The Role of Taxes in Financing the Public Treasury in Libya (1980-2022)

Mohamed M. Raheel*
Abdulhamid A. Hamed
Faculty of Economics and Political Sciences,
University of Misurata, Libya
*shaikh.m@eps.misuratau.edu.ly

Received: 28.08.2023 Published: 01.10.2023

Abstract:

This paper examines the role of taxes in financing the public treasury in Libya during 1980-2022. The study employed time series techniques, represented by stationary and co-integration tests, in order to apply Fully Modified Least Squares (FM-OLS) method. The results showed that all variables, public spending, oil revenues, and tax revenues were non-stationary at level, however they were stationary at the first difference, as well as there was a cointegration association among them according to Engel-Granger test. The results of the FM-OLS estimates showed that there was a positive relationship between public spending and oil revenues by about +0.98%, while there was a negative relationship between public spending and tax revenues by approximately -0.75%. All results were significant at 1% level of significance. These results reveal that the Libyan economy does not have an effective fiscal policy regarding taxes to contribute in financing the public spending, as the Libyan economy is highly dependent on oil revenues instead of focusing on taxes.

Keywords: taxes, public spending, treasury financing, fiscal policy, Libya.

دور الضرائب في تمويل الخزانة العامة في ليبيا (1980-2022)

د. محمد مفتاح الشيخ رحيل

د. عبدالحميد أحمد حامد

كليـة الاقتصاد والعلوم السياسيـة - جامعة مصراتة

الملخص:

تبحث هذه الورقة في قياس دور الضرائب في تمويل الخزانة العامة في ليبيا خلال 1980–2022. الدراسة استخدمت تقنيات السلاسل الزمنية متمثلة في اختبارات السكون والتكامل المشترك من أجل تطبيق طريقة المربعات الصغرى المعدلة كليًا. النتائج أوضحت أن جميع المتغيرات الانفاق العام والايرادات النفطية والضريبية كانت جميعها غير ساكنة في المستوى ولكنها كانت جميعًا ساكنة عند الفرق الأول وكذلك يوجد تكامل مشترك فيما بينها حسب اختبار انجل قرانجر. بينت نتائج تقديرات المربعات الصغرى المعدّلة كليًا أنه توجد علاقة انحدار طردية بين الانفاق العام والايرادات النفطية بحوالي (0.98%)، بينما كانت عكسية بين الانفاق العام والايرادات الضريبية بحوالي (0.75%−). من خلال هذه النتائج يتضح أن الاقتصاد الليبي ليست لديه سياسة مالية فعالة من جانب الضرائب من أجل مساهمة الضرائب بشكل يساهم في تمويل الانفاق العام، حيث أن الدولة معتمدة على إيرادات النفط بدلاً من التركيز على حصيلة الضرائب.

الكلمات المفتاحية: الضرائب، الانفاق العام، تمويل الخزانة، السياسة المالية، ليبيا.

1. Introduction.

Taxes are the most important non-oil source of revenues in both developing and developed economies. This is because its role has changed significantly in response to the economic development (Adegbite, 2020). It is considered an important instrument of fiscal policy to manage its objectives in society. Korkmaz et al., (2019) and Kamal (2022) mentioned that taxes are essential to create adequate revenue for the state to meet the increasing public spending. Taxes are necessary to promote economic growth and economic stability, as they are one of the sources of budget financing. In general, taxes have evolved into different kinds of rules and principles to ensure achieving its role with different aspects of public spending, thereby ensuring the financial sustainability of the general treasury. The association between government spending and taxes is a field of study that has proved imperishably popular, with empirical studies carried out in the light of the theories' numerous arguments over time. Although some studies have provided results in accordance with the tax–spending theory, others have mentioned findings in line with the expenditure–tax theory (Gurdal et al., 2021). Yinusa et al., (2017) examined the linkage between taxes and expenditures during 1981–2014.

data from Nigeria. The study proposes that an association occurs between revenues and spending, which is a consequence consistent with the tax–expenditure hypothesis. Irandoust (2018) discussed the relationship between government spending and government revenues for Sweden in during 1722–2011. The outcomes displayed that there was a bidirectional causal association between government expenditure and government revenue.

