العنوان:	Tax Capacity and Effort and Economic Implications : Evidence from Jordan
المصدر:	المجلة الأردنية للعلوم الاقتصادية
الناشر:	الجامعة الأردنية - عمادة البحث العلمي
المؤلف الرئيسي:	البشايرة، آلاء غالب
مؤلفين آخرين:	العوران، أحمد فراس(Co - Auth)
المجلد/العدد:	مج3, ع2
محكمة:	نعم
التاريخ الميلادي:	2016
الشهر:	حزيران
الصفحات:	179 - 191
رقم MD:	749402
نوع المحتوى:	بحوث ومقالات
اللغة:	English
قواعد المعلومات:	EcoLink
مواضيع:	الطاقة الضريبية ، الجهد الضريبي، الايرادات الضريبية، العبء الضريبي، الأردن
رابط:	http://search.mandumah.com/Record/749402

Tax Capacity and Effort and Economic Implications:
Evidence from Jordan*

Ala' Ghaleb Bashayreh [1], Ahmad Farras Oran [2]

ABSTRACT

The study aims at discussing tax effort determinants, in general, and estimating a tax effort index for Jordan for the period 1990-2013, in particular. An econometric analysis model is used to estimate the tax capacity considering a number of determinants where tax burden is regressed on several factors. The study uses the FGLS-SUR as a method for data analysis. Results reveal that tax effort is related positively to economic openness, and the contribution of services and manufacturing sectors to gross domestic products, while tax negatively to both the contribution of agriculture and mining sectors to gross domestic products. The values of the estimated tax effort show fluctuation during the period that can be attributed to the continuous amendments in tax laws and other legislations as part of the economic adjustment programs undertaken during the period of the study. The study recommends that no additional taxes should be enacted for the time being. A better policy to increase government revenues would be to enhance tax collection procedures, and minimize both tax avoidance and evasion.

Keywords: Tax revenues, Tax burden, Tax capacity, Tax effort, Policy implications, Jordan.

INTRODUCTION

Tax revenues, as a vital source for public purposes, have always been an important issue for developing countries, including Jordan. However, tax revenues have recently became more important as many of these countries rely on foreign aids and loans to finance their public expenditures, especially to cover the budget deficit and pay for debts. Weak economic growth, chronic budget deficit, growth of foreign debt, and the current international aid policy summarized in "Trade-not-Aid", forced most, if not all, developing countries, including Jordan, to adopt a tight fiscal policy, including taxation policy, to control, improve and diversify public revenues. Nevertheless, given the difficult economic conditions, it has been a challenge for Jordan, as for other countries, to reach the would-be optimal tax level suitable to the different stages of economic development.

Consequently, it seems that Jordan's need to rely more on its own domestic revenues, particularly taxes, is quite evident. However, imposing or not more taxes requires an analytical view to verify Jordan's economic ability to bear with additional tax burden, given its

[1] Ph.D in Business Economics, Al-Manar Project Team Leader, National Center for Human Resources Development, Jordan.

✉ alaab@nchrd.gov.jo

[2] Prof. of Economics, Department of Business Economic, Faculty of Business, The University of Jordan.

✉ sroran@ju.edu.jo

negative potential on general welfare. Needless to say, if the tax burden exceeds individuals' capacity to pay, their standards of living would be negatively affected. Total consumption and savings are expected to be reduced, hence, investment, this would negatively affect both future Gross Domestics Product (GDP) and tax revenues. Therefore, to have some say in this debatable issue, the study seeks to trace the evolution of the Jordanian tax burden and assess tax capacity in order to find a suitable indicator that reasonably reflects the tax effort in Jordan, given the Jordanian economic developments since the 1989 economic crisis. To achieve such objective, the study compares Jordan to a number of developing countries with similar economic conditions. The study uses a pooled data (time series and cross-sectional) model for the studied period that includes a number of tax efforts factors.

2. Tax Structure in Jordan

Like other developing countries, Jordan has been influenced by global developments that require decision makers to promote greater reliance on domestic financial resources, update and activate tax policies, raise the efficiency of tax and fees collection, and review the tax legislation. Hence, it would be useful, for the purpose of this study, to briefly shed some light on Jordan's domestic revenues especially the tax ones. Generally speaking, several tax and non-tax sources constitute Jordan's domestic revenues such as tax revenues, pension deductions, and other revenues (including land registration, stamps, premiums, fiscal surpluses, and the proceeds of mining).

