerequisite for the dynamic model estimated through the ARDL method to be inclined towards the long-term equilibrium is that the sum of dependant variable coefficients in the various short-term estimated lags be less than one:

$$H_0 : \sum_{i=1}^{p} \alpha_i - 1 \geq 0$$

$$H_1 : \sum_{i=1}^{p} \alpha_i < 0$$

Now, we can test the hypothesis indicating the lack of co-integration among the model variables. The needed statistic quantity t is calculated as follows:

$$t = \frac{\sum_{i=1}^{p} \widehat{\alpha}_i - 1}{\sum_{i=1}^{p} S_{\widehat{\alpha}_I}}$$

The critical quantity in the certainty level of 95 percent is -4.43 calculated by Benreji, Dolado and Mister (1999).

The results of the estimation of the short-term model are reported in the table (3):

Table (3): Results of the Estimation of Short-Term Model using ARDL (Dependant Variable LGini)

Statistic	*Coefficient*	*Variable*
6	*0/66*	**LGini(-1)**
1/9	*0/039*	**LDt**
-1/8	*-0/056*	**Lint**
2/2	*0/044*	**LOi**
-0/86	*-0/017*	**LP**
-2	*-0/039*	**LP(-1)**
-1.3	*-0/052*	**LCg**

Through using the quantities of the short-term equilibrium relationship, the statistic quantity *t* of the test is calculated as -8.46 which is greater than the critical amount proposed by Benreji, Dolado and Mister (-4.43) and as such, the null hypothesis is rejected. In other words, there is a long-term equilibrium relationship among the model variables. The results obtained via long-term estimation are presented in the table (4).

Table (4): Results of Estimation of Long-Term Model (Dependant Variable LGini)

Statistic	*Coefficient*	*Variable*
1/88	*0/117*	**LDt**
-1/74	*-0/165*	**Lint**
2/71	*0/131*	**Loi**
-2/8	*-0/168*	**LP**
-1/5	*-0/154*	**LCg**

4.2. Model Results

The results of the findings of the short-term equilibrium relationship indicate that there is a long-run relationship among dependant and independent variables. The results of the long-term equilibrium relationship show that the coefficient of direct taxes is positive, significant and consistent with the short-term results; in other words, with an increase in the direct taxes, the Gini coefficient decreases and the income distribution becomes more unequal. Direct taxes during the past 40 years have averagely covered 64 percent of the total taxes collected including three categories of corporate tax, individual income tax and wealth tax (the shares of these categories during these years have been respectively 46, 14 and 4 percent of the total tax revenues). One major tax issue is the problem of tax evasion which includes some 50 percent of the total revenues collected from "corporate tax" and "tax on the income of businesses and professions". A large number of high-income taxpayers try to avoid paying taxes. So, the tax burden is

mostly imposed on low-income classes, and accordingly, direct taxes tend to make the income distribution more unequal.

The research results show that indirect taxes make income distribution more equal in the society. Indirect taxes in the Iranian tax system include the "tax on imports" and GST (VAT as from the mid 2008). In the period 1971-2010, these tax categories have respectively covered 26 and 10 percents of the total taxes on average. Since GST and especially VAT are taken as typical taxes on consumption, and since based on theories of consumption, consumption is a function of income and high-income individuals consumes more, then, indirect taxes can improve the income distribution. However, a combination of the consumption of essential and luxury goods in the customer's consumption basket will be of great importance. While the low-income individuals generally consume essential goods, high-income individuals devote a greater share of their income to the consumption of luxury goods. Then, consumption taxes may increase the tax burden born by low-income individuals. Nevertheless, through tax exemption of essential goods and the application of progressive rates for the consumption of luxury goods, this problem can be solved and that is why in the Iranian VAT Act, essential goods are generally exempted from taxation.

The results of long-term relationships regarding the impacts of oil revenues on the income distribution indicate that the coefficient of oil revenues is positive and significant in the significance level of 0.5 and consequently, this type of revenue increases the inequality distribution in Iran. The emphasis on oil revenues, regardless of the developmental and institutional infrastructures, can lead to an inequality in the income distribution. This finding is consistent with those of previous studies.