In Libya, public spending has suffered from noticeable increase which is heavily dependent on oil revenues. On the other hand, we can see that the proportion of tax revenue in public expenditure is very small compared to a huge and increasing amount of public spending. In 1999, 2015 and 2020, tax revenues accounted for about %25, %1.99 and %2.05 respectively of total public spending as shown in Table (1).

Table (1): Ratio of tax revenues to public spending

years	**(TR/GE) %**
1999	%25
2015	%1.99
2020	%2.05

Source: Central Bank of Libya.

Through these percentages, an obvious decrease is observed in the percentage of tax revenues, which in turn will affect the public spending, particularly during the oil crisis. Therefore, the research problem can be formulated in the following question: What is the extent to which tax revenue contributed to financing public spending in Libya during 1980-2022?. Thus, the research was based on a basic hypothesis which is tax revenues contribute a minor percentage to the volume of public spending, and the greater dependence in financing the public treasury on the oil revenues. This study differs from previous studies that dealt with the issue of taxes and fiscal policy in Libya, as most of the previous studies Alarabi and Eabaid (2017), Masoud (2015) and Abodher et al., (2020) focused on the issue of tax evasion and the ability to pay taxes, while this study will focus on the relationship between public spending and the collection of tax revenues, taking into account the importance of the role of oil revenues in the Libyan economy.

The research seeks to shed light on the contribution of tax revenues of all kinds: direct taxes, indirect taxes, fees and fines in financing the public expenditure to find out how much it is related to public spending in the Libyan economy during the research period. The importance of this study is that taxes are considered a very important variable of public revenues, which will be transformed into public spending, which in turn contributes to organizing the economy. It is also to shed light on reforming the tax system in the Libyan economy, which in turn will lead to fairness in collecting, as well as to reduce treasury deficit that may occur in the general budget, particularly during oil crises.

Previous studies have demonstrated the significance the tax an important source of and essential to the state revenues needed to meet the public expenditures necessary for the development of society and satisfy the needs of economic, social, political, cultural, of tax multiple objectives, foremost of which was the main objective, permanent and of priority financial objective of any provision of the necessary funds to cover the expenses of the state (al-Samirrai & al-Ubaydi, 2012).

Time series technique will be employed in order to reach the research objectives to measure the relationship between tax revenues and public spending, considering the presence of oil revenues in the model to reach robust results according to scientific criteria to interpret the relationship between them. The research has been divided into five parts, first part talks about the general background of the research and the methodology that used. In the second part, the most important previous studies that focused on the role of taxes in the economy were mentioned. Methodology and data came in the third part and the fourth part concerned on measuring and analysing the results. The main results and conclusion came in the last section.

2. Literature Review.

Most of the previous studies that dealt with the issue of taxes in Libya focused on tax evasion and the lack of seriousness of the state in collecting taxes and increasing their value in order to contribute significantly to financing the public treasury. Another type of studies focused on the amount of tax ability attributed to income and the tolerable extent of the amount of taxation in Libya. The most important of these studies will be mentioned as follows:

Alarabi and Eabaid (2017) studied the tax and customs evasion for the Libyan economy during 1990–2015. The study concluded that the high tax rates, the shortcomings in tax legislation, the failure to update it periodically, and the weakness of the administrative apparatus led to an increase in tax and costumes evasion, which in turn has a negative impact on economic development in Libya, as well weakening the structure of the state and its political, economic and security situation.Masoud (2015) examined the factors that influencing tax evasion among taxpayers from the Libyan perspective. This study is based on five variables that are employed to control the factors that impact tax evasion in Libya, which are: education level, tax rate, corruption, penalty rate and the Islamic religious perspective. The data were collected through the distribution of questionnaires to 277 respondents in Libya and processed employing Statistical Package for Social Science (SPSS) software for the purpose of this research. By using correlation and regression analysis, the findings of the study show that there is a positively significant relationship between tax rate, corruption and penalty rate and tax evasion. On the other hand, education level indicates a negative but insignificant correlation with tax evasion. There is no significant correlation between Islamic religion and tax evasion but the relationship was positive.Abodher et al., (2020) studied the tax evasion in Libya because it prevents taxpayers from contributing efficiently to the economy. Previous research has identified a variety of socio-psychological elements that influence tax evasion behaviour. As a result, the current study investigated the impact of Islamic worldview and Islamic religiosity on tax evasion behaviour among self-employed taxpayers in Libya. To collect data, a quantitative method using a questionnaire is used. PLS was used to perform structural equation modelling. This study presents empirical evidence that Islamic worldview and Islamic religion have a substantial positive association with Libyan self-employment tax noncompliance. The discoveries, in theory, have added to the knowledge. Abdalaziz (2012) measured the taxable capacity in Libya. The main results of this research are: First, in Libya, tax burden per capita is high compared to personal incomes; Second, the tax bases in Libya were narrow reflecting the government's heavy reliance on oil revenue; Third, the level of taxable capacity in Libya is also low compared to the selected oil producing countries for a variety of reasons, including: narrow tax bases, failure to diversify the tax sources, and the public sector being subject to tax. The argument explained that the Libyan economy has reached the full utilization of its taxable capacity. This study will distinguish from previous studies about Libya in that it will focus on the response of taxes revenues to the increase in public spending during the research period.

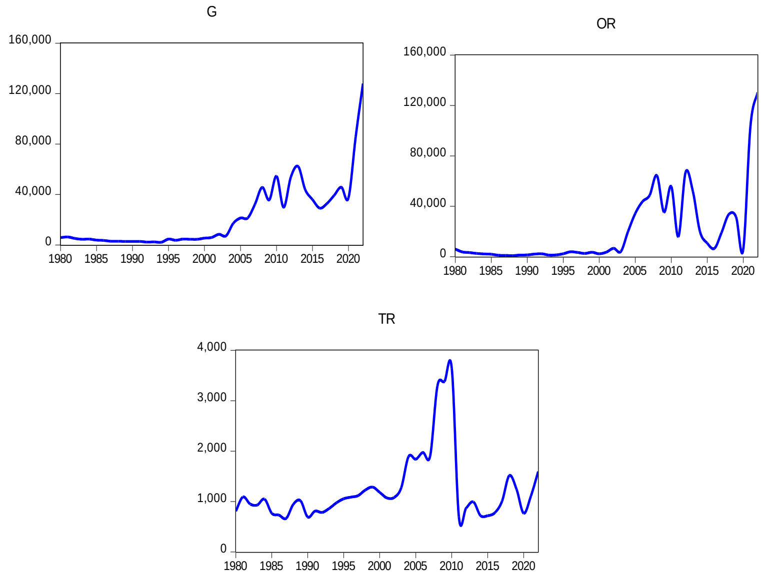
Ahmad et al., (2018) studied the empirical association between indirect taxes and economic growth in Pakistan using annual time series data during 1974 - 2010. The key purpose of the study is to find the long-run and short-run relationship between indirect taxes and economic growth. Philips Perron and Augmented Dickey fuller unit root tests were used to check the stationarity of every variable in the study. Auto Regressive Distributed Lag (ARDL) and bounds test for cointegration was applied. Indirect taxes have negative and significant effect on economic growth in long-run while in short-run were insignificant. Due to one per cent increase in indirect taxes, economic growth would decrease by 1.68 per cent. The Error correction coefficient of indirect taxes shows 45% speed of adjustment in a year. According to the research results it is imperative to decrease indirect taxes and increase the direct taxes, if we want to augment the economic growth. Currently, contribution of direct taxes out of total tax revenue is only 33 per cent and the share of indirect taxes is 63 per cent, while it should be reversed if economic growth increases. According to Abiola & Asiweh (2012) the tax policies of the Organisation for Economic Co-operation and Development (OECD) countries focused on efficiency, increasing tax revenues, fairness, and an enforcement. Oats, et al (2017) state that “taxes are necessary to finance the public spending.” However, it is vital to remember that the government also generates funds through other ways, such as grants and borrowing. Abiola & Asiweh (2012) mentioned that, almost all countries look at the government as the powerful provider, except for countries like the UK, the USA, France and a few others where taxes seem to be the main support for the economy. Some believe that pay taxes to the government is just to benefit a small group of political elites who have granted themselves unbeatable powers as well as many individuals believe that -because the government is so wealthy- collect taxes from the public is just another way to take advantage of defenceless populations without giving them enough in return. Justifications for not paying taxes ،the responsibilities are great. Overall, although some relevant facts, these explanations amount to widespread ignorance of how important tax dollars are. The complexity of tax policies and administration in the country is the reason, according to a careful assessment of some of the factors or reasons that contribute to the uncooperative attitude of people towards taxes. Nightingale (2002) Salanie, B. (2011). argue that decent expenditures must have the characteristics of justice, efficiency, integrity, adaptability and fundamentality. These criteria are valid to this study and even serve as an aid in defining strategy. However, the ability to accomplish everything in one task strategy is essentially unthinkable; Hence Nightingale (2002) states that there is no appropriate cost. As to Abiola & Asiweh (2012) point out, “actual expenditures may not be perceived as fair, while expenditures considered neutral may not be productive”. In general, people strongly dislike expenses because of the impact on their salaries. Owens (2006) points out that some people are interested in settling expenses. Individuals should often recognise a tax collection strategy on the assumption that it should gain consistency. This implies that taxation is one of the cornerstones of all political regimes, a point long recognized by diverse authors, over the years, considerable progress has been made in modeling the revenue systems that governments(Kenny, L & Winer, S. 2006).