A glance at the participation of the major sources of revenues shows that tax revenues are the largest contributor to the total domestic ones. Data published by the Jordanian Central Bank for 1988-2013show that the share of tax revenues had been around 63.1%. On the other hand, non-tax revenues had been around 34.1%, while installments repayments had been around 2.8%.

Moreover, breaking down tax revenues shows that these are constituted by income and profits tax, general sales tax, and customs duties. Sales tax has been the most important item due to its relatively high participation rate in the total tax revenues, increasing from 15.6% in 1988 to 48.7% in 2009, while the income and profits taxes has relatively became less important[1]. Under the liberalization policy of foreign trade, tariffs on imports were significantly cut lowering the importance of customs duties as a source for tax revenues. Given the mentioned tax structure and by relating tax revenues to GDP, the tax burden in Jordan is obtained (see table 1).

On the other hand, researchers have been attempting to estimate tax capacity and tax effort aiming at reaching an 'optimal' estimate for the tax capacity so that an 'optimum' tax effort, where tax capacity equals tax burden, can be reached. To measure tax effort, researchers make use of econometrics models to estimate the would-be tax capacity and then tax effort as done below (Mertens, 2003; Tanzi, 1992; Bahl, 1971).

3. Measuring Tax Capacity and Tax Effort

For enhancing government's ability to impose additional taxes or raise the existing tax rates within the maximum capacity of taxpayers, measuring tax effort, the tax burden relative to the tax capacity, becomes important. This provides good information to help government in its pursuit as well as enables decision makers to determine a consistent tax burden with country's tax capacity.

Actual tax revenue as a share of GDP is one of the most commonly used measure of tax effort for cross-country tax comparison. The biggest advantages of this measure are that it is easy to obtain and gives quick overview of tax trends across countries. But, as endorsed by Musgrave (1987) and Le, Moreno-Dodson, and Rojchaichaninthorn (2008), this measure is more suitable for studies focusing on countries that are close to each other in terms of economic characteristics and structures.

As mentioned, the measurement of the tax effort depends on tax capacity and tax burden, hence, calculating the tax burden and estimating the tax capacity enables measuring the tax effort[2]. Moreover, tax effort is affected by some factors, determinants, which vary between developing and developed countries, and among the countries of each group given the fluctuations in productivity and incomes (Gupta, 2007). It is worth noting that tax effort's determinants are the same as those of tax capacity and tax burden. Moreover, the determinants of both are based on the notion that the portion of tax to GDP is a function of a number of other determinants.

Table 1
Tax Burden in Jordan

Million Dinars

Year	Tax Revenues	GDP	Tax Burden (%)
1990	383.9	2760.9	13.90
1991	401.5	2958.0	13.57
1992	639.3	3610.6	17.71
1993	643.4	3884.3	16.56
1994	694.4	4358.3	15.93
1995	758.0	4714.6	16.08
1996	841.1	4912.2	17.12
1997	798.5	5137.4	15.54
1998	858.6	5609.9	15.31
1999	884.2	5778.2	15.30
2000	961.9	5998.6	16.04
2001	996.4	6363.7	15.66
2002	1000.3	6794.0	14.72
2003	1083.2	7228.8	14.98
2004	1428.8	8090.8	17.66
2005	1765.8	8925.4	19.78
2006	2133.5	10675.4	19.99
2007	2472.1	12131.4	20.38
2008	2758.0	15593.4	17.69
2009	2879.9	16912.2	17.03
2010	2986.0	18762.0	15.92
2011	3062.2	20476.6	14.95
2012	3351.4	21965.5	15.26
2013	3652.4	23851.6	15.31
2014	4077.0	24591.0	16.58

Source: The Annual Report of Central Bank of Jordan (different issues).

On the other hand, previous studies basically relate the determinants of the tax share in GNP or GDP to the level of development of the agricultural and industrial sectors, and the relative importance of international

trade. Although these factors present themselves as the most important taxable determinants, they largely vary among countries, given their general level of development. Hence, the relation of some of these factors, agriculture for instance, to the tax share in gross product may be positive for one country and negative for others. Many previous empirical studies employed, with some variation, these factors such as Lotz and Morss (1970), Bahl (1971), Chelliah, Baas and Kelly (1975), Tait, Gratz and Eichengreen (1979), Tanzi (1981, and 1992), Stotsky and WoldeMariam (1997), Mertens (2003) and Bashayreh (2007). Going along the same approach, the determinants to be used in this study include the Share of Mining Sector (Min), Manufacturing Sector (Manu), Agriculture Sector (Agri), and services Sector (Cons) in the GDP, and the Economy's Openness (Open) relative to GDP. These variables are expected to be related to the GDP as follows[3]:

