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Test of Comparative Effect of Tax Policy, Literacy Rate and Urbanization Rate on Fair Income Distribution for OIC Member Countries

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Abstract

The purpose of this research is to test the comparative effectiveness of tax policy, literacy rate and urbanization rate on the fair distribution of income for member countries of the Organization of Islamic Conference. Based on this, we first examined the theoretical foundations and background of the research (related domestic and foreign studies). In the next step, to test the research hypotheses, the econometric model based on the panel data model for 5 selected member countries of the Organization of the Islamic Conference based on filters such as being Asian, neighboring Iran, and economic and political stability for the period 2000 to 2020 is selected and estimated. has been Although the results of the analysis confirm the acceptance of the main and sub-hypotheses of the research, considering that most of the coefficients of the estimated variables have negative effects on the Gini coefficient, it can be said that the implementation of tax policies (direct and indirect taxes) and development (literacy rate and expansion of urbanization) does not have a favorable effect on income distribution in the selected member countries of the Organization of the Islamic Conference (Iran, Oman, Kuwait, Qatar and Saudi Arabia). At the end, suggestions for improving income distribution are provided according to the research results for selected countries.

Keywords: Tax Policy, Literacy Rate, Urbanization Rate, Fair Income Distribution, Islamic Countries Organization

Introduction

One of the most important economic goals of the government is the optimal allocation of resources, fairer distribution of income, economic growth, expansion of employment, economic stability and maintaining the general level of prices, as well as improving international trade and the balance of payments, and taxes can be used as a political tool for the government in Help to achieve these goals. So that tax policies can have extensive effects on the country's economy. In this respect, one of the tools available to the government to achieve these goals is indirect taxes. In this way, by imposing indirect taxes on goods that have less effect on the society's movement towards economic

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development, and as a result of increasing the price of these goods, the society's demand for such goods will be reduced and the allocation of resources will be directed towards the production of goods that Reaching economic development has the greatest effect. Therefore, it can be said that one of the most important effects of taxes is the change in income distribution. (Rawlz, P.2018)

On the other hand, in developed countries that have an efficient tax system, the government's ability to perform each of the mentioned tasks will be greater. However, in developing countries including Iran, despite the high tax capacities (potentially and actually) for various reasons, the share of tax revenues from the total government revenues is small and this small amount is also distributed unfairly. In some ways, with the beginning of industrialization, especially after the Second World War, the phenomenon of poverty has always occupied the minds of human societies, especially developing countries. Considering the level of development, these communities solved this issue and by adopting strategies such as economic growth and growth with distribution, they sought to improve the living conditions of their country's people. But in many cases, especially in third world countries, for various reasons, many groups of people were deprived of these distributional effects of growth strategies, and this led to the emergence of economic-social gaps and the spread of the phenomenon of poverty. Literacy and urbanization rate on the fair distribution of income for member countries of the Organization of Islamic Conference is considered as the main research problem.

Theoretical foundations and research background Tax:

Taxes are a type of social cost that members of a nation are required to pay in order to benefit from the facilities and resources of a country in order to provide the ability to replace these facilities and resources. In fact, taxes are the transfer of a part of society's income to the government or a part of the profit of economic activities that belongs to the government because the government has provided the means and facilities for obtaining income and profits. (Todaro, Michael 2000).

Distribution of Income

Income distribution is the division of the national gross product among the factors of production that have participated in the formation and creation of added value, and in other words, income distribution in the economy shows how the national income is divided between groups and social classes as a result of the performance of the economic system. and the meaning of fair distribution of income is to change the form of real incomes in such a way that the class gap is reduced. Abu Nouri, Ismail, 2018).

Gini coefficient

The Gini coefficient is the ratio of the size of income inequality to the maximum possible income inequality in a completely unequal

income distribution. In 1921, Gini obtained a coefficient from the sum of the absolute value of the difference between a pair of incomes to the maximum possible size of this difference, which was later called the Gini coefficient. This amount of coefficient is obtained from the following relationship:

$$G = \left[\frac{1}{2n^2\mu}\right]\sum_{i=1}^{n}\sum_{j=1}^{n}(x_i - x_j)$$

where G is the Gini coefficient, n is the number of households, x_i is the income (expense) of the ith household, x_j is the income (expense) of the jth household, and μ is the average income (expense) of the society. The range of changes of this index is between zero (completely equal distribution) and one (completely unequal distribution). Therefore, the larger value of this index in the society indicates a more unfair distribution. (Stephen Richardson.,2012)