3. Data and Methodology.

The study relied on documentary annual data for Government Expenditure (GE), tax revenues (TR) and oil revenues (OR) from the Central Bank of Libya during 1980-2022. As in figure 1, a dramatic decline in tax revenues curve is noticed after 2013 to be continued at the same low level for a long time. On the other hand, the government spending curve stayed at a high level which may lead to public balance deficit particularly when the government has on good gains from oil sector. Time series technique was applied by employing stationarity for time series variables employed in this study to avoid spurious regression results. In addition to this, the study will test the co-integration association to test the long run linkage among the study variables that may allow to employ FM- OLS estimates. After confirming evidence of co-integration among GE TR and OR, the appropriate method to estimate the long run estimates is FM-OLS. There are several estimation methods to apply after finding co-integration association among variables. FM-OLS[(*)] approach suggested by Phillips and Hansen (1990), the Dynamic Ordinary Least Squares (DOLS) method applied by Saikkonen (1991) and Auto Regressive Distributed Lags (ARDL) applied by Pesaran and Shin (1995). However, we suggest employing FM-OLS to estimate the long-run co-integration equation in order to avoid the parameter bias and endogeneity problems in this model. Co-integrating links between non-stationary series may cause endogeneity in the model that may not be avoided by employing vector auto regressions (VAR's) (Phillips 1995).

* This method was designed by Phillips and Hansen in 1990 to obtain an optimum estimation of co-integration regression. This approach adjusts least squares to account for serial correlation impacts and for the endogeneity in the regressions that arises from the existence of a co-integration association.

Figure (1): Government expenditure, tax revenues and oil revenues during 1980-2022



4. Measurements and Outcomes Analysis.

4.1 Simple correlation relationship.

In order to measure the relationship between the study variables, firstly the simple correlation will be applied to know the simple correlation relationship between the study variables. As a comparison between the two variables OR and TR, the correlation between GE&OR is at a very high level of correlation compared to the correlation between GE&TR. Both correlations (GE and OR) & (GE and TR) are significance at level 1% and 5% respectively, as shown in table(2).