Countries that heavily depend on mining instead of manufacturing are not considered developed ones and are of low income; hence, low tax capacity. Therefore, a negative relation between 'Min' and tax capacity is expected (Eltony, 2002). Manufacturing is usually expected to add to the export of any country leading to higher income and profits, hence, tax revenues. Consequently, a positive relation between 'Manu' and the tax capacity is expected (Bahl, 1971; Tanzi, 1981). A negative relation is expected between 'Agri' and tax capacity given the low income generated by the sector and the need for exempting the sector workers from extra burdens.

It is worth mentioning that one of the problems faced by governments, almost everywhere, with regard to the size of their financial resources is related to the existence of the informal sector[4]. Depending on the definition of that sector, some economic activities could go without detection; therefore, these would not be included in the calculation of gross domestic product. The Jordanian

economy is no exception, indeed. Although measuring the informal sector has been facing many difficulties; recent studies estimated the size of the Jordanian informal sector at about 26% (UNDP, 2013). Moreover, as the definition of the informal sector varies among countries; the agriculture sector in Jordan could be seen by some people as an informal one as income generated by this sector enjoys tax exemption due to government social policies.

As the services sector growth is usually taken as an indicator for economic and social development, it is considered a good source for tax revenues. Therefore, a positive relation between 'Cons' and tax capacity is expected. Moreover, it is expected that as the economy's openness increases, so will tax revenues. Hence, the relation between 'Open' and tax capacity is expected to be a positive one.

Based on the above mentioned variables, determinants, a function for the tax burden (TB) is constructed as follows:

TB = f (Agri, Min, Manu, Open, Cons)   (1)

The study uses a combination of time series and cross-sectional data, pooled data, for the period (1990-2013). As it is difficult to estimate tax capacity for a country based on its own data alone, data for other economically similar countries are needed to estimate the tax capacity for the particular country. A number of developing countries that are close, as much as possible, to each other in terms of economic characteristics being Jordan in the middle of the sample, constituted the used sample[5]. Thus, the study uses a sample of 255 [17 (countries) * 15 (years)] observations. Following the methodology, tax burden should be calculated first to estimate the parameters of the model that measures the sample's tax capacity. Consequently, the estimated model is applied on the Jordanian data to estimate its tax capacity and tax effort as follows[6].

$$TB = \beta_{0i} + \beta_{1i}\,Agri_{t,i} + \beta_{2i}\,Min_{t,i} + \beta_{3i}\,Manu_{t,i} +$$
$$\beta_{4i}\,Open_{t,i} + \beta_{5i}\,Cons_{t,i} + e_{t,i} \qquad (2)$$

Contrary to most previous studies, which focused on the random effect more than the fixed effect, this study focuses on the fixed one to eliminate the effects of external factors, such as governments' changes, tax policy changes, or wars, that might affect the values of tax capacity. Consequently, time (t) is omitted from each variable in equation (2).

Table 2
Results of Estimating the Tax Burden

Variables	Coefficient*	Std. Error	t-Statistic	Prob.
Constant	13.03943	0.40518	32.18181	0
Agri	- 0.276007	0.009999	- 27.60219	0
Min	- 0.119413	0.007581	- 15.75081	0
Manu	0.198083	0.010738	18.44684	0
Open	0.03143	0.001789	17.57254	0
Cons	0.052985	0.02035	2.603692	0.0098
R^2	0.900217			
Adj. R^2	0.89215			
D-W	1.9407			
F-statistic	111.585			
Prob. F-stat.	0			

*All Variables are significant at 1%.

Since the Levin, Lin and Chu test's (LLC) for common unit root shows that all variables are stable, the model is estimated using the feasible GLS (period SUR Weights) (see table 2)[7]. By applying the calculated values of the tax burden to the Jordanian data, equation 3, the estimated tax capacity for Jordan is obtained as shown in table (3).

$$TC = 13.04 - 0.276\,Agri - 0.119\,Min + 0.198\,Manu +$$
$$0.031\,Open + 0.053\,Cons \qquad (3)$$

Consequently, the tax effort can now be calculated by dividing the previously calculated tax burden by the already estimated tax capacity, as shown in table (4).