As for the impact of inflation on the income distribution, the research results show that in the long-run, the inflation decreases the Gini coefficient and improves the income distribution. However, there are different viewpoints about the impact of inflation on income distribution. Shahid Avval (2003) has shown that the relationship between inflation and Gini coefficient takes a U form. In other words, in the low quantities of inflation, an increase in the inflation rate decreases the income inequality but after a certain point, it increases the inequality. In this regard, however, there are some theoretical disagreements. Based on the Philips Curve, an increase in the inflation brings about a decrease in the unemployment and a relative improvement of the subsistence of the low-income citizens and consequently, it leads to an improvement of the income distribution. On the other hand, the Life-Cycle Theory of Consumption implies that income of a person is relatively lower in the beginning and ending cycles of his life, while it is at a higher level in the stages in between. Under such a situation, the inflation increases the gap between low-income and high-income classes and makes the income distribution unequal.

The last finding of the present paper indicates that the coefficient of the government current expenditures has been negative. It means that the government current expenditures improve the income

distribution. Therefore, statistically speaking, at a lower significance level, the mentioned coefficient is significant.

5. Conclusion

Optimal allocation of resources and income distribution are two main objectives of economic systems and if they are realized, the maximum economic welfare for the society members can be achieved. Various factors such as economic policies (including monetary or financial policies), the market structure, the type of income, the way incomes are acquired by the people, and the conditions of economic development, all play roles in creating inequality.

Theorists of the free market system stress on the necessity of government involvement in the income distribution and argue that the government should guarantee more equality in the income distribution via direct involvement in the market. The government involvement can improve more efficient and more equal distribution of incomes in the market but sometimes, it can divert incomes distribution towards more inefficiency and inequality. What matters here is the government-market combination, the governments' efficiency and the type of government involvement in the market. The best tools for enhancing the equality in the income distribution are those that do not damage price mechanism in the market and, at the same time, do not weaken the competitiveness of the markets. Among the tools available to the government, taxation is very important for making financial polices and can improve income distribution in the society. Through the application of taxes, governments can take some part of the individuals' income in order to provide for the public needs of the society, to support the low-income classes or to pay the income directly to the poor. In fact, the impact of taxation on income distribution is generally exerted through the transfer of income from the market to the government and form the government to the whole society. Nevertheless, the impact of various types of taxes on income distribution depends on the extent to which tax burden might be transferred.

The results of some empirical studies carried out inside and outside Iran indicate that taxes have a dual effect on income distribution: in some cases, they improve income distribution while in other cases, they can lead to inequality in the income distribution. Research literature has also revealed that the tax structure of the countries in question plays an important role in the effectiveness of taxes (as a financial tool) on the income distribution; this effectiveness is greater in developed countries as compared to developing countries.

In this paper, the impact of taxes on income distribution has been explored for the period 1971-2010 through the ARDL methodology whereby the index of Gini coefficient has been used as the tool for measuring the income distribution. The results of the estimated model show that there is a long-term equilibrium relationship between dependant and independent variables. The results of the long-term

equilibrium relationship reveal that the coefficient of direct taxes is positive and significant. It means that with an increase in direct taxes, Gini coefficient increases also and the income distribution becomes more unequal, an issue that may be attributed to the pervasive tax evasion in Iran.

On the other hand, the findings of this study indicate that indirect taxes improve the income distribution in the society. Since both GST and VAT tax categories are taken as typical samples of consumption tax and since consumption is assumed to be a function of income (i.e. high-income individuals are expected to consume more), indirect taxes can improve the income distribution.

In this study, in addition to the effects of direct and indirect taxes, the impacts of oil revenues, inflation and government current expenditures on the income distribution have also been tested whereby the results of the long-term relationship of the model regarding the impact of oil revenues on income distribution have proved that the coefficient of oil revenues is positive and significant and consequently, it has been concluded that such an income increases the inequality in the income distribution. As for the inflation coefficient, the model results explain that in the long-run, inflation decreases the Gini coefficient and improves the income distribution. This finding is consistent with the findings of previous studies even though there is some theoretical disagreement upon the impacts of inflation on the income distribution. It is also revealed that the current government expenditure improves the income distribution, while, statistically speaking, their coefficients are significant at a lower significance level.

Since one of the factors involved in the Iranian tax system inefficiency is putting too much emphasis on direct taxes, it is highly recommended that in order to increase the efficiency of the taxation system and to decrease the compliance costs, the Iranian National Tax Administration (INTA) follows the global pattern in moving from direct taxes towards indirect taxes which are in line with economic justice and can improve the income distribution in the society. It is also recommended to implement the VAT system with a broader base taking as least as possible tax exemptions, especially in the area of luxury goods consumption.

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