The Impact of the Shadow Economy on Tax Revenues in Palestine Between the Years (2000-2021)

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ABCTRACT: *This study aimed to identify the reasons that lead to the growth of the phenomenon of the shadow economy, and to estimate its size between the years (2000-2021), and its impact on tax revenues in Palestine. The quantitative approach was used to analyse the annual data of the variables, using the MIMIC Model. The study concluded that the size of the shadow economy in Palestine between the years (2000-2021) was (44.45%) of the gross domestic product, and that there is a negative impact of the shadow economy activities on the tax revenues. A legal framework must be provided to makes it contribute positively to the gross domestic product and national income, and increase investment projects in Palestine that lead to increasing job opportunities and reducing unemployment, which positively affects reducing the size of the shadow economy in Palestine.*

KEYWORDS: Shadow economy, tax revenues, direct taxes, indirect taxes.

INTRODUCTION

The shadow economy has become an essential aspect in various research studies during the past years, when its negative impact began to spread on the various economies of the world. Smith knew(1997) The shadow economy is defined as "goods and services produced in the market that are not included in the official calculations of the gross domestic product."Abu-Edeh (2015) defined it as "economic activity and income obtained from it by circumventing legislation, laws, and taxes, and it is not officially registered."

It is considered(Cagan, 1958) The first to estimate the phenomenon of the shadow economy using the currency demand model (estimating the volume of cash circulating outside the banking sector) by studying the relationship between the demand for currency and the tax burden, as it was considered one of the most important causes of the shadow economy in the United States during the period (1919-1955). .

As for the activities of the shadow economy, they are divided into two parts, the legitimate activities, which are "activities that are legal and permitted to be carried out, but whose owners

circumvent the law when practicing them", such as tax evasion or work without a license, and illegal activities such as drug trafficking or cultivation or trading in stolen goods (Alfar, 2014).

The International Labor Organization officially recognized this phenomenon in 1972, as an economic reality in almost all countries of the world, whether developed or developing countries, and it was found that it severely weakens the economic plans and policies of many countries and greatly affects their budgets, and may also threaten the stability of the economy Global (Mishchuk et al., 2020).

Studying the economies of the different countries of the world and the size of the shadow economy in them was found (Medina & Schneider, 2019) The size of the shadow economy for 31 European countries ranged between (6%-29.6%) of the GDP. (Schneider, 2016) The average shadow economy of 24 countries on the African continent was 41% of the GDP, the average of the shadow economy of 26 countries on the Asian continent was 26% of the GDP, and the average of the shadow economy of 17 countries in Latin America was 41% of the GDP.

In view of the size and proportions of the shadow economy in the countries of the world, it has become necessary to study and determine the size of this type of economy in the State of Palestine, as the Palestinian territories suffered from great economic difficulties and challenges, mainly due to the Israeli occupation, and the geographical and political gap between the two parts of the Palestinian homeland (the West Bank and the Gaza Strip). , which helped in the emergence of the shadow economy in Palestine (Abu Amsha, 2019).

where it was found (Marei, 2018) The average size of the shadow economy in Palestine between the years (2000-2016) amounted to 49.85% of the GDP, while it was found (Ahmed, 2013) In his study of the phenomenon of the shadow economy in Palestine between the years (2000-2010), the average percentage is 16.6% of the GDP. (Abu Amsha, 2019) The average percentage of the shadow economy in Palestine between the years (2008-2018) is 15.5% of the GDP, and due to the scarcity of studies in Palestine that dealt with the phenomenon of the shadow economy and its disregard for many economic variables, and the lack of linking this phenomenon and its effects to the general budget of the State of Palestine, it was necessary to conduct a study more comprehensive, linking it to the general budget and measuring its real impact on the Palestinian economy.

Study problem and questions:

There are many reasons for the phenomenon of the shadow economy in the State of Palestine, and among these reasons is the internal division and the Israeli occupation (Ahmed, 2013), which increased illegal activities, including money laundering, customs evasion, tax evasion and other shadow economy activities, which negatively affected the public budget In Palestine, where the percentage of public debt in the general budget relative to the gross domestic product in Palestine for the years 2016—2017-2018 was 18.5%, 17.5%, and 16.2%, respectively, according to the data of the Palestinian Monetary Authority, and the deficit in the general budget for the same period was 440. 319.1, 197 million dollars, according to data from the Palestinian Monetary Authority.

This is due to several reasons, including the decline in foreign investment, occupation restrictions, and political and economic instability, which contributed to the emergence of the

shadow economy phenomenon. (Abu Amsha, 2019) This leads us to the following main question **: What is the impact of the shadow economy on tax revenues in Palestine between the years 2000-2021**?, and the following sub-questions branch out from it:

1. What are the reasons for the emergence of the shadow economy in Palestine?
2. What is the estimated size of the shadow economy as a percentage of the GDP between the years (2000-2021) in Palestine?
3. What is the impact of the shadow economy on tax revenues?

The importance of studying:

As a result of the scarcity of studies on the size of the shadow economy in the Palestinian territories and its impact on tax revenues (direct taxes, indirect taxes) - according to the knowledge of the researchers - it was necessary to conduct this study, as the importance of this study lies in that it will help decision-makers to overcome some The crises facing the Palestinian economy, such as the accumulated deficit, the increase in public debt, tax and customs evasion, and the attempt to develop plans related to reducing the public budget deficit through increasing tax revenues, reducing the size and proportion of public debt, increasing public budget revenues, and fighting all forms of the shadow economy. and prevent its growth.

Objectives of the study:

This study aims to identify the reasons that lead to the growth of the phenomenon of the shadow economy, and estimate its size between the year (2000-2021), and its impact on public revenues in Palestine, in addition to standing on and analyzing previous local and international studies, to come up with results and recommendations that help decision makers in Palestine to draw economic policies and fight and reduce this phenomenon.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The shadow economy includes not only illegal activities, but also unreported income from the production of legal goods and services, whether from monetary or barter transactions. This type of economy is considered one of the ancient and modern phenomena that societies suffered from and is common to all countries, developed or developing. The shadow economy using the currency demand model (estimating the volume of cash circulating outside the banking sector) by studying the relationship between the demand for currency and the tax burden, as it was considered one of the most important reasons for its emergence in the United States during the period (1919-1955).