4. Results and interpretation

The obtained results confirm the earlier verified role of the share of agriculture, mining, manufacturing, and services sectors in the GDP, in addition to the economic openness as determinants of the suitable tax levels (Piancastelli, 2001; Eltony, 2001). Moreover, the relationship between these variables and tax capacity as verified by the results are as follows: a) a positive one with the growth of manufacturing and services sectors' share in GDP, and the economic openness. b) A negative one with the growth of agriculture and mining sectors' share in GDP. These results are consistent with the previous studies such as Bahl (1971), Tanzi (1981, and 1992), Eltony (2000), Stotsky and WoldeMariam (1997), Mertens (2003), Gupta (2007) and Bashayreh (2007).

Table 3
The Estimated Tax Capacity for Jordan

Year	GDP	Agri	Min	Manu	Open	Cons	Tax Capacity
1990	2760.9	190.0	149.1	352.5	2338.1	107.1	15.86
1991	2958.0	214.3	125.4	347.4	2309.1	127.0	15.51
1992	3610.6	247.0	130.8	444.6	2847.8	217.1	15.92
1993	3884.3	199.2	107.2	443.3	3144.9	285.6	16.46
1994	4358.3	192.9	102.7	585.8	3156.5	301.8	16.81
1995	4714.6	173.8	157.2	606.8	3594.8	300.1	16.88
1996	4912.2	158.6	153.7	570.0	4083.4	254.8	16.93
1997	5137.4	148.3	169.9	621.6	3975.2	240.5	16.89
1998	5609.9	144.7	170.4	742.0	3760.8	214.6	16.87
1999	5778.2	115.9	163.8	760.7	3686.6	207.1	16.92
2000	5998.6	120.9	171.5	807.2	4340.2	203.3	17.23
2001	6363.7	124.3	176.4	861.2	4806.1	231.0	17.38
2002	6794.0	148.9	188.7	987.7	5155.9	251.7	17.53
2003	7228.8	178.3	192.1	1082.6	5747.1	268.3	17.67
2004	8090.8	202.1	230.4	1313.6	8105.9	324.4	18.54
2005	8925.4	246.2	279.9	1426.3	10009.1	382.1	18.77
2006	10675.4	275.8	264.0	1814.8	11117.0	429.0	18.84
2007	12131.4	307.1	338.9	2294.5	12905.9	544.8	19.29
2008	15593.4	376.8	843.0	2933.0	16492.0	697.9	18.97
2009	16912.2	459.2	556.3	3026.3	13686.9	887.9	18.23
2010	18762.0	560.9	621.8	3146.1	15267.1	896.2	17.92
2011	20476.6	598.3	803.5	3485.3	18246.1	888.0	18.13
2012	21965.5	604.5	723.6	3633.4	19483.3	961.7	18.15
2013	23851.6	713.7	563.9	4074.4	20472.6	1060.6	18.21

Source: Calculated According to the study results.

Based on the estimated parameters, it can be seen that an increase by 1% in the share of the agriculture and mining sectors in the GDP leads to a decrease in the tax capacity by 0.28% and 0.12%respectively confirming the previously assumed negative relation. Moreover, an increase by 1% in the share of the manufacturing, openness and construction sectors in the GDP leads to an increase in the tax capacity by 0.2%, 0.03% and 0.05%respectively confirming the previously assumed positive relation.

Table 4
The Estimated Tax Effort for Jordan

Year	Tax Burden	Tax Capacity	Tax Effort	Change Rate (%)
1990	13.90	15.86	0.88	-
1991	13.57	15.51	0.87	-0.17
1992	17.71	15.92	1.11	27.15
1993	16.56	16.46	1.01	-9.56
1994	15.93	16.81	0.95	-5.81
1995	16.08	16.88	0.95	0.52
1996	17.12	16.93	1.01	6.15
1997	15.54	16.89	0.92	-9.01
1998	15.31	16.87	0.91	-1.36
1999	15.30	16.92	0.90	-0.36
2000	16.04	17.23	0.93	2.95
2001	15.66	17.38	0.90	-3.21
2002	14.72	17.53	0.84	-6.81
2003	14.98	17.67	0.85	0.96
2004	17.66	18.54	0.95	12.36
2005	19.78	18.77	1.05	10.63
2006	19.99	18.84	1.06	0.69
2007	20.38	19.29	1.06	-0.43
2008	17.69	18.97	0.93	-11.73
2009	17.03	18.23	0.93	0.18
2010	15.92	17.92	0.89	-4.90
2011	14.95	18.13	0.82	-7.18
2012	15.26	18.15	0.84	1.96
2013	15.31	18.21	0.84	0.00

Source: Calculated based on the estimated results

The estimated values for the tax effort clearly show that tax effort in Jordan exceeded the one benchmark in the years 1992, 1993, 1996, 2005, 2006, and 2007 indicating that the tax burden exceeded the maximum ability of individuals to pay taxes during those years. On the other hand, the tax effort during the period 1997-2004 and 2008-2014 had been less than one indicating that taxpayers had been paying less than their tax capacity.

