THE EFFECT OF THE LEGISLATIVE AMENDMENTS ON INCOME TAX LAW ON THE EFFECTIVENESS OF TAX SYSTEM IN JORDAN

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ABSTRACT: The study aimed at identifying the effect of the legislative amendments on income tax law during the period (1996-2016) on the effectiveness of the tax system in Jordan, the studyuse the descriptive analysis, and concluded that there is no statistically significant effect of the change in GDP on the actual tax revenues, and there is no significant differences between the ratios of actual tax revenues to GDP, as well as the ratio of actual tax revenues to the general state revenues, and to the presence of statistically significant differences between the percentages of the overall compliance ratios during the sub-study periods, although they do not constitute a general trend for improvement.The study recommends minimizing the amendments to tax legislation to achieve stability in tax legislation and to encourage investments, and the amendments should focus on combating tax evasion and improve tax collection procedures and to avoid increasing the tax rate because it increases the burden of obliged taxpayers and compensates tax evaders.

KEYWORDS: Tax legislative amendments, Tax law, tax system effectiveness

1. INTRODUCTION:

Taxes in general and income tax, in particular, are one of the most important financial resources for many countries, especially poor in their natural resources, as is the case in Jordan, so we find that these countries are characterized by a high tax burden imposed on their citizens and economic institutions, states usually work to review their tax legislation and amend it whenever necessaryso that this legislation helps achieve the desired goals of imposing the tax,therefore, this study came to identify the role of amendments that have been made to tax legislation during the past two decades in improving the effectiveness of the tax system in Jordan, whether in terms of abundant tax revenues or combating tax evasion.

The Study Problem andQuestions:

The government of Jordan has issued many amendments to tax legislative especially in the last two decades, so the study came to assess the impact of the legislative amendments on the effectiveness of the tax system in Jordan throughanswering the following questions:

1. Is there a relationship between growth rates in gross domestic product and growth rates in actual tax revenues in Jordan?
2. Did the legislative amendments affect the ratio of actual tax revenues to GDP in Jordan?
3. Did the legislative amendments affect the ratio of actual tax revenue to the total actual public revenue of the state?

4.   Did the legislative amendments affect the ratios of actual tax revenues to the tax revenues estimated under the General Budget Law or the so-called gross compliance rate?

The Importance of the Study

This study derives its importance from the importance of the topic that it deals with, which is the amendment on income tax lawon the effectiveness of the tax system in Jordan by focusing on two main dimensions of the effectiveness of the tax system,which are to reduce the phenomenon of tax evasion and the abundance of tax revenues (2010-2014) (USAID, 2013, P.97).

Study Hypotheses:

The study includes testing the following hypotheses to answer the study questions and achieve its goals:

The first main hypothesis HO1: There is no statistically significant effect of the percentage change in the annual gross domestic product size on the percentage change in the volume of the actual tax revenues of the state in Jordan at the level of the significance of $\alpha \leq$ 0.05.

The second main hypothesis HO2: There are no statistically significant differences between the means of tax rates (actual tax revenues to GDP) during the study sub-periods at the significance level of $\alpha \leq$ 0.05.

The third main hypothesis HO3: There are no statistically significant differences between the means of the ratios of tax revenues contribution in financing the state's general budget (actual tax revenues to the actual public revenues of the state) during the study sub-periods at the significance level of $\alpha \leq$ 0.05.

The fourth main hypothesis HO4: There are no statistically significant differences between the means ofcompliance ratios (actual tax revenues to estimated tax revenues) during the study sub-periods at the significance level of $\alpha \leq$ 0.05.

The study limitations

1.   The main limitation of the study is the unavailability of tax evasion figures.   .

2.   The shortage of periodsduring which Law No. 25 of 2001 and Law No. 34 of 2014 were applied for two years.

The Limits of the Study:

This study was confined to the effect of the legislative amendments to tax law that were issued in Jordan during the period (1996-2016).

Procedural Definitions:

1.   The effectiveness of the tax system: the ability of the system to achieve the goals expected of it, and it is intended forthis study to reduce tax evasion and the abundance of tax revenues.(The researcher).

2.   Legislative Amendments: These are the income tax laws that were passed in full or according to which tax legislation in effect during the period (1996-2016) was amended. (The researcher).

3.   Actual Tax Revenue: It is the income tax revenue from the tax on income and profits and includes the tax on the income of companies, individuals, employees, the social services tax (before it is canceled), and the tax on dividend   collected during the fiscal year.(The final account of the state).

4.   Estimated Tax Revenue: Income tax revenue from the tax on income and profits and includes the tax on the income of companies, individuals, employees, the social services tax (before it is canceled), and the distribution tax estimated according to the General Budget Law for the fiscal year (General Budget Law).