This phenomenon is considered very important for the national economy because it has an important impact on all aspects of life, including economic, social and political ones. Countries, including Palestine, and with the growth of this phenomenon in both developed and developing countries, the importance of understanding the relationship between it and the formal economy emerges (Ekici & Besim, 2016).

And with the increase in tax rates to finance huge public spending programs, and the increasing tendency of individuals to evade taxes and break regulatory restrictions, where the main problem with regard to economic performance in developing countries lies in the insufficient

collection of taxes, and the large presence of the phenomenon of the shadow economy, along with other macroeconomic effects. Increasing the size of this economy in a country affects the choice of fiscal and monetary policy tools (;Schneider & Buehn, 2018عطية , 2020).

A study (Marei, 2018) showed that the lack of regulation of the Palestinian market, political instability, and the weakness of deterrent laws were among the reasons for the growth of the shadow economy phenomenon in Palestine. The study (Ahmed, 2019) showed that the shadow economy has a direct and indirect impact on the general budget of countries in general. Where he clarified its impact on public expenditures and revenues, while the study (Mesmash and Najat, 2018) concluded that tax evasion is the most important factor causing the increase in the size of this economy.

According to the studies that dealt with this phenomenon extensively, such as the study (Ahmed, 2019), which concluded that there is a direct and indirect impact of the phenomenon of the shadow economy on the public budget by creating a deficit, its impact is mostly negative, and this appears in the study (Sharfani, 2017), which concluded The presence of a negative impact of the hidden economy on the volume of Iraqi government spending, due to the decrease in the volume of government spending, as the study (Chen & Schneider, 2018) found that the total tax burden, the proportion of employment in the public sector and financial decentralization, through which the shadow economy in China was estimated to have a negative impact on formal economy. But it has some positive effects, as a study found (Tohamy, 2018) There is a positive impact of the shadow economy on the GDP in Algeria, as economic growth results from the interrelationships between it and the formal economy, meaning that it contributes to the official output and economic growth, which called for the need to develop a comprehensive framework of economic policies to integrate legitimate shadow economy activities to benefit Of the added value it has, and at the same time combating illegal activities in various possible ways and means, and its positive and negative effects can be summarized as follows:

In countries where the shadow economy is large, the tax rates collected are higher to compensate for the shortfall in government revenues, as many studies have shown that there is a relationship between the size of this economy and the overall tax burden in the country. (Schneider et al., 2019).

The size of the tax burden on individuals in the country is often the reason behind the growth of the shadow economy, for example, if taxes are high on tobacco products, then the black tobacco market will flourish, and if there are high taxes on companies and workers, the motive to work in informal activities with the aim of evasion tax will be greater (Angour & Nmili, 2019)Therefore, governments and regulators need to create an environment in which organizations and workers are incentivized to remain in the formal economy.

As for unemployment, the unemployment rate usually moves opposite to the contraction and expansion of the economy. When the economy suffers from significant contractions, the unemployment rate increases (Abdul-Azim and Abdullah, 2014), despite the compensation of social welfare payments, but the decline in income available from unemployment may It enhances reliance on informal activities, but participation in these activities is not limited to the unemployed only, those who work in the legitimate economy may also work in it partially, this heterogeneous group of individuals participating in the shadow economy is what pushed(Tanzi,

1999) to the conclusion that "the relationship between the shadow economy and the unemployment rate is ambiguous".

And submit (Giles & Werkneh, 2002) A similar explanation for the weak relationship between the shadow economy and unemployment, where they argue that the unemployment rate is negatively related to the shadow economy, since the shadow economy increases whenever there is an increase in unemployment, and if unemployed individuals spend part of their additional time working in these activities, it is likely that The net effect of changes in the unemployment rate on the shadow economy is small, this small effect, though these two effects must be studied separately.

A study (Al-Zaidi, 2018), which estimated the size of the shadow economy based on annual data on the size of unemployment, found a long-term relationship between the size of the hidden economy and its determinants, and the most important factors are unemployment, taxes, complexities and government procedures, and a study (Abdullah, 2017) Which estimated the shadow economy using the unemployment rate, and found that the higher the unemployment rate, the higher the shadow economy rate. As for the study (Berdiev & Schneider, 2019), it examined the effect of poverty on the size of the shadow economy using multiple data for more than 100 countries for the period 1991-2015, and the researchers used the currency demand model to estimate the size of the shadow economy, and the results showed that poverty has a positive and significant effect on The size of the shadow economy. Moreover, we stress that the quality and size of government institutions is important in mitigating the impact of poverty on the shadow economy. Looking at the interactions between poverty and the quality and size of government, we find that poverty has the greatest impact on the size of the shadow economy as the size of the state increases and its efficiency decreases.

The nature of the Palestinian economy and the challenges it faces, whether with Israel controlling the economy and its direct dependence on Israeli economic decisions and laws, as well as the lack of control of the Palestinian Authority in any of the land and sea crossings, and the state of political instability resulting from the occupation and its control of the borders and the confiscation of Palestinian lands in favor of the settlements, and its control On water sources and energy sources, in addition to the Palestinian division, it is only natural for another economy to emerge operating in the shadows (Iriqat & Anabtawi, 2016).

Following up the activities of the shadow economy in Palestine is considered a difficult task and faces many challenges due to the great diversity of these activities and their division between legal and illegal activities, and the lack of complete statistics or specific tools to accurately estimate this phenomenon in the Palestinian territories. (Floridi et al., 2016)And as (Maree, 2018) explained in his study on the phenomenon of the shadow economy in Palestine between the years (2000-2016) that one of the most important forms of the shadow economy in Palestine is tax evasion and avoidance of official labor standards.