An overview of changes in income distribution in developing countries that are members of the Organization of the Islamic Conference:

The Organization of the Islamic Conference, with 57 member countries in four continents, is considered one of the current international organizations in the world. 57 members of the Organization of the Islamic Conference (OIC) are spread over 4 continents. Except for Albania, which is a European country, and Turkey, which considers itself a European country, and Suriname, which is an American member of the organization, other members of the organization are from the continent of Asia or Africa. Also, the members belong to three Arab, African and Asian groups based on an official classification. The Arab group, and especially the Arab countries that are members of the Persian Gulf Cooperation Council, are the main center of power in the organization. With the beginning of the Second World War, the period of pursuing Pan-Islamist ideas, in which the revival of Islamic creativity was also considered, ended and the Islamic world entered a new period of its political life.

As mentioned, this research is based on high quality data. Based on the available data, various values have been presented for the Gini coefficient of many developing countries that are members of the Organization of the Islamic Conference in the 90s and 2000s. In this section, based on the data available in the "World Bank Development Data Database", the major economic indicators of some developing countries for the 90s and 2000s are presented. (Table.1)

Table 1. Major economic indicators of some that are members of the OIC

Population growth (Per)	Per capita income*	G to GDP	Taxes income to GDP	Inflation (Per)	CO. Gini (Per)	Year	Country
1.15	487.73	19.83	17.95	87.134	35.99	1995	Azerbaijan
-0.68	898.24	26.31	10.19	33.2	29.12	1997	Albania
0.37	1318.89	24.27	16.11	5.2	28.15	2002	
0.58	1460.16	21.94	17.29	2.9	31.1	2004	
3.1	1708.9	28.42	14.4	95.791	36.42	1997	Jordan
2.5	1900.69	29.47	15.4	105.321	38.84	2003	
1.57	730.26	10.71	14.36	37.428	34.36	1993	Indonesia
1.39	877.76	10.36	14.23	47.557	36.55	1996	
1.33	843.79	15.71	11.83	124.657	34.31	2002	
2.41	521.74	18.99	13.17	96.54	33.02	1999	Pakistan
2.41	532.67	17.12	10.43	107.024	30.56	2002	
1.31	148.42	10.01	8.21	75.272	31.52	1999	Tajikistan
1.15	203.18	11.17	9.7	180.977	32.64	2003	
1.87	2527.4	19.99	15.19	3.339	41.53	1994	Turkey
1.69	2955.61	35.25	22.1	100	40.03	2000	
2.43	1500.64	30.41	19.95	64.982	40.24	1990	Tunisia
1.6	1651.39	28.37	20.49	85.866	41.66	1995	
1.13	2033.07	27.63	21.31	100	39.8	2000	
1.91	1661.23	24.18	28.6	73.798	35.3	1995	Algeria
3.59	1291.14	15.78	14.2	5.529	47.42	1986	Iran
2.02	1166.7	24.22	14.9	48.917	32	1991	Diameter
1.85	1263.87	23.82	17.62	78.472	32.6	1995	
1.91	1483.8	20.51	14.59	100	34.41	2000	
1.45	259.71	20.88	12.51	56.12	40.5	1997	Kyrgyzstan
1.4	267.03	17.73	12.21	84.239	34.6	1999	
0.8	291.16	15.76	12.44	106.913	29.03	2001	
4.85	457.83	24.54	9.66	11.313	39.45	1992	Arabia
3.16	521.99	29.64	13.01	83.514	33.44	1998	
1.13	577.23	24.64	19.02	41.811	30.1	1990	Sri Lanka
1.1	723.19	24.98	16.95	52.247	34.36	1996	
1.46	879.52	22.91	14.02	123.431	40.17	2002	
3.34	20031.12	16.36	14.6	98.647	42.48	1998	Singapore
-0.17	1397.29	13.57	9.64	108.351	31.3	2001	Kazakhstan
0.34	1671.21	13.89	13.08	122.097	33.91	2003	
2.66	2881.58	23.02	20.17	77.324	47.65	1992	Malaysia
2.6	3510.15	17.23	19.56	85.7	48.52	1995	