Table (2): simple correlation relationship during 1980-2022

Probability	t-Statistic	Correlation	GE
0.0000	15.60	0.925	OR
0.0351	2.18	0.322	TR

4.2 Stationarity Test.

In this section, it is important to perform stationarity tests for all logarithmic study variables to ensure that no series under consideration is integrated at I (2) or higher for applying co-integration test. All interested variables are stationary at the same level at I (1), none of them are stationary at I (2) by employing ADF and PP tests as shown in table (3).

Table (3): Unit root test (ADF) and (PP) for GE, TR and OR during 1980-2022

Vars	Model	Level (ADF)	First diff (ADF)	Level (PP)	First diff (PP)
LnGE	Intercept	0.8947	0.0000	0.8947	0.0000
	Intercept &trend	0.4214	0.0000	0.3877	0.0000
	None	0.9841	0.0000	0.9841	0.0000
LnTR	Intercept	0.1135	0.0000	0.1105	0.0000
	Intercept &trend	0.3172	0.0003	0.3057	0.0001
	None	0.7506	0.0000	0.8483	0.0000
LnOR	Intercept	0.4405	0.0000	0.5805	0.0000
	Intercept &trend	0.1773	0.0000	0.1906	0.0000
	None	0.8541	0.0000	0.9871	0.0000

Source: EViews 10 outcomes.

4.3 Engle Granger Co-integration Test.

The stationarity test findings indicate that all variables are stationary at level I (1), then the co-integration association among the selected variables can be tested. Table (4) showed that the Engle-Granger co-integration procedure is existed among the selected variables at level 5% because the probability is lower than 0.05, confirmed that the study variables GE, OR, and TR are associated together by a long run linkage.

Table (4): Cointegration test - Engle-Granger

	Value	Prob.*
Engle-Granger tau-statistic	-4.542697	0.0131
Engle-Granger z-statistic	-26.90020	0.0138

*MacKinnon (1996) p-values.

4.4 FM-Estimates.

After confirming evidence of co-integration among the study variables, the FM-OLS method will be applied to estimate the long run relationship between them. The results are shown below in table (5).

Table (5): FM-OLS results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LnTR	-0.7496	0.2403	-3.1193	0.0034
LnOR	0.9831	0.0679	14.469	0.0000
C	5.851500	1.4029	4.170900	0.0002
R-squared	0.883246	Mean dependent var		9.332520
Adj R-squared	0.877258	S.D. dependent var		1.232174
S.E. of regression	0.431686	Sum squared resid		7.267752
Long-run variance	0.268341			

FM-OLS findings show that there is a negative relationship between GE and TR by approximately (-0.75%), while there is a positive relationship between GE and OR by about (0.98%) in logarithmic form. All parameters in this estimation are significant at 1% level of significance. The value of the coefficient of determination was at a high level of about 2, which means that about 88% of the changes occurring in public spending were caused by oil revenues and tax revenues. The residuals in this model is normally distributed according to Jarque-Bera test with no multicollinearity as well by employing Variance Inflation Factors (VIF) test.

Figure (2): Jarque – Bera for normality test

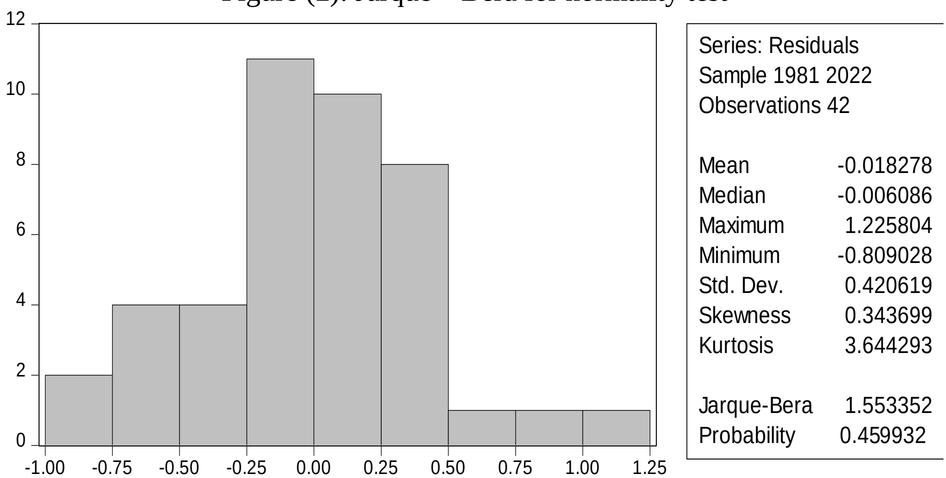


Table (6): Multicollinearity test (VIF)