The legitimate activities in this economy are divided into the unlicensed industry sector, the unlicensed construction sector, the unlicensed transportation sector, the services sector and unlicensed foreign trade. As for the illegal activities in Palestine, they are money laundering, fraud and the use of funds, corruption and embezzlement of public funds, and economic crimes. Commercial fraud, crimes of counterfeit checks and banknotes, smuggling and tunnel trade, theft and drug trafficking (Al-Namrouti and Ahmed, 2016; Al-Kabbji, 2015).

The Palestinian government is making great efforts to combat illegal shadow economy activities, such as combating money laundering, by issuing Law No. (9) of 2007 regarding combating money laundering, establishing the Anti-Narcotics Department of the Palestinian Police, and issuing Presidential Decree No. (3) of 1999 to establish the committee. The Supreme National Committee for the Prevention of Narcotic Drugs and Psychotropic Substances, and a specialized anti-corruption prosecution office and the Anti-Corruption Commission were established. Marei (2018) clarified in his study, in which he estimated the shadow economy using the unemployment index, the tax rate of GDP, and the per capita GDP, that the shadow economy increases with the increase of these indicators and it negatively affects the gross domestic product.

In view of the size and proportions of the shadow economy in the countries of the world, it has become necessary to study and determine the size of this type of economy in the State of Palestine, where it was found (Maree, 2018) Which estimated the size of the shadow economy using the MIMIC model that the average size of the shadow economy in Palestine between the years (2000-2016) amounted to 49.85% of the GDP, while the study (Ahmed, 2016), which aimed to research the phenomenon of the hidden economy in Palestine, found The average shadow economy is 16.6% of the GDP, and it was relied on the currency demand model to analyze the variables "tax rate, total wages and salaries ratio, interest rate on savings deposits, the ratio of self-employed workers to actual workers, and per capita gross national income." And he recommended that the Palestinian government should prepare a national plan to confront the phenomenon of the shadow economy, within the framework of appropriate policies for the special Palestinian situation, which leads to an increase in the demand for work in the official sector with the support of the government. Models extrapolating the past and anticipating the future economic situation when planning for Palestinian economic development. appreciate (Abu Amsha, 2019) The average percentage of the shadow economy in Palestine between the years (2008-2018) is 15.5% of the GDP, while the study (Hattab, 2020) concluded that the average size of the shadow economy in Palestine between the years (1998-2018) was 43.48%. It found that both direct and indirect taxes and unemployment increase in them lead to an increase in the size of the shadow economy, and that the increase in government subsidies and government spending lead to a decrease in the size of the shadow economy, and also found that the increase in the size of the shadow economy leads to an increase in the volume of public debt and the deficit In the budget and also an increase in the gross domestic product.

The study (Abdullah, 2017) also aimed to measure the impact of the hidden economy on economic growth in Egypt during the period (1980-2015), by developing a standard model based on a set of variables represented in: The growth rate of the hidden economy, fixed capital formation as a percentage of GDP, unemployment rate, export growth rate, foreign direct investment as a percentage of GDP, and inflation rate. The study concluded that there is a direct and significant long-term relationship between the change in economic growth and each of the change in the size of the hidden economy as a percentage of GDP, and the change in fixed capital formation as a percentage of GDP, as well as the change in foreign direct investment as a percentage of GDP and a long-term significant inverse relationship with the change in the unemployment rate and the change in the inflation rate, while the results showed that the change in exports as a percentage of GDP did not have a significant long-term effect on economic growth, which can be attributed to the policy of trade liberalization Which led to flooding the Egyptian market with some foreign industrial products.

Commenting on the previous Palestinian studies, we find that they talk about estimating the shadow economy in Palestine and its impact on economic variables. As for the current study, the impact of the shadow economy on direct and indirect taxes will be studied, as a scientific addition that previous studies did not address - according to the knowledge of the researchers - by studying it in Palestine.

This study differs from previous studies in terms of variables (Ahmed, 2013) its variables were "money in circulation / money in a broad sense, clearance / GDP, wages / GDP, interest rate, self-employed / employee ratio, GDPper capita."
and study (Maree, 2018) It measured the impact of the shadow economy on "the unemployment rate, the tax-to-GDP ratio, nominal per capita GDP, public sector workers, growth in real GDP, real per capita GDP".
and study (Abu Amsha, 2019) Its variables were "tax evasion, tax rate without clearance / gross domestic product, wages / domestic product, interest rate, percentage of self-employed workers / number of employees, average annual income".

As for foreign studies, it has been shown that a lot of them (Schneider & Buehn , 2018; Dell'Anno, 2007; Dybka et al., 2019;) It relied on a multi-indicator, multi-causal model in order to estimate the size of the shadow economy, because that model is more accurate in measuring the shadow economy for several past years, and it uses more than one variable and measures the impact of the shadow economy on other variables, as it is multi-use and multi-results as well.

Both studies have been used (Schneider & Buehn, 2018; Dell'Anno & Davidescu, 2019) The variables of "tax burden and inflation" to estimate the size of the shadow economy, and they indicated that the higher the tax burden and the higher the inflation rates, the higher the proportions of direct and indirect taxes will lead to higher prices, and thus the occurrence of inflation, and in these cases individuals go to the activities of the shadow economy To offset this decrease in income associated with the increase in tax deductions.

It was also used to study both (Bitzenis et al., 2016; Mauleón & Sardà, 2017) The variable "unemployment and government subsidies" to estimate the size of the shadow economy, and they found that increasing government subsidies would reduce the size of the shadow economy. As for unemployment, (Bitzenis et al., 2016) believes that increasing the size of the shadow economy leads to a decrease in real unemployment rates, because Shadow economy activities, even if they are not included in the national accounts, provide job opportunities for individuals. On the contrary, (Saunoris, & Marshall, 2019) believes that an increase in unemployment rates would increase the size of the shadow economy, as the unemployed will search for something He meets their needs, even if this work is illegal or unofficial.

And looking at the variables in previous studies, we find that the variables of the current study are different from the studies that dealt with the subject of research in Palestine, using variables that are compatible with the Palestinian case, as **the variables of the current study** are represented in "per capita gross domestic product, unemployment, government subsidies, government spending, budget deficit ratio" and through them the size of the shadow economy is estimated, then studying its impact on direct and indirect tax revenues, and therefore the current study represents a qualitative addition in Palestine by measuring these variables and their impact on the public budget.