5.   Gross Domestic Product (GDP): The market value of all goods and services produced by a particular country during a specific year (Shiller, 1999).

6.   Tax Ratio: represents the ratio of actual tax revenue to GDP (Gallagher, 2004, p: 8).

7.   Gross Compliance Ratio: it represents the ratio of actual tax revenue to estimated tax revenue. (Gallagher, 2004, P: 12).

8.   The Ratio of the Contribution of Tax Revenues in Financing the State's General Budget: It represents the ratio of actual tax revenues to the actual general revenues of the state (researcher).

2. THEORETICAL FRAME WORK

1.   The concept of tax

The relationship of citizens with the country to which they belong is based on the concept of a social contract, which includes the assignment by individuals of a portion of their natural freedoms to a governing body that looks after the affairs of the group, On the other hand, they must do what is necessary for the state to perform these duties on their behalf (Zuaiter, 1995).The tax is defined as "a monetary amount imposed by the state or one of the local bodies in it by force and collected from the taxpayer permanently and without compensation by a specific law or legislation,the aim of imposing the tax is to contribute to covering the various state expenditures and to achieve some of the economic and social that the state seeks to reach "(Abu Nassar, 2016, p. 3).

2.   The Tax Goals

The tax is used to achieve several goals and these goals are similar in many countries, even if they differ in their relative importance from one country to another according to their economic and social conditions, the tax in Jordan aims to achieve the goals of justice and equality between those charged with, appropriateness, and balance in the distribution of incomes, achieving abundance in tax revenuesand encouraging investments,and some other economic goals (Yassin, 2005, p. 15), and a good tax system is characterized by justice, equality, certainty, clarity, suitability, and the economy (Abu Nassar, 2016, p. 12; Abbas et al., 2020; Ahmad et al., 2018; Bonal et al., 2019; Chetthamrongchai et al., 2019; Hadi, 2019).

3.   Evolution of the legislative framework for tax in Jordan

The beginning of the tax in Jordan go back to 1933, when the first income tax law was issued in Jordan, Law No. 108 of 1933, but this study aims to identify the impact of legislative amendments that have taken place during the past two decades, so the amendments that were made during this period are presented in detail later on at the study period paragraph.

4.   Tax Evasion in Jordan

Tax evasion is defined as "that the taxpayer disposes of the obligation to pay the tax by means that may be lawful or unlawful." (Nour and Adas, 2003, p. 324)

The tax burden ratio in in Jordan for the year 2011 was about 25% of GDP, It is a high rate when compared to neighboring countries,so successive governments have taken several measures since 1988 to reform the tax structure that was suffering from difficulty in administration, weak compliance (commitment), and the system also included many gaps that facilitated tax avoidance operations, and many tax exemptions that conflict with efficiency

and effectiveness standards and considerations of fairness and equity (Economic and Social Council, 2014, p. 13),The study of (Gravelle, 2015; Abbasi et al., 2020; Al-Kumaim et al., 2021) also indicated that there are several Middle Eastern countries included in the list of the Organization for Economic Development and Cooperation (OECD) for countries that are considered tax havens, including Jordan.

5.   The Relationship between GDP and Tax Revenues

Tax laws often include a general rule that states income is subject to income tax and the exception is exemption from it,and the tax base of the taxpayer includes his income from all taxable income sources (Abu Nassar, 2016, pp. 42-43), the study of the Economic and Social Council(2013) indicated that the inconsistencies in the rates of tax revenue growth with the rates of growth in GDP are due either to the existence of tax exemptions or to tax evasion and avoidance (Economic and Social Council, 2013, p. 20),as for the study (HAO LI, 2010), it indicated that there is a large and direct correlation between gross domestic product and tax revenue in the United States of America, on the contrary, a study (Iriqat and Anabtawi, 2016; Arshad et al., 2020; Ashraf et al., 2020) showed that there is no relationship between gross domestic product and tax revenues of the national authority of Palestinian.

6.   General State Revenue and Income Tax Revenue

The financial system in Jordan defined public revenue as "all taxes, fees, returns, profits, surpluses, aids, and any other money received for any department" (Ismail and Adas, 2010, p. 299). the tax burden of the individual in Jordan is in its general sense one of the highest percentages in the region (Economic and Social Council, 2014, p. 13),income tax revenues are included in the general budget of the state in Jordan under Chapter (111), taxes on income and profits, which includes income tax from individuals, and income tax from companies and other projects (General Budget Law, 2017, p. 8; Balakrishnan et al., 2019; Jabarullah et al., 2019).