In addition, the study shows no trend, but fluctuations, in the values of the Jordanian tax effort during the period of the study. Tax effort had recorded its minimum values in 2002, 2003 and from 2011 to 2013 showing that tax capacity had not been fully used, while recording its maximum value (1.11) in 1992. Comparing these results to the ones presented by Eltony

(2001), it is found that both works show that the estimated values for tax effort in Jordan were below one during 1998-2000. However, Eltony's results show tax effort in Jordan to be over one during the period 1994-1997, whereas it is found over one in this study only in 1996. The variations in some of the findings can be attributed to the variable choice and data in both models.

It is needless to say that the study period had witnessed several hard political and economic conditions that must surely have affected the Jordanian tax effort. As known, right after the 1989 Jordanian economic crisis, Jordan had started its first structural adjustment program SAP I. However, shortly after that, the program was abruptly halted by the events of the second Gulf War, a second program SAP II, however, had started in 1992 (Knowles, 2005). After a short period of uncertainty SAP II started, which seemed to have led to a very tight fiscal policy, including high tax burden, as reflected by the tax effort index for those years. Another positive, indeed negative for the taxpayers, concurring development from the tax effort view was the forced return, given the second Gulf war, of 300 thousands of the Jordanian workers from the Arabian Gulf that was considered as a massive capital inflow. Both events made the values of the tax effort in 1992 and 1993 to exceed the one benchmark.

However, the Jordanian economic performance shifted backward in the following two years given regional instability, trade disruption with the West Bank and the imposed siege on Iraq, and internal factors such as the increasing external public debt service. As a result, SAP III, for the period 1999-2001, and SAP IV, for the period 2002-2004, had been implemented to achieve several economic goals including broadening and improving the tax system. Positive results were achieved vis-à-vis the tax system that led to an increase in the tax effort by 13% in 2004. However, the slow economic performance resulting from the burst of the global financial crisis in 2008, and recently the Arabic

Spring and the undertaken governmental measures to deal with it, which had led to cut taxes, and simultaneously stimulate the economy, the tax effort decreased in the subsequent years.

5. Policy Implications and Conclusion

Tax revenues have become more important nowadays than ever. Weak economic growth, chronic budget deficit, growth of foreign debt, and the limited opportunities to access foreign aid and loans, forced most developing countries, including Jordan, to adopt a tight fiscal policy in order to control, improve and diversify public revenues. However, imposing more taxes requires an analytical view to verify Jordan's economic ability to bear with additional tax burden.

As it has always been a challenge to reach the would-be optimal tax level suitable to the Jordanian economic conditions, the study seeks to trace the evolution of the Jordanian tax burden and assess its tax capacity in order to find a suitable indicator that reflects the tax effort in Jordan. To achieve such objective, the study compares Jordan's data to a number of developing countries with similar economic conditions by using an econometrics model that includes a number of factors, and employing time series and cross-sectional data (pooled data) for the studied period.

Before any conclusion and policy implication, it should be warned that tax effort indices, like all empirical results, should not be taken literally, although these indices constitute useful information for analyzing fiscal policy performance of any country when this has the intent to increase taxes.

Having this in mind, it could be generally concluded that as the Jordanian tax effort exceeded the one benchmark in 2005, 2006, and 2007, it does not seem to be reasonable to impose more taxes without causing too much economic damages. Moreover, given the continuous debate about the falling real income in Jordan, it may not be advisable, economically and

socially, to impose more taxes especially after the new Income Tax Law (No 34) for the year 2014 which took effect at the beginning of 2015 (see appendix 1). The new law is expected to generate more tax revenues for the government.

The preferable Policy implication to increase tax revenues, therefore, implies that the Jordanian government should focus more on improving the tax collection mechanism, reducing tax evasion and avoidance, and maintaining social justice, rather than imposing new taxes and/or increasing tax rates. In addition, policy makers should review and enhance the undertaken polices to better promote domestic investment and attract foreign investments as an alternative to increase public revenues. Furthermore, it is very important to overcome the problem of informal economy as an additional way to significantly increase tax revenues. The research in this field is fruitful. Researchers and policy makers are recommended to incorporate other variables of tax effort and capacity that are not handled in the current study. These include: inflation, income distribution, and corruption. In addition, employing different statistical methods, particularly Stochastic Frontier Models would enrich the existing literature on the subject in Jordan.