Accordingly, and based on previous studies, which were reviewed in the theoretical framework, the following hypotheses were developed:

H01: There is no statistically significant effect between the size of the shadow economy and tax revenues.

H01.1: There is no statistically significant effect between the shadow economy and direct tax revenues.

H01.2: There is no statistically significant effect between the shadow economy and indirect tax revenues.

METHODOLOGY

A methodology that is compatible with the current study and consistent with previous studies was used, according to the following:

The MIMIC model
Given the importance and necessity of careful analysis of the study variables, this model had to be used because of its ability to refine the relationships between apparent and latent variables, and the ease of studying the relationships between more than one variable and linking them at the same time. (Soares & Afonso, 2019)This model does not directly measure the shadow economy, but results are shown as percentages of GDP (Dybka, et al., 2019).

The**Multiple Indicators and Multiple Causes model** (MIMIC**)** consists of two parts: **Measurement model (measurement equations) and structural model (structural equation**), where measurement equations relate unobserved variables to indicators (which are observed), while structural equations specify the relationship between latent variables and their causes (supposed to be observed) (Angour & Nmili, 2019).

The structural equation is as follows:

$$\eta = \alpha + \gamma_1 WF_t + \gamma_2 GOVEXP_t + \gamma_3 Unemploynment_t + \gamma_4 BD_t + \gamma_5 GDP/capita_t + \varepsilon$$

whereas:

η: Shadow economy as a dependent variable

α: correlation coefficient

γ_n: Correlation coefficient that shows the relationship between a variable and a cause

Unemployment: The unemployment

GOVEXP: government expenditures

WF: government subsidies

BD: Budget deficit ratio.

GDP/capita: Per capita gross domestic product

ε: rate of error

The measurement equations for the impact of the shadow economy on tax revenues are as follows:

$DT = \delta_1 + \lambda_1 \eta + \varepsilon_1$

$INDT = \delta_2 + \lambda_2 \eta + \varepsilon_2$

δλ: Regression coefficients for the shadow economy variable.

η: Shadow economy (independent variable).

DT: direct taxes

INDT: indirect taxes

e: rate of error

Study data:

Annual data for economic variables were used for the period between (2000-2021), because the available data for the years of the study are annual data, and based on previous studies that used this type of data (Hassan & Schneider, 2016; Soares & Afonso, 2019), and Table No. (1) Shows the study data from the publications of the Palestinian Monetary Authority (PMA, 2022), the Ministry of Finance (PMOF, 2022), and the Central Bureau of Statistics (PCBS, 2022).

Table No. (1): Study data

the year	direct taxes	indirect taxes	Groaning in the budget	Unemployment rate %	government subsidies	public expenditure	Average per capita GDP
2000	241	111	-218.961	14.30%	57.7	1667.961	1518.9
2001	193	92	-313	25.30%	41.7	1435	1369.4
2002	141	82	-259	31.20%	35.2	1246	1181.8
2003	167	124	-268	25.50%	32.4	1635	1281.4
2004	191	146	-125	26.80%	50.1	1528	1444.1
2005	231	245	-275	23.50%	64.9	2281	1559.6
2006	221	157	34	23.70%	39.2	1707	1578.1
2007	202	122	61	21.70%	66.3	2877	1664.3
2008	272.8	486.2	270.1	26.60%	105.5	3487.7	2035.9
2009	301.5	283.6	-425.5	24.50%	134.9	3375.9	2193.2
2010	439	254.5	-144.37	23.70%	112.1	3200.07	2559.4
2011	482.1	220.0306	-103.312	20.90%	114.3	3256.876	2884
2012	483.2	232.0792	-85.9021	23.00%	121.2	3258.155	3071.5
2013	597.2	254.3609	258.7318	23.35%	122.5	3419.125	3320.2
2014	604	270.5404	414.8113	26.90%	125.9	3606.871	3357.5
2015	606.6	249.7748	66.77937	25.90%	135.2	3621.429	3277.9
2016	626	607.0571	440.0326	26.90%	142.1	3878.187	3534.4

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2017	758.8	390.8317	319.1217	27.43%	153.34	4052.732	3620.5
2018	838.2	430.3431	197.0483	30.80%	168.18	3930.68	3562.3
2019	763.3	355.7	-77.1	29.3%	177.3	3859.9	3656.7
2020	737.4	374.6	-133.4	29.3%	218.9	4123.7	3233.6
2021	994.9	402.5	342.9	26.4%	223.7	4035.1	3654.6

Source: Publications of the Palestinian Monetary Authority and the Palestinian Central Bureau of Statistics (2022)

Measurement and interpretation of study variables:

The following table explains and measures the study variables and sources of data collection:

Table No. (2) Study variables

variable	his concept	data source	documentation
shadow economy	All activities that are not intentionally included in the GDP in the general budget of the government, and take several terms, including the hidden economy, the informal economy, and the parallel economy.	is appreciated	(Angour & Nmili, 2019; Dybka, et al., 2019; Soares & Afonso, 2019)
GDP/Capita	Per capita gross domestic product	Monetary Authority Palestinian Central Bureau of Statistics	(Mara'e, 2018)
DT	Direct taxes, such as (income tax, property tax)	Ministry of Finance/General Budget	10:09 AM
INDT	Indirect taxes, such as (sales tax and customs tax)	Ministry of Finance/General Budget	(Soares & Afonso, 2019)
WF	Government subsidies (government subsidies for low-income people)	Ministry of Finance	10:09 AM
GOVEXP	Government spending (government final consumption)	Palestinian Central Bureau of Statistics	(Meyer, 2019)
Unemployment	Unemployment rate	Palestinian Central Bureau of Statistics	(Mara'e, 2018; Sabra et al., 2015)
BD	Budget deficit (excess of expenditures over revenues for one fiscal year)	Ministry of Finance	(Çiçek & Elgin, 2011)