7.   The Effectiveness of the Tax System

Effectiveness is defined as "the ability of the system to achieve the desired goals from it" and therefore the starting point for assessing the effectiveness of any system is to choose a specific goal to assess the effectiveness of the system against it (Vitek and Pubal, 2000; Khan et al., 2019).

Gallagher study(2004) reviewed some of the studies that were conducted in some countries very above and reached a specific methodology for comparing the systems using some criteria such as the ratio of tax revenue to gross domestic product (Tax Ratio),the Gross Compliance Rate, the percentage of tax revenue contribution to financing the state's general budget and other criteria, and the following is a presentation of how this study measures the effectiveness of the tax system in Jordan:

a.   Reducing tax evasion:Due to the difficulty of measuring the amount of tax evasion Based on the aim of this study, it used an indicator of the extent to which tax revenues growth rates are linked to GDP growth rates as an indicator of the extent to which the tax system minimize tax evasion, some studies also indicate that there is a strong correlation between GDP and tax revenues (HAO LI, 2010), and therefore the inconsistency of growth rates in tax revenues with growth rates in GDP indicates either the presence of tax exemptions or the existence of tax evasion and avoidance (Economic and Social Council, 2013, p. 20), that is, the degree of tax revenue correlation with GDP in a country is an indication of the extent of its tax system's ability to minimize tax evasion and tax avoidance.

b.   Abundance of tax revenue: The goal of achieving abundance of tax revenue is one of the main goals of any tax system, and achieving this goal is directly related to achieving the

goal of reducing tax evasion,if the tax system succeeds in reducing tax evasion, this will reflect positively on the amount of tax revenue, and the study used the ratio of actual tax revenue to GDP (Tax Ratio),and the ratio of the actual tax revenues to the general revenues of the state to indicate the effect of amending tax legislation on achieving this goal, and improving these two percentages was considered one of the goals of the strategic plan of the Income Tax Department for the years (2010-2014) (USAID, 2013, P.97).

3. LITERATURE REVIEW

Tax revenues represent a main source of state revenues in Jordan, so USAID study (2013) state that increasing the effectiveness of the tax system in was one of the main goals of strategic plan of income tax department, Abu Nassar study (2013) state that tax goals include financing operating expenses, encouraging investments and other economic goals, and effective tax system should be characterized by justice, equality, certainty, clarity, stability and the economy, the study of Nour and other (2003) mentioned that the first tax law in Jordan was issued in 1933, after that many tax laws and amendments to tax laws was issued, the social and economic council study (2014) conclude that recurring of tax laws issuing and amendments make it difficult for taxpayers to understand and adhere to tax law, and encourage them to evade paying taxes, it also mentioned that tax system in Jordan has many gaps that facilitate tax avoidance and gives many tax exemptions that conflict with tax efficiency and effectiveness standards, the study of Gravella(2015) state that Jordan is one of the tax haven countries in Middle East region, the study of HAO LI(2010)state that tax usually imposed as a tax percentage of the tax payer tax base, the social and economic study (2014) mentioned that the tax burden of individual in Jordan is the highest in the region.

The study of Gallagher(2014)review many of the tax effectiveness studies and conclude that tax ratio, gross compliance ratio and tax revenues to gross domestic product ratio are the most common indicators of tax system effectiveness, Al- hajj study (2003) conclude that amendment to tax law in Jordan has no effect on the tax collections, the UKessy study(2013) shows that there is appositive relationship between gross domestic product and tax revenues in Malaysia, while the study of Iriqat and Anabtawi(2016) conclude that there is no effect gross domestic product as a sum and the tax revenues in Palestine, the international monetary fund study(2011)conclude that countries can achieve its social objectives through increasing the ratio of tax revenues to gross domestic product, the social and economic council study (2013) conclude that the tax legislation instability and complexity are among other factors of increasing tax evasion, Abed-Alahed(2014)discuss the importance of accounting standards in improving tax accounting practice.

4. METHOD AND PROCEDURES
Study Methodology

The study used the descriptive-analytical method to identify the effect of amending tax legislation on the effectiveness of the tax system in Jordan in terms of minimizing tax evasion and achieving an abundance of tax revenue, as shown below:

a.   Reducing tax evasion. To find out the effect of the legislative amendments on this goal, the growth rates for both the actual tax revenues and the GDP were calculated for the entire study period (1996-2016),then, test the extent to which the change in GDP affects the actual tax revenue, as the strength of the relationship between them is an indication of low tax evasion, and vice versa, and calculating the means of gross compliance ratio ratios for the study sub- periods to show the extent of statistically significant differences between these means during the period of validity of each legislation, where a high of this percentage indicates a decline in tax evasion and vice versa.

b.   Abundance of tax revenues. The study used the Tax Ratio and the percentage of the tax revenue to the state's general budget to measure the effect of legislative amendments on income tax laws on the effectiveness of the tax system in achieving the abundance of tax collections, the means of these ratios for the four the study sub-periodswere calculated and compared to show the extent of the existence of statistically significant differences between them .