Appendix 1

Jordanian Income Tax Law Number 34 of 2014

1. Effective from the 1st January 2015.
2. Tax rates on COMPANIES are as follows:

Sector	Tax Rate
Industrial sector	14%
Major telecom companies, electricity distribution and generation companies, mining companies, insurance and re-insurance companies, brokerage and financial institutions, legal persons who practice financial leasing	24%
Banks	35%
All legal persons except what was stated above	20%

3. Tax on NATURAL PERSON:
   a) 12,000 JOD yearly exemptions for resident natural person.
   b) 12,000 JOD yearly exemptions for dependents.
   c) 4,000 JOD yearly exemption for natural person and dependents to cover medical treatment, education, housing loans interests, Murabaha on housing, technical, engineering and legal services, provided that invoices or supporting documents are presented.

Income tax according to the following ratios:
   a)   First 10,000 JOD are subjected to 7% ratio.
   b)   Second 10,000 JOD are subjected to 14% ratio.
   c)   Any amount above that is subjected to 20% ratio.
4. Jordanian companies' branches operating outside the Kingdom, and foreign investments if the source of capital was

originated inside the Kingdom are subjected to 10% tax ratio, based on net income declared in their final accounts which are certified by an external certified auditor, while the former law dictated that the mentioned companies are subjected to 20% of the net income of branches, and according to the mother company sector and foreign investments was subjected to 30% ratio.

5. End of service reward that is greater than 5,000 JOD due to the employees starting from 1/1/2010 has been subjected to tax, where the former law dictated that the end of service reward was 50% exempted.

6. Income generated from Agricultural activity inside the Kingdom is exempted for legal and natural persons, where the former income tax law dictated that the first 75,000 of Agricultural income is exempted for natural persons.

7. The taxpayer is allowed to deduct the provision for doubtful debts provided that the company is complying with the international financial standards and audited by a certified external auditor, noted that it was non-deductible in the former income tax law.

8. The taxpayer is allowed to deduct medical insurance expenses for employees and their dependents, former income tax law limited the medical insurance expenses deduction only for the employees.

9. The Interests and Murabaha expenses are fully deductible, where the former income tax law dictated a percentage of average of owner's equity or paid capital, whichever is greater should be accounted for.

10. Assets actual maintenance expenses are fully deductible, where the former income tax law dictated that assets actual maintenance amounts spent are deductible provided it does not exceed 5% of the asset's value, and the difference is capitalized for the following years.

11. Losses from previous tax periods are now carried forward without exceeding (5) years, where in former income tax law it was carried forward without determining a period of time.

12. Losses for activities outside the Kingdom are deducted from the activity's profits, where in the former income tax law it used to be deducted from the profits of foreign investments as a whole amount without determining a definitive activity.

13. The law dictated that the legal person should deduct and pay a rate of 5% as a down payment of the fees and wages paid to a resident person of : Doctors, Lawyers, Engineers, Auditors, Consultants, Authorized persons for taxpayers (Tax Advisors), Insurance and Re-insurance brokers, Arbitrators, Customs brokers, Real estate brokers, Arbitrators by commissions, Financial brokers, Shipping brokers by commissions, Any other persons which are identified under instructions.

14. Income from prizes, which its value or amount exceeds 1,000 JOD is subjected at the rate of 15% and the withheld amount is considered a final tax. Where in former income tax law the rate was 10%.

15. Non- resident person deductible tax rate is adjusted to be 10%, where it used to be 7% in the former income tax law.

16. The taxpayer can adjust the fiscal tax year through a notification to the Income tax department, while the former income tax law required the approval of adjustment from the Income sales tax director.

17. Beneficiaries of inheritances or those who represent them shall file a tax declaration on behalf of the deceased within (90) days of the death, where the former income tax law dictated a period to be within (60) days.

18. Property tax paid by the taxpayer on the leased building or land is deductible from the income tax provided the property tax does not exceed the tax amount, where the former income tax law allowed to deduct 50% of the property tax, and inside the municipal zones, and does not allow to deduct property tax inside Greater Amman Municipality.

19. Tax payer who is carrying out business activities with gross income that exceeds (1) Million Jordanian Dinars is

required to remit advance payments at the rate of 40% of the due tax on his income from these activities for first and second half of the tax year, and tax is remitted during the next (30) days, while the former income tax law dictated the taxpayers who is carrying out business activities with gross income that exceeds (500,000 JOD) are required to remit the tax according to the deadlines mentioned above.