Estimating the size of the shadow economy: After verifying the quality of the study model, its data and its natural distribution, and in order to calculate the size of the shadow economy in Palestine, a study was relied upon (Al-Far, 2014) The base year was chosen 1998, when the average size of the shadow economy was 41.42% of the GDP for that year according to that study, and then the size of the shadow economy was estimated according to the method (Vo & Ly, 2014)

Statistical analysis of the study data

Data description

Table (3): The arithmetic means (Mean), the highest and lowest value (Max, Min), and the standard deviation (Standard Deviation).

variable	Arithmetic mean	standard deviation	less value	biggest value
direct taxes	458.7273	257.546	141.00	994.90
indirect taxes	267.7781	138.994	82.00	607.06
budget deficit	-1.0918	257.543	-425.50	440.03
Unemployment rate	0.2529	0.03682	0.1430	0.3120
government subsidies	111.0282	57.3131	32.40	223.70
public expenditure	2976.5175	995.777	1246.00	4123.70
Per capita gross domestic product	2525.4227	937.582	1181.80	3656.70

Source: Preparing researchers using the SPSSprogram.

Table No. (3) shows that the average direct tax revenue is (458.7273) million dollars, recording the highest value in the year 2021, and the lowest value in the year 2002. This is due to the fact that in this year was the beginning of the second intifada, and because of it all aspects of life in Palestine stopped. As for indirect taxes, its average for the study period was approximately (267.77) million dollars, and the highest revenue year for indirect taxes was the year 2016 and the lowest value was 2002. It is also noted that there is a decrease in the years between 2001-2003 in direct and indirect taxes, and this is due Also, the Palestinian Intifada and its aftermath had a clear impact on the Palestinian economy.

As for the unemployment rate, Table No. (3) shows that the highest rate was in 2002 due to the repercussions of the Intifada and the lowest rate in 2000, due to the newness of the Palestinian Authority and the state of optimism that there is a chance for peace, especially with the state of economic recovery in the Gaza Strip and the large availability of jobs in the public and private sectors. The unemployment rate during the study period was approximately 25.29%.

As for government subsidies, it is clear from Table No. (3) that the rate of subsidies provided by the state is approximately (111.0282) million dollars, and the lowest value of subsidies was in 2003 and the highest in 2021.

As for public spending, and as shown in Table No. (3), the arithmetic average for it is approximately (2976.5175) million dollars. It is also noted from the table that public spending is increasing in general, but there is a decrease in spending in 2002 compared to 2001, due to the lack of Security stability in the Palestinian territories, and public spending decreased in 2018 compared to 2017 due to the austerity policy pursued by the Palestinian government due to lower revenues.

Table No. (3) also shows that the budget deficit rate was -1.0918 million dollars during the study period, and that the largest budget deficit was in the year 2009 and the largest budget surplus was in the year 2016, and it is worth noting that during the study period there was fluctuation between a deficit and a surplus Because of the unique political and economic conditions that the State of Palestine is going through, and what permeated this period of the Al-Aqsa Intifada, the Palestinian division, and the decrease in revenues due to the withholding of clearing funds several times by the Israeli occupation (Al-Kababji and Al-Haimouni, 2022).

As for the average per capita gross domestic product (GDP) , its rate during the study period, as shown in Table No. (3), is (2525.4227) US dollars, and we also note from the table that the GDP / capita decreased during the second intifada period between the years (2001-2003), to rise again in 2008 and the following years.

Person correlation matrix

Table No. (4) below shows the correlation between the variables of the current study. This test is called the zero test or the correlation coefficient matrix, which indicates the strength of the correlation between the factors. The negative sign indicates that an increase in one variable leads to a decrease in the corresponding variable, while the positive sign indicates that an increase in one variable leads to an increase in the other variable. However, in scientific research, this test cannot be relied upon to fully interpret the results, as it is preliminary indicators that may change in the multiple regression analysis. Statisticians determined the acceptable correlation ratio so that if the correlation strength exceeds 90%, this means that the two variables have a very high correlation, which leads to the necessity of deleting one of them, as they cannot be analyzed in the same study model. Through the table above, it was found that the model of this study is free from autocorrelationproblems, and it is acceptable for the purposes of study and analysis.

Table No. (4): Correlation coefficients between variables

	1	2	3	4	5	6	7	8
DT	1.0000							
INDT	0.6901-	1.0000						
BD	0.6126-	0.4512-	1.0000					
Unemployment	0.3814	0.4081-	0.2441-	1.0000				
WF	0.3289	0.3447	0.1590	0.1572	1.0000			
GOVEXP	0.5541-	0.2089	0.1474-	0.3221	0.1474	1.0000		
GDP/capita	0.3502	0.3221	0.3199-	0.1977	0.1991	0.1791	1.0000	
Shadow economy	0.3674	0.3111	0.1227-	0.2553	0.1673-	0.2973	0.2216	1.0000

Normalitytest

On the other hand, the data distribution test (Normality) was conducted to check whether the data was distributed normally through the Doornik-Hansen test, and the test result was 14.21%, and the result of this test indicates that there are no problems with the normal distribution in the study, as the percentage Higher than 5%, there are no problems with a significant impact, and this percentage is considered acceptable.

Model Specification Test

Pregibon test was carried out to ensure that the model is well described and free from omissions of important elements. The result indicates that the model is well defined, and there are no important elements representing the dependent factor that have been omitted. Whereas, the results of this test, which appear in Table (5) below, show that Hatsq is higher than 5%, which means that the model is well defined.