The Study Period:
The study period included the years (1996-2016), and the study period was divided according to the period of validity of the legislative amendments into four sub-periods, namely(Ministry of Finance / Income Tax Department, 2004, p.7):
a.   The first sub-period: it represents the period of application of the amended Law No. 14 of 95, and starts from 1/1/96 to 12/31/2002.
b.   The second sub-period: It represents the period of application of the amended Law No. 39 of 2003, and starts from 1/1/2003 to 12/31/2009.
c.   The third sub-period: It represents the period of application of the amended Law No. 28 of 2009, starting from 1/1/2010 until 31/12/2014.
d.   The fourth sub-period: It represents the period of application of the new income tax law currently in force No. 34 of 2014and starts from 01/01/2015 until 12/31/2016, and data for this period have been used for purposes of comparison only with the rest of the periods and have not been statistically tested due to the shortness of this period Which represents only two years.

Data Sources.
a.   The primary sources of data: The data related to the state's general revenues and estimated tax revenues,and the actual tax revenues were obtained from the final accounts issued by the Ministry of Finance.
b.   The secondary source ofdata: The books, university theses, scientific research, articles, and reports published in scientific journals represent a secondary source of data.

Study Variables
a.   Reducing tax evasion: The study used the relationship between gross domestic product and actual tax revenues during the entire study period as an indicator of the impact of legislative amendments in reducing the tax evasion where the study considered the rate of growth (change) in GDP is the independent variable,the rate of growth (change) in actual tax revenue is the dependent variable.
b.   The abundance of actual tax revenue: the study used the Tax Ratio and the ratio of actual tax revenue to the actual public revenue used as indicators of the impact of these amendments on the abundance of actual tax collections.
        Table (1) below shows the above ratios statistics.

Table Number. (1): the size of the gross domestic product, the rates of its growth, the size of the actual tax revenues, the rates of its growth and the ratios of the actual tax revenues to the gross domestic product (amounts in millions of dinars)

Fiscal year	Actual tax revenue	Percentage of change	Gross domestic product	Percentage of change	Tax revenue /local production
			The first sub-period		
1995	152.428		4714.7		0.032

1996	173.061	13.54%	4911.3	4.17%	0.035
1997	149.705	-13.50%	5137.4	4.60%	0.029
1998	139.639	-6.72%	5609.9	9.20%	0.025
1999	153.772	10.12%	5778.1	3.00%	0.027
2000	160.974	4.68%	5998.6	3.82%	0.027
2001	195.409	21.39%	6363.7	6.09%	0.031
2002	196.202	0.41%	6794	6.76%	0.029
The second sub-period					
2003	195.392	-0.41%	7228.8	6.40%	0.027
2004	217.914	11.53%	8090.7	11.92%	0.027
2005	283.732	30.20%	8925.4	10.32%	0.032
2006	411.434	45.01%	10675.4	19.61%	0.039
2007	494.945	20.30%	12131.4	13.64%	0.041
2008	603.409	21.91%	15593.4	28.54%	0.039
2009	764.718	26.73%	16912.2	8.46%	0.045
The third sub-period					
2010	624.611	-18.32%	18762	10.94%	0.033
2011	667.495	6.87%	20476.6	9.14%	0.033
2012	688.317	3.12%	21965.5	7.27%	0.031
2013	681.897	-0.93%	23851.6	8.59%	0.029
2014	766.363	12.39%	25437.1	6.65%	0.030
The fourth sub-period					
2015	858.635	12.04%	26637.4	4.72%	0.032
2016	944.717	10.03%	27444.8	3.03%	0.034

* Source: Prepared by the researcher based on the study data analysis.

Table (2) below shows the actual public revenues data, actual and estimated tax revenues, the ratio of actual tax revenues to the state's general revenue, and the ratio of actual tax revenues to estimated tax revenues.