2.53	3938.13	16.51	19.83	91.036	49.15	1997
1.82	1696.32	20.81	15.34	77.89	37.09	Mean
1.059	3073.55	6.080	4.1050	38.57	5.73	Standard Deviation
1.72	0.55	3.42	3.74	2.02	6.47	Coefficient of variation

at a fixed price of 2,000 USD Source: World Bank information base

Thomas L. Hungerford (2020), in his article titled, Changes in Income Inequality Among American Tax Options Between 1991 and 2006: The Role of Wages, Capital, Income, and Taxes, his research examines changes in income inequality specifically. / After-tax income among tax filers between 1991 and 2006. In particular, it examines how changes in wages, capital income, and tax policy contribute to changes in income inequality. In order to examine the role of these three possible factors for the increase in income inequality, the Gini coefficient is analyzed by source of income using the method developed by Lerman and Yitzhaki (1985). The Gini coefficient of income after tax increased by nearly 15% between 1991 and 2006. Changes in income resulting from the increase in capital value and dividends were by far the biggest factors of this increase. Changes in taxes, like changes in wages, had an equalizing effect throughout this period. Most of the equalizing effect of taxes occurred after the tax increase in 1993; However, most of the equalizing effect was reversed after the Bush-era tax cuts of 2001 and 2003. The same results are obtained with other inequality measures.

Oliver Bargin and Rawls (2018), in the articles titled, Tax Policy and Income Inequality in the United States of America, 1978-2009: An Analytical Approach, state that using a new analysis method to evaluate the effects of US tax policy reforms We focus on inequality in that this method allows us to separate the automatic effects caused by changes in pre-tax incomes from the direct effects of policy reforms. While the tax reforms implemented under Democratic administrations, especially the EITC reforms in the 1990s and the ARRA reforms in 2009, had an equalizing effect on the lower half of the distribution, the equalizing effects of the Republican reforms were due to tax cuts for large families. are income. As a result of partisan politics, the overall effects of politics are almost neutralized over the entire time period.

Methods and Methodology

According to the type of data, this research is descriptive or non-experimental, based on the purpose, practical, and in terms of implementation, it is a correlational research.

Research hypotheses

In this research, according to the mentioned questions, the following hypotheses are tested:

The main hypothesis: the implementation of fiscal policies (direct and indirect taxes) and development policies (education and expansion of urbanization) has a significant effect on the distribution of income in

selected member countries of the Organization of Islamic Conference.

The first sub-hypothesis: There is a significant relationship between the ratio of indirect taxes to the gross domestic product (GDP) and income distribution (Gini coefficient) in the selected member countries of the Organization of Islamic Conference.

The second sub-hypothesis: There is a significant relationship between the ratio of direct taxes to the gross domestic product (GDP) and income distribution (Gini coefficient) in the selected member countries of the Organization of Islamic Conference.

The third sub-hypothesis: There is a significant relationship between the enrollment rate in secondary schools (percentage) and income distribution (Gini coefficient) in selected member countries of the Organization of Islamic Conference.

The fourth sub-hypothesis: There is a significant relationship between the percentage of urbanization and income distribution (Gini coefficient) in selected member countries of the Islamic Conference Organization.

Research model and variables

In this research, independent and dependent variables are examined in the form of the following general model. So that the independent variables include the ratio (share) of direct taxes as a percentage of the real GDP for the i-th stage in the t-th year, the share of indirect taxes as a percentage of the real GDP for the i-th stage in the t-th year, the secondary school enrollment rate for the i-th stage in year t and the rate of urbanization for period i in year t. The dependent variable is the Gini coefficient of 5 selected countries (Iran, Qatar, Saudi Arabia, Oman and Kuwait) members of the Organization of Islamic Conference (sections) during the years 2000-2020. In general, for a panel regression model (with starting width), we have for the research model:

$$GCit = c + \beta^1(DT/GDP)\,it + \beta^2(INT/GDP)\,it + \beta^3 Sit + \beta 4 Uit + \varepsilon it \quad (2)$$

so that we have:

GCit: Gini Coefficient for the i-th stage in the t-th year

(DT/GDP) it: share of direct taxes as a percentage of real GDP for the i-th period in the t-th year

(INT/GDP) it: Excise tax share as a percentage of real GDP for the i-th period in the t-th year

Sit: Secondary enrollment rate for the i-th grade in the t-th year

Uit: Urbanization rate for the i-th stage in the t-th year

εit: error sentence

Of course, it should be noted that the selected model will be analyzed in EVIEWS.10 software after Limer's F tests and Hausman's if necessary.

Results

After performing the unit root (which confirmed the significance of the research variables) and collinearity tests, the appropriate estimation method for the research model was selected based on the F-tests of Limer and Hausman as follows.