Table No. (5): Pregibon test for model description testing

P>|t|	T	Std. Err.	Coef.	
0.001	2.319	0.0241	0.4212	Hat
0.637	0.476	0.3192	0.6643	Hatsq
0.842	0.317	0.0211	0.1397	Cons

Estimating the size of the shadow economy in Palestine:

In order to estimate the size of the shadow economy in Palestine, the results of the analysis were first substituted into the structural equation of the study model in order to calculate the shadow economy index for the years of study, where the structural equation was as follows:

η =α + γ1WFt + γ2GOVEXPt + γ3Unemploynmentt + γ4BDt + γ5GDP/capitat + ε

By substituting the correlation coefficients as shown in the previous table No. (4), the structural equation will be as follows:

η=α−0.1673WFt+0.2973GOVEXPt+0.2553Unemploynmentt−0.1227BDt+0.2216GDP/capitat+ ε

After substituting in the structural equation, it becomes clear that the shadow economy index is as shown in the following table No. (6):

Table No. (6): Shadow Economy Index for the years (2000-2021)

the year	shadow economy index	the year	shadow economy index
2000	2.930916	2011	3.205254
2001	2.883542	2012	3.215592
2002	2.820533	2013	3.231289
2003	2.903515	2014	3.242458
2004	2.894606	2015	3.24932
2005	3.02115	2016	3.269915
2006	2.929286	2017	3.289065
2007	3.082366	2018	3.2808
2008	3.158524	2019	3.288016
2009	3.182581	2020	3.28456
2010	3.182065	2021	3.286294

As we mentioned earlier, a study was relied upon (Al-Far, 2014) The base year was chosen 2000 , when the size of the shadow economy reached 41.77% of the GDP according to that study, and then the size of the shadow economy was estimated according to the method (Vo & Ly, 2014) By plugging the data into the following scaling equation:

$$\hat{\eta}t = \frac{\tilde{\eta}t}{\hat{\eta}_{2000}} \, \eta^*{}_{2000}$$

where:

$\hat{\eta}t$:The size of the shadow economy as a percentage of GDP

$\tilde{\eta}t$: Shadow economy index per year t

η2000: Shadow economy index in the base year 2000

η2000: The external estimate of the size of the shadow economy in the base year amounted to 41.77%, according to a study (Al-Far, 2014)

After substituting the data in the standard equation mentioned above, the percentage of the shadow economy was calculated from the gross domestic product and its monetary value during the study period between the years (2000-2021) as shown in the following table No. (7):

Table No. (7): The percentage of the shadow economy in the GDP and its monetary value for the years (2000-2021).

the year	The share of the shadow economy in the gross domestic product	Shadow economy monetary value	the year	The share of the shadow economy in the gross domestic product	Shadow economy monetary value
2000	41.74%	3000.948	2011	45.65%	4782.799
2001	41.07%	3196.917	2012	45.80%	5075.436
2002	40.17%	2859.503	2013	46.02%	5589.874
2003	41.35%	2669.561	2014	46.18%	5951.158
2004	41.23%	2328.986	2015	46.28%	6243.964
2005	43.03%	2771.501	2016	46.57%	6273.619
2006	41.72%	3276.409	2017	46.84%	6545.188
2007	43.90%	3836.889	2018	46.73%	7107.488
2008	44.98%	3892.509	2019	46.83%	7224.224
2009	45.33%	4070.738	2020	46.78%	7305.185
2010	45.32%	4372.452	2021	46.80%	7408.967
the average				%44.45	

As shown in Table No. (7) above, the shadow economy in Palestine declined in the first years of the second intifada (2001-2002), then began to gradually rise after the end of the intifada, especially after the Palestinian division in 2007, and in general, the political conditions in Palestine and what followed it The difficult economic conditions and the Israeli occupation's control over the aspects of the Palestinian economy help to fluctuate in the size of the shadow economy in Palestine, as the lowest value of the shadow economy in Palestine reached 40.17% in 2002, and the largest value of the shadow economy was in 2016, when it reached 46.57% of the output The gross domestic product and its value is 6273.619 million US dollars.

RESULTS

Testing the hypotheses of the study:
The study hypotheses were tested after ensuring the accuracy, validity and normal distribution of the data and estimating the shadow economy. The results of these tests were as shown in the following table No. (8):

Table No. (8): The results of the regression test for the hypotheses of the study

	F-Value	T-Value	Adjusted R^2	R^2	β Coefficient	P-Value
Shadow economy → tax revenues	147.281	12.136-	0.880	0.938	0.066	0.000
Shadow economy → direct taxation	284.169	16.857-	0.931	0.967	0.081	0.002
Shadow economy → indirect taxes	18.151	5.167	0.450	0.476	0.018	0.001

H01: There is no statistically significant effect of the size of the shadow economy on tax revenues

From testing the main hypothesis, it was found that T-Value = -12.136 is significant at the level of significance P= 0.000 ≤ 0.05, and that the F-Value= 147.281, and that the value of Adjusted R^2 = 0.880, meaning that the shadow economy explains 88% of the tax revenue data, based on Accordingly, the null hypothesis was rejected, and the alternative hypothesis was accepted, which states that there is a statistically significant effect of the shadow economy on tax revenues in Palestine between the years (2000-2021), and that an increase by one unit of the shadow economy index leads to a decrease of 0.066. A unit of tax revenue.

H01.1: There is no statistically significant effect of the shadow economy on direct tax revenues.

From testing the first sub-hypothesis, it was found that the T-Value = -12.141 is significant at the significance level, P= 0.002 ≤ 0.05, and the F-Value= 284.169, and the Adjusted R^2 = 0.934, meaning that the shadow economy explains 93.4% of the direct tax revenue data Accordingly, the null hypothesis was rejected, and the alternative hypothesis was accepted, which states that there is a statistically significant effect of the shadow economy on direct tax revenues in Palestine between the years (2000-2021), and that the increase by one unit of the shadow economy index leads to Decreased by 0.081 units of direct tax revenue.

H01.2: There is no statistically significant effect between the shadow economy and indirect tax revenues.

From testing the second sub-hypothesis, it was found that the T-Value = -5.167 is significant at the significance level, P= 0.001 ≤ 0.05, and the F-Value= 18.151, and the Adjusted R^2 = 0.450, meaning that the shadow economy explains 45% of the indirect tax revenue data Accordingly, the null hypothesis was rejected, and the alternative hypothesis was accepted, which states that there is a statistically significant effect of the shadow economy on indirect tax revenues in Palestine between the years (2000-2021), and that the increase by one unit of the shadow economy index leads to To a decrease of 0.018 units of indirect tax revenue.