Table Number (2): the actual public revenue of the state, the actual and estimated tax revenue, the ratio of the actual tax revenue to the general revenue of the state, and the ratio of the actual tax revenue to the estimated tax revenue

year	Actual general revenues of the state	Actual tax revenue / general state revenue	Estimated tax revenues	Actual tax revenues	Actual tax revenues / estimated tax revenues
The first sub-period					
1995	1619.98	0.094	150.00	152.428	0.016
1996	1723.22	0.100	160.00	173.061	1.082
1997	1620.84	0.092	155.00	149.705	0.966
1998	1701.38	0.082	191.30	139.639	0.730
1999	1815.94	0.084	170.00	153.772	0.899
2000	1850.32	0.087	175.00	160.974	0.915
2001	1968	0.099	205.00	195.409	0.953
2002	2016.7	0.097	200.00	196.202	0.981
The second sub-period					
2003	2363.4	0.083	201.00	195.392	0.972
2004	2814.29	0.077	212.00	217.914	1.028
2005	3064.03	0.093	220.00	283.732	1.290

2006	3046	0.093	385.00	411.434	0.737
2007	3433.93	0.144	488.00	494.945	1.014
2008	5093.7	0.118	574.00	603.409	1.051
2009	4521.29	0.169	664.32	764.718	1.151
The third sub-period					
2010	4662.8	0.134	689.56	624.611	0.906
2011	5413.89	0.123	720.30	667.495	0.927
2012	5054.3	0.136	734.27	688.317	0.937
2013	5975.29	0.092	652.00	681.897	0.842
2014	7267.66	0.105	765.00	766.363	1.002
The fourth sub-period					
2015	6796.4	0.126	880.00	858.635	0.976
2016	7069.68	0.134	985.00	944.717	0.959

* Source: Prepared by the researcher based on the study data analysis.

Statistical analysis and hypothesis testing

Table(3) below shows the descriptive statistics of the financial indicators used in the study.

Table number (3): the descriptive statistics of financial indicators used in the study during the period (1995 - 2014)**

Financial indicators	N	The lowest value	The highest value	Mean	Standard deviation
Gross domestic product	20	4714.70	25437.10	11767.89	7063.60
Actual tax revenue of the state	20	1619.98	7267.66	3351.35	1726.26
General tax revenue of the state	20	139.64	766.36	386.07	244.02
Estimated tax revenues	20	150.00	765.00	385.59	241.86
The percentage of change in actual tax revenue	21	-18.32	45.01	10.02	14.76
The percentage of change in the GDP	21	3.00	28.54	8.90	5.99
Tax ratio (actual tax revenues to gross domestic product)	20	2.49	4.52	3.20	0.54
The ratio of the contribution of tax revenues in financing the state's general budget (actual tax revenues to the actual public revenues of the state)	20	7.74	16.91	10.85	2.49
Gross compliance ratio (actual tax revenues to estimated tax revenues)	20	0.73	1.29	1.00	0.11

* Prepared the researcher based on the study data analysis.

** Amounts in millions.

The above table shows the descriptive statistics of the indicators used to measure the effectiveness of the tax system in Jordan during the period (1995-2014), which represents the first three sub-study periods,except the fourth sub-period for the reason previously mentioned, and by reviewing the values of the arithmetic mean, it turns out that it amounted to (11767.89 ± 7063.60) for the GDP index,and it amounted to (3351.35 ± 1726.26) for the index of the actual tax revenues of the state,it amounted to (386.07 ± 244.02) for the index of general tax revenue of the state and amounted to (385.59 ± 241.86) for the index of estimated tax revenue,it also reached (10.02 ± 14.76) for the indicator of the percentage change in actual tax revenue, and it reached (8.90 ± 5.99) for the indicator of the percentage of change in local production,it reached (3.20 ± 0.54) for the tax ratio indicator (actual tax revenue to gross domestic product), and it reached (10.85 ± 2.49) for the index of tax revenue contribution to financing the state's general budget (actual tax revenue to the actual public revenue of the state),it amounted to (1.00 ± 0.11) for the total commitment ratio index.It is noticeable that the standard deviations of these indicators decrease in general, despite the conditions experienced by the country during the study period, as this period included the global financial crisis in addition to the conditions of forced migrations as happened in the second Gulf War in 2003 and the impact of this on these variables in the Jordanian state.As for the fourth sub-study period, the average GDP growth rates were (3.88%), and the average actual tax revenue growth rates (10.2%),The average percentage of tax revenue contribution to financing the general budget (8.9%), and the average gross commitment ratios (1), or 100%,it is noted that the averages of the first three percentages for the fourth sub-period are all lower than the average of the first three sub-periods and this can be attributed to the fact that the first three periods witnessed periods of economic boom, while the years 2014 and 2015, which constitute the fourth sub-period, witnessed an economic recession.

1.   **Test the normal distribution of the study data:**

The table (4) below shows the results of the (Kolmogorov–Smirnov) test to verify the moderate natural distribution of the study indicators

Table number (4) Results of the (Kolmogorov–Smirnov) test for the normal distribution of study indicators*

Hypothesis code	Variables	K-S test	Degrees of freedom **	Sig
H01	Change in GDP	0.153	21	0.200
H02	The ratio of actual tax revenue to changes in GDP	0.144	19	0.200
H03	The ratio of actual tax revenue to the actual public revenue of the state	0.162	19	0.200
H04	The ratio of actual tax revenue to estimated tax revenue	0.158	19	0.200

* Prepared by the researcher based on the study data analysis.