Variance Inflation Factors			
	Coefficient	**Uncentered**	**Centered**
Variable	Variance	VIF	VIF
LnT	0.057746	443.9733	1.578163
LnOR	0.004616	58.72922	1.578163
C	1.968226	308.0614	NA

5. Discussion.

The results confirm that the correlation of public spending with oil revenues was very large compared to its correlation with tax revenues according to Table 2. There was also a negative and significant regression relationship between public spending and tax revenues, while it was positive and significant between public spending and oil revenues according to Table 5. This confirms what has been found in previous studies on the Libyan economy, Abdulaziz (2012), where emphasized the low tax capacity compared to personal incomes, and thus the heavy reliance on oil revenues. Likewise, all the other results of the studies Alarabi and Eabaid (2017), Masoud (2015), and Abodher (2020) confirmed the same results, which were the weakness of the tax revenue, which was concluded in this study in the form of a negative and significant regression relationship for a long period of time 1980-2022.

6. Conclusion.

This study provides empirical evidence on the tax revenues and the volume of public spending in the Libyan economy by employing time series techniques. Through the results, there was a significant negative relationship between tax revenues and the volume of public spending while there was a significant positive relationship between public spending and tax revenues during 1980-2022. The main reasons for the negative relationship between what the country spends and what is collected in various types of taxes is the heavy reliance on oil revenues, the large evasion of paying taxes due to low salaries for the individuals in Libya, the low level of culture among individuals in their dependence on the state and their negative view of the idea of taxes. Libya is an extreme country in its economic policies, whether it is the low level of tax collections or the provision of support to citizens. Consequently, the state has missed many opportunities for advancement and development, causing it to suffer from a deficit in its general budget and its balance of payments when oil crises occur, whether in the decline in oil prices or the closure of oil ports occurred due to civil conflicts between regions of Libya in recent years. All these standard indications point to the failure of the tax system in Libya as a tool of fiscal policy to finance public treasury on a regular basis so that no uncontrollable deficit occurs in the public treasury, as happened when internal and external crises occur in the oil production in Libya. Policy fiscal makers should realise the tax revenue decline in order to increase the volume of public revenues that allocated to financing public expenditure. Finally, we envision future research on taxation in financing the public treasury that can be following three paths: firstly, we plan to study tax policy and administration reforms and urge other researchers to that, where various reforms aimed at improving tax policy and administration to enhance revenue generation are studied. This includes, improving tax collection mechanisms, and enhancing tax compliance through effective enforcement measures. Secondly, we hope to expand the tax base involves reducing exemptions, deductions, and special treatments that limit the number of individuals and entities subject to taxation. By broadening the tax base, governments can capture more taxpayers and increase revenue generation. we look forward to future work that assesses the tax compliance and behaviour to understand the factors that influence taxpayer compliance is crucial for designing effective policies. These are broad research areas that can be explored through future studies to improve the role of taxes in financing the public treasury in Libya.

References

Firstly: English references:

Abdalaziz, M. (2012). Measuring taxable capacity in Libya (Doctoral dissertation, University of Gloucestershire).

Abiola, J., & Asiweh, M. (2012). Impact of tax administration on government revenue in a developing economy-a case study of Nigeria. *International Journal of business and social science*, *3*(8).

Abodher, F. M., Ariffin, Z. Z., & Saad, N. (2020). Religious factors on tax non-compliance: evidence from Libyan selfemployed. Problems and Perspectives in Management, 18(1), 278-288.

Adegbite, T. A. (2020). An Assessment of Non-Oil Taxation Inflow on Economic Growth: Verdict from West African Countries. Annals of Spiru Haret University. Economic Series, 20(2), 87-103.