20. The tax payer can write off the deductible tax within the same year in which the tax is due, without exceeding the next consecutive four years, while the former income tax law did not clarify this matter.

21. The legal deadline to audit the tax declaration is (2) years from the date of submitting the tax declaration to the Income and Sales Tax Department, unless an audit notice was issued, and the deadline of the audit decision is within 2 years from the issuance of the audit notice.

22. And a deadline of (4) years from the date of filing the tax declaration is the final deadline to issue a notice of the audit results, and this deadline is doubled to be (8) years in case there was a proof that a tax evasion crime was committed.

23. The income and sales tax director has the right to Impose a fixed tax on the physical person in cases in which the estimated tax does not exceed 1,000 JOD, and fixed tax is imposed for a period that does not exceed (5) years , while in former income tax law , fixed tax was not mentioned.

24. In case of failure to pay or remit the tax on the specified date, the department shall impose a late payment fine at the rate of 0.004 of the due tax amounts from the date of the audit notice, in case the tax amount is less than 5,000 JOD and in case the tax amounts exceed 5,000 JOD, the fine is calculated from the date of legal deadline for the filing the tax declaration, and in both cases the fine shall not exceed the tax amount. While the former income tax law dictated that the late payment fine is calculated at the rate of 0.004 of the due tax amounts, where it shall not exceed 35% of the tax amount in case he tax payer filled the Income Tax declaration within the legal deadline, otherwise there is no ceiling for the fine.

25. The legal compensation fine on tax differences is canceled, while the former income tax law dictated a legal compensation with rates ranging from 15% to 100% of the tax difference, in case the difference in due tax exceeded 20%.

NOTES

1. This might be as a result of the several amendments that have been introduced into the tax law vis-à-vis income and profits taxes in the years: 1991, 1996, 2000, 2009 and 2014 that took effect at the beginning of 2015 (Ministry of finance, income and sales tax department, 2014).

2. Since data on tax burden is not published in Jordan, it has to be calculated.

3. Although the Jordanian services sector includes communication, transportation and construction, yet only data on construction are included as a proxy for the entire sector.

4. There are three related official statistical terms and definitions which are often used imprecisely and interchangeably: the informal sector refers to the production and employment that takes place in unincorporated small or unregistered enterprises (1993 ICLS); informal employment refers to employment without legal and social protection-both inside and outside the informal sector (2003 ICLS); and the informal economy refers to all units, activities, and workers so defined and the output from them. Together, they form the broad base of the workforce and economy, both nationally and globally.

5. Countries with income per capita not exceeding $5000 are included in the sample as an indicator for the size of the economy.

6. It should be warned that this kind of pooled data, which include both cross section and time series,

may cause some estimation problems specially autocorrelation, hetroscedasticity, besides a correlation may occur between cross-sections. To avoid such problems, the fixed effect model or the random effect model is used (Baltaji, 2001; Gujorati, 2003).

7. While estimating the model using OLS, some technical problems occurred; thus, the feasible GLS is used to overcome these problems.

REFERENCES

Bahl, Roy W. (1971). A regression approach to tax effort and Tax Ratio Analysis. *Staff papers*, **International Monetary Fund**, 18 (3): 570-612.

Baltagi, Badi H. (2001). *Econometric Analysis of Panel Data*. John Wiley & Sons LTD, 2nd. ed.

Bashayreh, Ala' (2007). The Determinants of Tax Effort in Jordan during the Period (1990-2004). M. Sc. Thesis. **The University of Jordan**: Jordan.

Central Bank of Jordan (1990-2009). The Annual Report: Nos: 27-46.

Chelliah, Raja. J., Hessel J. Baas, and Margaret. R. Kelly (1975). Tax ratios and tax effort in developing countries, 1969-71, *Staff papers*, *International Monetary Fund*, 22 (1): 187-205.

Eltony, M. Nagy (2002). The determinants of tax effort in Arab countries. *Arab Planning Institute*, Kuwait.

Government Finance Statistics (GFS) (1990-2005). Multi–Bulletin. *International Monetary Fund*, http://www.imf.org, accessed on December 2014

Gujarati, Damodar N. (2003). *Basic Econometrics*. McGraw–Hill, International Edition.

Gupta Abhijit (2007). Determinants of Tax Revenue Efforts in Developing Countries. *International Monetary Fund, Working Paper*, 7 (184): 1-39.