** The fourth period (2015-2016) was excluded from the comparisons due to the shortening of this period.

Table number (4) above shows the results of the Kolmogorov–Smirnov tests to verify the moderate natural distribution of the study indicators, by reviewing the values of the test significance level, it becomes clear that it reached (0.200) for the change in the GDP index, and it reached (0.200) for the ratio of the change in the gross domestic product to actual tax revenues,it reached (0.200) for the index of the ratio of actual tax revenue to the actual public revenue of the state, and the value of the level of significance was (0.200) for the index of the

ratio of actual tax revenue to estimated tax revenue,since the value of the significance level was greater than 0.05, this indicates that the hypothesis that there is no statistically significant difference in the distribution of data for these indicators and the default natural distribution (theoretical or ideal) is accepted and therefore we can use one of the parameter tests in researching the relationships or differences between these averages and their interpretation later.

2. Testing the hypotheses of the study

The first main hypothesis HO1:

There is no statistically significant effect of the percentage change in the annual gross domestic product size on the percentage change in the volume of the actual tax revenues of the state in Jordan at the level of the significance of $\alpha \leq 0.05$.

To test this hypothesis F- test was used, table number (5) below shows the results of testing this hypothesis.

Table number (5) Results of testing the first main hypothesis, the effect of the percentage of change in the size of the annual gross domestic product on the percentage of change in the volume of the actual tax revenues of the state in Jordan *

Independent variable	Model indicators					Coefficients				
	R	R^2	adjusted R^2	F	Sig f	Constant	B	SE	T	Sig t
The percentage of change in the size of the annual GDP	0.422	0.178	0.134	4.10	0.057	0.782	1.038	0.512	2.02	0.057

* Prepared by the researcher based on the study data analysis.

Table number (5) above shows that the regression model of the effect of the change in the annual gross domestic product size on the actual tax revenue of the state in Jordan is statistically unacceptable, as the value of the relationship between the independent and dependent variable (0.422),the value of R^2 is the value of the calculated coefficient of determination for the regression model used, i.e. it expresses the amount of variance or difference in the values of the dependent variable that is attributed to (or due to) the independent variable,usually the larger value indicates a better valueso that the highest value that it may reach is the correct one, The value of this model has reached a percentage (17.8%). Also, the value of the adjusted determination factor indicates the percentage of variance that can be explained if the analysis was carried out using the data of the representative society for the study. This value reached (13.4%) and it is noted that the difference between it and a value R^2 is simple which reached (0.044), what indicates the ability of the variable, within the limits of this period, to predict greatly and that we obtain almost the same results by the values of the dependent variable, the amount of the actual tax revenue of the state,by reviewing the effect values of the independent variable, it turns out that it reached (1.038) and at the level of significance (0.057) where it is noted that the value of the indicated significance level was greater than 0.0.5, which indicates its lack of statistical significance at this level,with this result, and depending on the level of significance of(0.057), the null hypothesis is accepted, that is, the alternative hypothesis is rejected, which is the effect hypothesis.

3.   The second, third and fourth hypotheses

To test the second, third and fourth main hypotheses that relate to differences between the indicators used in the study during the three sub-study periods,Levene test was used to ensure the homogeneity of the financial ratios used to measure the effectiveness of the tax system in Jordan between the three study sub periods, and the able number (6) shows the results of this test for the three hypotheses data above.

Table number (6): Levene test to test the homogeneity of variance of the financial ratios used in the second, third and fourth hypotheses for the difference between the three sub-periods.

Hypothesis code	Variables	Levene test	Sig
H02	Actual tax revenue to gross domestic product (tax rates)	7.57	0.004
H03	Ratios of the contribution of tax revenue to financing the state's general budget (actual tax revenue to actual state revenue)	9.48	0.002
H04	Gross Compliance Ratio: it represents the ratio of actual tax revenue to estimated tax revenue.	0.38	0.687

* Prepared by the researcher based on the study data analysis.