Limer's F test: As table number (2) shows, prob>0.05 and the calculated value of Limer's F statistic is significant. Therefore, the null hypothesis that the data are mixed is rejected, and in fact the opposite hypothesis, which indicates the suitability of the Common Effect method (CE) for model estimation, is accepted.

Table 2. Summary of the Limer F test method

prob	d.f	The value of F test statistic
0.1281	(4,85)	1.842919

Source: research findings

Estimation of the research model (method of fixed effects) and hypothesis testing

Now, taking into account the homogeneity of variance (correcting the heterogeneity of variance) and also correcting cross-sectional autocorrelation, we estimate the research model using the fixed effects method. Table number (3) also shows the summary of the intended estimate. So that the results listed in table number (3) for testing the research hypotheses contain interesting points.

So that the first hypothesis of the research can be accepted at a significance level of 100% for all 5 selected countries. Further explanation that for the variable of the ratio of direct taxes to the total GDP (DTit variable) at a significance level of 100%, it can be said that this variable has a negative and significant effect on the Gini coefficient of Iran, Oman and Kuwait, and a positive effect on the Gini coefficient of Qatar and Saudi Arabia. has meaning Therefore, in the first 3 countries, it has been effective in intensifying the inequality of income distribution and in the next 2 countries (Qatar and Saudi Arabia) in the direction of equality of income distribution. In better words, for the first 3 countries, it can be said that the policy of direct taxes, contrary to expectations, did not have a constructive (beneficial) distributional role on the improvement of income distribution and weakened (worse) the Gini coefficient.

- On the other hand, regarding the INTit variable related to the second hypothesis, it can be said that the variable of the ratio of indirect taxes to the total GDP also has a significant effect on the Gini coefficient of all 5 selected countries. So this variable has a negative and significant effect on the Gini coefficient of Oman, Kuwait, Qatar and Saudi Arabia and a positive and significant effect on the Gini coefficient of Iran. Therefore, in the 4 selected countries, it has been effective in intensifying the inequality of income distribution and in Iran in the direction of equality of income distribution. In better words, for the 4 selected countries, it can be said that the policy of indirect taxes, contrary to expectations, did not have a constructive (beneficial) distributional role on the improvement of income distribution and weakened (worse) the Gini coefficient.

Table 3. Summary of the estimation of the selected model using the joint effects method to investigate the effect of the independent variables of the research econometric model on the dependent variable to test the research hypotheses

Estimation results	Coefficient of variables/ t/ Probability	Country
-0.036	DTit	IRAN
(77/30)	t	
(0.000)	prob	
0.616	INTit	
(9/65)	t	
(0.000)	prob	
-0.029	Sit	
(84/5)	t	
(0.000)	prob	
-0/010	Uit	
(0/28)	t	
(0/77)	prob	
-0/11	DTit	Oman
(72/58)	t	
(0.000)	prob	
-4/60	INTit	
(63/24)	t	
(0.000)	prob	
-0/062	Sit	
(60/8)	t	
(0.000)	prob	
-0/109	Uit	
(51/2(	t	
(0/0135)	prob	

Source: research findings

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Table 4. Summary of the estimation of the selected model

-0/03 (78/137) (0.000)	DTit t prob	Kuwait
-48/98 (2/1709) (0.000)	DTit t prob	
-0/028 (34/224) (0.000)	DTit t prob	
0/003 (0/12) (0/900)	DTit t prob	
0/105 (30/72) (0.000)	DTit t prob	Qatar
0/73 (27.72) (0.000)	DTit t prob	
-0/009 (84.71) (0.000)	DTit t prob	
-0/10 (1/94) (0/058)	DTit t prob	

Source: research findings

- Also, for the Sit variable, related to the third hypothesis, it can be said that the secondary enrollment rate variable for the i-th grade in the t-th year also has a significant effect on the Gini coefficient of all 5 selected countries. So that this variable has a negative and significant effect on the Gini coefficient of all 5 selected countries (Iran, Oman, Kuwait, Qatar and Saudi Arabia). Therefore, in 5 selected countries, this variable has been effective in intensifying the inequality of income distribution. In better words, for the 5 selected countries, it can be said that the development policy of secondary education, contrary to expectations, did not have a constructive (beneficial) distributional role on the improvement of income distribution and weakened (worse) the Gini coefficient.