International Labor Organization (1993). *The Fifteenth International Conference of Labour Statisticians*, ICLS/ 1993, Geneva.

International Labor Organization (2003). *The Seventieth International Conference of Labour Statisticians*, ICLS/ 2003, Geneva.

International Finance Statistics (IFS) (1990-2005). Multi-Bulletin. *International Monetary Fund*, http://www.imf.org, accessed on December 2014

Knowles, Warwick (2005). *Jordan since 1989: A study of political economy*, I. B. Tauris & Co. Ltd.

Le, Tuan Minh, Blanca Moreno-Dodson, and Jeep Rojchaichaninthorn (2008). Expanding Taxable Capacity and Reaching Revenue Potential: Cross-Country Analysis, *World Bank Policy Research Working Paper* 4559 (unpublished).

Lotz, Joergen. R., E. Morss (1970). A Theory of Tax Level Determinants for Developing Countries. *Economic Development and Cultural Change*, 18 (3): 328-341.

Mertens, Jo Beth (2003). Measuring Tax Effort in Central and Eastern Europe. *Public Finance and Management*, 3 (4): 530-563.

Musgrave, Richard (1987). Tax Reform in Developing Countries. Chapter 9, in The Theory of Taxation for Developing Countries, David Newbery and Nicholas Stern (eds.), Washington- DC: *The World Bank Group*.

Piancastelli, Marcelo (2001). Measuring the tax effort of developed and developing countries, cross country panel data analysis- 1985/95, *Institute de Pesquisa Economica Aplicada*, Brazil.

Stotsky, Janet G. and Asegedech WoldeMariam (1997). Tax Effort in Sub-Saharan Africa. *International Monetary Fund Working Paper*, 97 (107): 1-57.

Tait, Alan, Wilfrid. L. Gratz, and B. J. Eichengreen (1979). International Comparisons of Taxation for Selected Developing Countries 1972-76. *IMF Staff Papers*, 26 (3): 123-156.

Tanzi, Vito (1968). Comparing International Tax 'Burdens': A Suggested Method. *The Journal of Political Economy*, 76 (5): 1078-1084.

Tanzi, Vito (1981). A Statistical Evaluation of Taxation in Sub-Saharan Africa: Effects of Economic Policies and Corruption, *International Monetary Fund*, Occasional paper 8.

Tanzi, Vito (1992). Structural factors and tax revenue in developing countries: a decade of evidence. In Ian Goldin and L. A. Winters (Eds.), open Economies: Structural Adjustment and Agriculture, **Cambridge:**

*Cambridge University Press***.**

United Nations Development Programme (UNDP) (2013). The informal sector in the Jordanian economy, *United Nation publications*.

الطاقة الضريبية والجهد الضريبي والآثار الاقتصادية المترتبة: شواهد من الأردن*

آلاء غالب البشايرة[1]، أحمد قراس العوران[2]

ملخص

تهدف الدراسة إلى مناقشة محددات الجهد الضريبي، بشكل عام، وتقدير مؤشر للجهد الضريبي في الأردن خلال الفترة 1990–2013، بشكل خاص. تستخدم الدراسة نموذج قياسي للتعامل مع العبء الضريبي وتقدير الطاقة الضريبية انطلاقاً من استخدام عدد من المحددات. وتستخدم الدراسة *FGLS-SUR* في جوانبها التحليلية. تبين النتائج أن الجهد الضريبي يرتبط ايجابياً بالانفتاح الاقتصادي، ومساهمة قطاعات الخدمات، والصناعات التحويلية في الناتج المحلي الإجمالي؛ وسلبياً بمساهمة قطاعي الزراعة والمناجم في الناتج المحلي الإجمالي. وأظهرت القيم المقدرة للجهد الضريبي تذبذباً خلال فترة الدراسة مما يمكن إرجاعه إلى استمرارية التغير في القوانين الضريبية والتشريعات المساندة التي جاءت كجزء من برامج الإصلاح الاقتصادي المطبق خلال الفترة. وتوصي الدراسة بعدم فرض المزيد من الضرائب في الوقت الراهن. ولعل السياسة الأفضل لزيادة الإيرادات العامة تكمن في استخدام سياسة أكثر فاعلية في التحصيل الضريبي والعمل على الحد ما أمكن من التجنب والتهرب الضريبيين.

الكلمات الدالة: الإيرادات الضريبية، العبء الضريبي، الطاقة الضريبية، الجهد الضريبي، الأردن.