A review of the values of the test significance level turns out to be (0.004) for the tax rate index and (0.002) for the tax revenue contribution rate index in financing the state's general budget, these two values are statistically significant, which means rejecting the hypothesis of homogeneity of variance between the three periods under study and acceptance of the hypothesis of heterogeneity of variance,which creates a kind of reservation in explaining any difference in these two indicators based on the values of the means represented for each period,thus, it is better to use non-parametric statistical test to test the differences between these two indicators during sub-periods,the value of the level of statistical significance of the indicator of the gross compliance ratios (0.687) is greater than 0.05, this indicates that the hypothesis that there is no statistically significant difference between the three periods is accepted, consequently, we can use one of the parametric tests to test the differences between the means of this ratios for the three sub-periods and explain them later, especially as the condition for the normal distribution of data has been met,in addition to the principle of preference in using parametric tests as a priority, the study used a test of one way analysis of variance in this variable, as Table (7) shows the descriptive statistics values for the financial indicators used in the second, third and fourth hypotheses.

Table number (7) descriptive statistical indicators of the financial indicators used in the study during the period (1995 - 2014) *

Financial ratio	Period	N	Mean	standard deviation	Lowest value	Greater value
Tax rates (actual tax revenue to gross domestic product)	First (1995 - 2002)	8	2.93	0.34	2.49	3.52
	Second (2003 - 2009)	7	3.56	0.71	2.69	4.52
	Third (2010 - 2014)	5	3.12	0.19	2.86	3.33
Ratios of the contribution of tax revenues to financing the state's general budget (actual tax revenue to actual state revenue)	First (1995 - 2002)	8	9.22	0.69	8.21	10.04
	Second (2003 - 2009)	7	11.71	3.45	7.74	16.91
	Third (2010 - 2014)	5	12.26	1.30	10.54	13.62
Gross compliance ratio (actual tax revenue to estimated tax revenue)	First (1995 - 2002)	8	0.94	0.10	72.99	108.16
	Second (2003 - 2009)	7	1.08	0.11	97.21	128.97

	Third (2010 - 2014)	5	0.96	0.06	90.58	104.59

* prepared by the researcher based on the study data analysis.

The values of the mean indicate that there are differences between their values according to theperiod that expresses each financial indicator during the entire study period (1995-2014) and the sub-periods, to verify the significance of these differences in the values of the means from a statistical point of view, the study used the none-parametric Kruskal-Wallis test to test the second and third hypotheses, while the analysis of variance test was used to test the extent of the differences between the means of the indicators for the fourth hypothesis. The following are the results of testing these hypotheses:

The second main hypothesis HO2:There are no statistically significant differences between themean of tax ratios (actual tax revenues to gross domestic product) between the three sub- periods of the study at the level of significance of α ≤0.05

Table number (8) below shows the result of testing the second hypothesis

Table number (8): Kruskal-Wallis test results for the second hypothesis test

Financial ratio	Period	Total ranks	N	Average rank	χ^2	df	Sig
Tax ratio (actual tax revenue to gross domestic product)	1st	60	8	7.50	3.98	2	0.137
	2nd	95	7	13.57			
	3rd	55	5	11.00			

* Prepared by the researcher based on the study data analysis.

The value of the Kay square (χ^2) of (3.98) indicates that there are no statistically significant differences between the three sub-study periods in the actual tax revenue ratio to gross domestic product index because the value of the significance level of (0.137) is greater than 0.05, this means accepting the zero study hypothesis, which assumes no differences, and rejecting the alternative hypothesis that indicates the existence of differences between these ratios for the three periods.

The third main hypothesis HO3: There are no statistically significant differences between the mean ofthe percentages of tax revenue contribution in financing the state's general budget (actual tax revenues to actual state revenues) between the three sub-periods of the study at the significance level of α ≤ 0.0.05.

Table number (9) Kruskal-Wallis test results for the third hypothesis.

Financial ratio	Period	Total ranks	N	Average rank	χ^2	Df	Sig
Ratios of the contribution of tax revenues to financing the state's general budget (actual tax revenues to the actual public revenues of the state	First	55	8	6.88	5.87	2	0.053
	Second	81	7	11.57			
	Third	74	5	14.80			

* Prepared by the researcher based on the study data analysis.

The table above shows that the value of(χ^2) is (5.87) and this indicates that there are no statistically significant differences between the three sub- periods of the study in the tax revenue contribution rate in financing the state's general budget (actual tax revenues to the actual public revenues of the state), this is because the value of the significance level of

(0.053), which is greater than 0.05, means acceptance of the null study hypothesis, which assumes that there are no differences.

The fourth main hypothesis HO4: There are no statistically significant differences between the means of gross compliance ratio (actual tax revenue to estimated tax revenue) between the three sub- periods of the study at the significance level of α ≤ 0.05.

The table number (10) below the resultof testing the fourth hypothesis.

Financial ratio	Period	Sum of squares	df	Mean of squares	F value	Sig
Gross compliance ratio(actual tax revenue to estimated tax revenue)	First	.079	2	.039	4.29	0.031
	Second	.156	17	.009		
	third	.235	19			

* Prepared by the researcher based on the study data analysis.