DISCUSSING, RECOMMENDATIONS AND FUTURE STUDIES

The results showed that the size of the shadow economy in Palestine between the years (2000-2021) was 44.45% of the GDP, and this value fluctuated between (40.18%-46.91%). There is also a significant negative effect of the shadow economy on tax revenues, as tax revenues decrease as the size of the shadow economy increases, and this is consistent with the study of each of (Dell'Anno, 2007; Dell'Anno & Davidescu, 2019; Hassan & Schneider, 2016; Sabra et al., 2015; Schneider et al., 2019)Therefore, the income derived from the activities of the shadow

economy is not subject to tax, which affects the prices of these goods and services, and with the increase in the volume of activities of the shadow economy, the demand for the outputs of these activities will increase, which reduces the volume of taxes collected in general. It was also found that there is a significant negative effect of the size of the shadow economy on direct taxes, that is, the greater the size of the shadow economy, the lower the revenues from direct taxes, and this is consistent with the study of both (Al-Far, 2014; Dell'Anno & Davidescu, 2019; Schneider et al., 2019; Sung et al., 2017)Accordingly, the direct taxes imposed on the income and property of individuals will decrease when the income per capita is higher than the declared income due to the involvement of these individuals in shadow economy activities that are not reported and are not subject to tax. Also, there is an inverse significant effect of the size of the shadow economy on the indirect tax revenues. The greater the size of the shadow economy, the lower the indirect tax revenues. (Vo & Ly, 2014; Wibowo & Indrayanti, 2020; Al-Namrouti & Ahmed, 2016).This is evident through the various shadow economy activities that are not subject to tax, whether from smuggled products or services that are not officially registered, and which individuals resort to because of their low prices.

Also, government spending affects the size of the shadow economy in Palestine. The higher the government spending, the lower the size of the shadow economy, and this is consistent with the study of both (Al-Far, 2014; Dell'Anno & Davidescu,2017; Al-Namrouti & Ahmed, 2016).And in Palestine, and by following up the items of the general budget over the years, we conclude that the highest percentage of spending was on two items, either operational expenses or developmental (capital) expenses. In both items, the first beneficiary is the citizen, and these expenses help increase the income of individuals. Due to the official business in terms of income, he will not go to the activities of the shadow economy.

As for the unemployment rate, it had an impact on the size of the shadow economy. The higher the unemployment rate in Palestine, the greater the size of the shadow economy, because unemployed individuals will try in various ways to obtain income that meets their needs, and in Palestine in particular, and given the volatile economic and political conditions and the lack of many job opportunities in Public and private sectors, it is natural for individuals to go to shadow economy activities, and this is consistent with the study of both (Al-Far, 2014; Dell'Anno & Davidescu, 2019; Mansour & Zaki, 2019; Al-Namrouti & Ahmed, 2016)..

According to the results of the study, some recommendations were proposed to address the problem of the hidden economy and mitigate its negative effects on the public budget and exploit its positive effects on it, including increasing investment projects in Palestine that lead to an increase in job opportunities and a reduction in unemployment, which positively affects the reduction of the size of the shadow economy in Palestine. Reducing tax rates on consumer and basic commodities in order to reduce their prices, which leads to an increase in the ability of individuals to meet their basic needs, and a decrease in their orientation to shadow economy activities.

Organizing legitimate shadow economy activities and bringing them into the formal economy, by providing a legal framework for them that makes them contribute positively to the gross domestic product and national income. Increasing the effectiveness and efficiency of government agencies responsible for combating corruption and prosecuting workers in illegal shadow economy activities such as money laundering, drug trafficking, and others.

Attempting economic disengagement from Israel and reducing dependence on Israeli products and commodities in the Palestinian market. Supporting local producers and providing them with tax and licensing facilities, among others, in order to increase their ability to compete in the local market, provide commodities with low prices, create job opportunities and reduce unemployment rates.

Finally, work seriously to unify the two parts of the homeland and extend sovereignty over the Palestinian lands in order to increase public revenues, prevent tax evasion and fight all illegal shadow economy activities on all the lands of the Palestinian state.

In order to enhance the current results, the researchers propose to increase the research on the phenomenon of the shadow economy in Palestine, using other measurement methods and other variables, and to study the impact of the shadow economy on financial and economic policies, and the role of companies operating within the lands of 1948 in increasing the size of the shadow economy in Palestine.

REFERENCES

Abu Amsha, Muhammad Kamal. (2019), The Phenomenon of the Shadow Economy in Palestine, Seyasiyat Magazine, Ramallah- Palestine. (43) ،112-129

Ahmed, Mahmoud Zaki. (2019), The phenomenon of the hidden economy and its direct and indirect impact on the state budget. Journal of Legal and Economic Studies (1), 1-40.

Ahmed, Mahmoud, and El-Namrouty, Khalil (2016), Estimating the hidden economy using the currency demand method: Palestinian case study.Journal of the Islamic University of Economics and Business, The Islamic University - Gaza, (24) ,

Ahmed, Mahmoud (2013). Estimating the size of the hidden economy in the Palestinian territories - an econometric study, (unpublished master's thesis), Islamic University, Gaza, Palestine.

Al-Zaidi, Khaled Ali, (2018), Determinants of the Hidden Economy in the Libyan Economy, Economic Horizons Journal, 4 (8).

Al-Kababji, Majdi Wael, (2015), The effectiveness of the role of audit committees in combating money laundering operations-an applied study on banks operating in Palestine, The Jordanian Journal of Business Administration, University of Jordan, 11 (1), 214-117.

Al-Kababji, Magdy, and Al-Haimouni, Sandy (2022), The relationship between strategic planning and the expansion of the tax base in the income tax: A field study on income tax departments in Palestine, Arab Journal of Administration, League of Arab States, 42 (4). Doi10.21608/AJA.2022.273266

Abdullah, Walid (2017), The Hidden Economy: Measurement and its impact on economic growth by application to the Egyptian case, Ph.D. thesis, Assiut University, Egypt.

Abdul-Azim, Muhammad, and Abdullah, Walid (2014), The Hidden Economy: Measurement and policies to confront it - international experiences - Journal of Contemporary Business Research, Faculty of Commerce, Sohag University 28 (2).