Table 5. Summary of the estimation of the selected model

0.06 (2/61) (0.010)	DTit t prob	Saudi Arabia
-0/36 (325/09) (0.000)	DTit t prob	
-0.34 (6.56) (0.000)	DTit t prob	
0.28 (7.92) (0.000)	DTit t prob	
0.53	Adjusted coefficient of determination	
2	DW	
>0.05	Prob for F Limer	
(RE)	The result of Limer's F test (choosing the type of model estimation method)	

Source: research findings

And finally, for the urbanization rate variable, related to the fourth hypothesis, it can be said that this variable, unlike other variables, has had different effects for the selected countries. So that it had a negative and meaningless effect on the Gini coefficient of Iran and it had a negative and almost significant effect on the country of Qatar. Therefore, in 2 selected countries (Iran and Qatar), it has been effective in intensifying the inequality of income distribution. In better words, for the two mentioned countries, it can be said that the educational development policy, contrary to expectations, has not had a constructive (facilitating) distributional role on the improvement of income distribution and has weakened (worse) the Gini coefficient. On the other hand, for other selected countries studied in this research (Oman, Kuwait and Saudi Arabia), this variable has had positive and significant, positive and meaningless, and positive and significant effects, respectively, and has worked to facilitate income distribution.

Conclusion

In this research, the results of the analysis of the research econometric model (testing the research hypotheses) for the countries under study showed that in the case of the first hypothesis, the coefficient of the DTit variable (the ratio of direct taxes to GDP) is at a significance level of 100% on the Gini coefficient of the countries. Iran, Oman and Kuwait have a negative and significant effect and a positive and significant effect on the Gini coefficient of Qatar and Saudi Arabia.
Considering the negative impact of the INTit variable related to the second sub-hypothesis, it can also be said that the variable of the ratio

of indirect taxes to the total GDP at a significant level of 100% for 4 selected countries except Iran (including: Oman, Kuwait, Qatar and Saudi Arabia) It is that, contrary to expectations, the indirect tax policy did not have a constructive (helpful) distributional role on the improvement of income distribution and weakened (worse) the Gini coefficient.

Also, for the Sit variable, related to the third sub-hypothesis, it can also be said that the variable of secondary school enrollment rate for the i-th grade in the t-th year also has a negative and significant effect on the Gini coefficient of all 5 selected countries. Therefore, it can be said that the development policy of secondary education has not had a constructive (facilitating) distributional role on the process of improving income distribution, contrary to expectations.

For the urbanization rate variable, related to the fourth sub-hypothesis, it can also be said that this variable had a negative and insignificant effect on the Gini coefficient of Iran and had a negative and almost significant effect on the country of Qatar. In better words, for the two mentioned countries, it can be said that the educational development policy, contrary to expectations, has not had a constructive (facilitating) distributional role on the improvement of income distribution and has weakened (worse) the Gini coefficient. On the other hand, this variable has had a positive effect on the countries of Oman, Kuwait, and Saudi Arabia, respectively, and has worked to improve income distribution. (Of course, it has become meaningless for Kuwait.)

According to the aforementioned results and in order to confirm the main hypothesis of the research, it can be said that the implementation of fiscal policies (direct and indirect taxes) and development policies (education and expansion of urbanization) have a favorable effect on income distribution in the selected member countries of the organization. The Islamic Conference (Iran, Oman, Kuwait, Qatar and Saudi Arabia) does not.

Recommendations

According to the results of this research, in order to improve the distribution of income in the selected member countries of the Organization of the Islamic Conference (Iran, Oman, Kuwait, Qatar and Saudi Arabia), the following suggestions are presented:

Increasing direct taxes in Qatar and Saudi Arabia and reducing them in Iran, Oman and Kuwait can improve income distribution (increasing the Gini coefficient.(

Increasing indirect taxes in Iran and reducing them in Oman, Kuwait, Qatar and Saudi Arabia can improve income distribution (increasing the Gini coefficient.(

Considering the negative and significant impact of the Sit variable, improving the quality of the educational system, paying attention to other levels of education (primary, middle school and higher education) and basic reforms in the secondary education system in all 5 selected countries studied in this research can be To improve income distribution (increase the Gini coefficient.(

For the countries of Iran and Qatar, the policies of reducing migration to cities on the

one hand and improving the quality of existing urban life on the other hand can work to improve income distribution (increasing the Gini coefficient) of these two countries. Also, paying attention to the variable increase in the urbanization rate for the countries of Oman, Kuwait and Saudi Arabia can be effective in improving the income distribution (increasing the Gini coefficient) of these 3 countries.

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