The calculated value of F- test is (4.29) which indicates that there are statistically significant differences between the three study periods in the gross compliance ratio (actual tax revenue to estimated tax revenue), this is because the value of the significance level of (0.031) which is less than 0.05 this means rejecting the null study hypothesis that assumes no differences, and accepting the alternative hypothesis, and to determine the sources of the differences between the periods in the gross compliance ratio (actual tax revenues to estimated tax revenues), the Bonferroni test was used and the following table shows the results of this test.

Table number (11): Bonferroni test results to determine the differences between the study sub-periods in the gross compliance ratio (actual tax revenue to estimated tax revenue)

Financial ratio	Mean	Period	Second (2003 - 2009)	Third (2010- 2014)
gross compliance ratio (actual tax revenue to estimated tax revenue)	0.94	The First (1995 - 2002)	*(0.038)	(1.00)
	1.08	The Second (2003 - 2009)		(0.149)
	0.96	The Third (2010 - 2014)		

* Prepared by the researcher based on the study data analysis.

The above table indicate that there are statistically significant differences in thegross compliance ratio (actual tax revenue to estimated tax revenue) between the first period (1995-2002) and the second period (2003-2009)so that the significance of the difference of the means was in preference in favor of the second period (2003-2009) in which the mean value of the financial indicator was greater (108.21) compared to the mean of the first period (1955 - 2002) and the value of its mean (94.40), it is noticed that the value of the calculated significance level for the difference of the two means reached (0.038) which is less than 0.05, and the table also shows that the mean differences between the first and third periods and between the second and third were statistically insignificant, as the significance level of differences reached (1.00) and (0.149), respectively.

5. Findings and Recommendations

First: The findings

The study reached the following findings:

a.   There is no statistically significant effect of the change in GDP on the change in actual tax revenues, and this result is consistent with the study of Jordan Economic and Social Council (2013),and the study of (Iriqat and Anabtawi,2016),and the study of (Daneil, 2011) and this result also confirms what was indicated by the study of (Gravelle, 2010) that Jordan is one of the tax havens,but this result differs with the study of(HAO, 2010)that conducted in the United States and conclude that there is a strong correlation between GDP and tax revenues.

b.   There are no differences between the meansofthe ratioof the tax revenue to the gross domestic product for the studysub-periods, that means the legislative amendments did not lead to an improvement in the tax revenue as a percentage of the gross domestic product,this result is contrary to the findings of the study of International Monetary Fund (2011) that indicated the experiences of some countries in implementing tax reforms that led to the improvement of their tax revenues as a percentage of the gross domestic product during short periods.

c.   There are no differences between the means of the ratio of actual tax revenues to the actual state revenues for the study sub- periods,that means the amendments to the tax legislation did not lead to an improvement in the of tax revenuescontribution in financing the general budget, although this was one of the goals of the strategic plan of the Income Tax Department for the years (2010-2014),this result is consistent with the findings of the study of (Economic and Social Council, 2014) that concluded that amendments to tax legislation may have helped in tax evasion and avoidance.

d.   There are statistically significant differences between the means of gross compliance ratios for study sub-periods, there is a change in the degree of tax compliance, however, these differences did not constitute a general trend for the development of compliance rates during the study sub-periods, as only the second sub-period witnessed an increase in the average gross compliance ratio compared to the first sub-period,then the mean of the third sub-period returned to a level close to the mean of the first sub-period, even thoughthe mean of gross compliance ratios for the entire study period is 99.33%, which is higher than the global level of 69% (Gallagher, 2004),this may be due to a reservation in estimating tax revenue, taking into account the amount of tax evasion, tax avoidance, and failure to pay the estimated taxes in consideration when estimating tax revenuesduring the process of preparing the state budget.

Second: Recommendations

Based on the findings of the study, the researcher recommends the following:

a.   Achieve stability in tax legislation, and reduce the amendments made to it, because of its negative impact on the clarity and understanding of this legislation by all concerned with it,especially since a large number of these amendments did not increase the effectiveness of the tax system in Jordan, and it may be a reason for increasing tax evasion operations.

b.   Not to resort in the event of amending tax legislation to raise tax rates and reduce exemptions, as this increases the tax burden on taxpayers who are obligated to pay their taxes, and it rewards the smuggled taxpayers with their payment, in addition to the negative effects, this has on the current and prospective investors.

c.   Tighter penalties for tax evaders, and reduce the possibility of avoiding them as possible, to help increase the effectiveness of the tax system in terms of maximizing tax revenue, and reducing losses from these revenues.

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