Ahmad, S., Sial, H. M., & Ahmad, N. (2018). Indirect taxes and economic growth: An empirical analysis of Pakistan. Pakistan Journal of Applied Economics, 28(1), 65-81.

AlSamarai, Y. M., & Al Obaidi, Z. K. (2012). Analysis of the phenomenon of tax evasion in and the means of treatment in the tax system in Iraq. AL-Anbar University journal of Economic and Administration Sciences, 4(9).

Central Bank of Libya. https://cbl.gov.ly/en/

Gurdal, T., Aydin, M., & Inal, V. (2021). The relationship between tax revenue, government expenditure, and economic growth in G7 countries: new evidence from time and frequency domain approaches. *Economic Change and Restructuring*, *54*, 305-337.

Irandoust, M. (2018). Government spending and revenues in Sweden 1722–2011: evidence from hidden cointegration. *Empirica*, *45*(3), 543-557.

Johansen, S. (1988). Statistical analysis of cointegration vectors. Journal of economic dynamics and control, 12(2-3), 231-254.

Kamal, M. (2022). The role of direct and indirect taxes in financing public revenues. University of Human development

Kenny, L. W., & Winer, S. L. (2006). Tax systems in the world: An empirical investigation into the importance of tax bases, administration costs, scale and political regime. *International Tax and Public Finance*, *13*, 181-215.

Korkmaz, S., Yilgor, M., & Aksoy, F. (2019). The impact of direct and indirect taxes on the growth of the Turkish economy. Public Sector Economics, 43(3), 311-323.

Masoud, S. A. A. (2015). Determinants of tax evasion: Evidence from Libya. Universiti Utara Malaysia. Retrived from: http://etd. uum. edu. my/5578/2/s815030_02.pdf.

Mohamed, S. (2015). Determinants of tax evasion: evidence from Libya. Unpublished M. Sc. dissertation, 1-83

Nightingale, K. (2002). *Taxation: Theory and practice*. Pearson education.

Oats, L., Miller, A., & Mulligan, E. (2017). *Principles of international taxation*. Bloomsbury Publishing.

Owens, J. (2006). Tax in a borderless world: achieving tax compliance is a challenge facing governments the world over. Action can be taken. *OECD Observer*, (257), 10-12.

Pesaran, M. H., & Shin, Y. (1995). *An autoregressive distributed lag modelling approach to cointegration analysis* (Vol. 9514). Cambridge, UK: Department of Applied Economics, University of Cambridge.

Phillips, P. C. (1995). Fully modified least squares and vector autoregression. *Econometrica: Journal of the Econometric Society*, 1023-1078.

Phillips, P. C., & Hansen, B. E. (1990). Statistical inference in instrumental variables regression with I (1) processes. *The review of economic studies*, *57*(1), 99-125.

Saikkonen, P. (1991). Asymptotically efficient estimation of cointegration regressions. *Econometric theory*, *7*(1), 1-21.

Salanie, B. (2011). *The economics of taxation*. MIT press. Smith, A. (1937). *The wealth of nations [1776]* (Vol. 11937). na.

Solow, R. M. (1956). A contribution to the theory of economic growth. The quarterly journal of economics, 70(1), 65-94.

Yinusa, O. G., Aworinde, O. B., & Oseni, I. O. (2017). The revenue-expenditure nexus in Nigeria: Asymmetric cointegration approach. *South-Eastern Europe Journal of Economics*, *15*(1).

Secondly: Arabic references:

طارق العربي، ومحمد عبيد. (2017). ظاهرة التهرب الضريبي والتهرب الجمركي إشارة خاصة للاقتصاد الليبي خلال الفترة 1990–2015. (12).

يسري السامرائي، وزهرة العبيدي. (2012). تحليل ظاهرة التهرب الضريبي ووسائل معاجلته في النظام الضريبي العراقي، مجلة الانبار للعلوم الاقتصادية والإدارية، مجلد (4)، العدد (9).