Attia, Ashraf, (2020), The Phenomenon of the Hidden Economy: Antiquities and coping mechanisms, The Legal Journal, Cairo University, 8 (10). Doi 10.21608/JLAW.2020.141855

Al-Far, J. (2014). The Shadow Economy and its Effect on the Palestinian Economy. (Master's degree), Al-Azhar University-Gaza, GAZA.

Angour, N., & Nmili, M. (2019). Estimating Shadow Economy and Tax Evasion: Evidence from Morocco. International Journal of Economics and Finance, 11(5), 1-7.

Berdiev, N., Saunoris, W., & Schneider, F. (2019a). Lurking in the shadows: Effects of poverty on the shadow economy.

Bitzenis, A., Vlachos, V., & Schneider, F. (2016). An exploration of the Greek shadow economy: can its transfer into the official economy provide economic relief amid the crisis? Journal of Economic Issues, 50(1), 165-196.

Balcioglu, B. (2018). Estimation of underground economy in north Cyprus: new results with mimic model approach and brief model comparisons. Ecoforum Journal, 7(1).

Cagan, P. (1958). The demand for currency relative to the total money supply. Journal of political economy, 66(4), 303-328.

Dell'Anno, R., & Davidescu, A. (2019). Estimating shadow economy and tax evasion in Romania. A comparison by different estimation approaches. Economic Analysis and Policy, 63, 130-149.

Dell'Anno, R. (2007). The shadow economy in Portugal: An analysis with the MIMIC approach. Journal of Applied Economics, 10(2), 253-277.

Dybka, P., Kowalczuk, M., Olesiński, B., Torój, A., & Rozkrut, M. (2019). Currency demand and MIMIC models: towards a structured hybrid method of measuring the shadow economy. International Tax and Public Finance, 26(1), 4-40.

Dell'Anno, R., & Davidescu, A. A. (2019). Estimating shadow economy and tax evasion in Romania. A comparison by different estimation approaches. Economic Analysis and Policy, 63, 130-149.

Ekici, T., & Besim, M. (2016). A measure of the Shadow Economy in a Small Economy: Evidence from Household-Level Expenditure Patterns. Review of Income and Wealth, 62(1), 145-160. doi: 10.1111/roiw.12138

Floridi, A., Wagner, N., & Cameron, J. (2016). A study of Egyptian and Palestinian trans-formal firms—a neglected category operating in the borderland between formality and informality. ISS Working Paper Series/General Series, 619(619), 1-25.

Giles, E., Tedds, M., & Werkneh, G. (2002). The Canadian underground and measured economies: Granger causality results. Applied Economics, 34(18), 2347-2352.

Hattab, Lana Magdy. (2020), The Shadow Economy in Palestine and its Impact on the Public Budget, Master Thesis, Palestine Technical University Kadoorie, Tulkarem-Palestine.

Hassan, M., & Schneider, F. (2016). Modelling the Egyptian shadow economy: A currency demand and a MIMIC model approach.

Iriqat, A., & Anabtawi, N. (2016). GDP and Tax Revenues-Causality Relationship in Developing Countries: Evidence from Palestine. International Journal of Economics and Finance, 8(4), 54-62.

Marei, Muhammad Ibrahim, (2018), The Hidden Economy in Palestine - An Econometric Study, Master Thesis, Al-Quds University - Palestine.

Mesmash, Najat, (2018), Parallel Economy and Economic Stability - Algeria Case Study 1980-2014, Ph.D. Thesis, University of Mohamed Kheidar Biskra, Algeria.

Medina, L., & Schneider, F. (2019). Shedding light on the shadow economy: A global database and the interaction with the official one.

Mishchuk, H., Bilan, S., Yurchyk, H., Akimova, L., & Navickas, M. (2020). Impact of the shadow economy on social safety: The experience of Ukraine. Economics & Sociology, 13(2), 289-303.

Mansour, A., & Zaki, M. (2019). Estimating the size of the shadow economy in nine MENA countries during the period 2000 to 2017 using the MIMIC model. Open Access Library Journal, 6(7), 1-14.

PMA. (2022). Economic main indicators in palestine from http://www.pma.ps.

PCBS, (2022), Palestinian Central Bureau of Statistics, retrieved from https://www.pcbs.gov.ps

PMOF, (2022), Ministry of Finance and Planning, retrevied from http://www.pmof.ps.

Rocque, M., Saunoris, W., & Marshall, C. (2019). Revisiting the relationship between the economy and crime: The role of the shadow economy. Justice Quarterly, 36(4), 620-655.

Schneider, F., Khan, S., Hamid, A., & Khan, A. (2019). Does the tax undermining the effect of remittances on shadow economy? Economics Discussion Papers, No 2019-67. Kiel Institute for the World Economy. http://www.economics-ejournal. org/economics/discussionpapers/2019-67 Received October, 20 .

Smith, M. (1997). Assessing the size of the underground economy: The statistics Canada perspective. The underground economy: Global evidence of its size and impact, 11-37.

Sabra, M., Eltalla, A. H., & Alfar, A. R. (2015). The shadow economy in Palestine: Size and causes. International Journal of Economics and Finance, 7(3), 98-108.

Schneider, F., & Buehn, A. (2018). Shadow economy: Estimation methods, problems, results and open questions. Open Economics, 1(1), 1-29.

Soares, C., & Afonso, O. (2019). The Non-Observed Economy in Portugal: The monetary model and the MIMIC model. Metroeconomica, 70(1), 172-208.

Tanzi, V. (1999). Uses and abuses of estimates of the underground economy. The Economic Journal, 109(456), 338-347.

Tohamy, Mohamed Reda, (2018), An Analytical Study of the Hidden Economy in Algeria, an unpublished doctoral thesis, Mohamed Boudiaf University - Algeria.

Wibowo, R., & Indrayanti, W. (2020). Institutional Analysis of Shadow Economy (Study on ASEAN 7 Developing Countries). Ekuilibrium: Jurnal Ilmiah Bidang Ilmu Ekonomi, 15(1), 55-69.