The Impact of Tourism Income on Foreign Reserves in Jordan during the Period 2005-2020

Amjad Qwader[1] & Ateyah Alawneh[1]

[1] College of Business, Tafila Technical University, Jordan

Correspondence: Dr. Ateyah Alawneh, College of Business, Tafila Technical University, Jordan. E-mail: ateayh1@yahoo.com

Abstract

This study aimed to analyze the impact of tourism income on foreign reserves in Jordan during the period 2005-2020. The study used annual data related to three variables (foreign public debt, trade balance deficit, and workers' remittances) during the study period; the data were collected from the annual reports issued by the Central Bank of Jordan and the Jordanian Ministry of Tourism and Antiquities. To achieve the aim of the study, the fully modified least squares (FMOLS) test was applied. Among the most important findings of the study according to the Johansen statistical test was the existence of a long-term equilibrium relationship between tourism income and foreign reserves and between the three variables between the variables (foreign public debt, trade balance deficit, and workers' remittances) and foreign reserves. The empirical results of the study also showed a positive and significant effect of tourism income on foreign currency reserves and a positive and significant impact of both foreign public debt and remittances of workers abroad on foreign reserves. This finding was obtained through the statistical FMOLS model. Among the most important recommendations of this study is the need for the Jordanian government to pay more attention to the issue of foreign reserves to keep them at high and comfortable levels. This can be achieved through the Jordanian government's set of procedures and reviews of laws and policies related to the tourism sector, as it is one of the most important financing sources of foreign reserves. In this regard, the government must provide the necessary infrastructure to revitalize the tourism sector, in addition to reviewing the tax policies and fees imposed on the sector.

Keywords: tourism income, foreign reserves, foreign public debt, trade balance deficit, remittances of workers abroad

1. Introduction

The process of stimulating the tourism sector has gained increasing importance over the past few decades in most of the world's developed and developing countries owing to the paramount importance of this sector as a major and effective driver of economic and social development. In this regard, the tourism sector has undergone continuous growth over the past years until it became the largest economic sector contributing to the global economy as a result of its direct and indirect association with many other economic sectors. World Bank database figures indicate that international tourism revenues recorded 1860 billion dollars in 2019, an increase of 124% over 2005 revenues.

A developing country such as Jordan suffers from a shortage of capital, an increase in public debt, a decrease in the volume of external grants, and high energy costs. At this level, the presence of a dynamic tourism sector can have a significant impact on achieving economic and social development through its ability to improve the level of payment balances and employment of manpower, maintain comfortable levels of foreign exchange reserves, achieve monetary stability, stabilize currency exchange rates, and raise economic growth rates. According to the statistics of the Ministry of Tourism and Antiquities, Jordan witnessed the highest growth rates in this field in the tourism sector, as the number of tourists who visited Jordan reached approximately 5.4 million in 2019. Tourism income also rose to about 4.1 billion Jordanian dinars (6.76 billion dollars), constituting 13% of the gross domestic product (GDP) and 36% of foreign reserves.

1.1 Problem of the Study

One of the most important goals that the Jordanian economy seeks to achieve is to maintain foreign reserves at

high and comfortable levels by following different economic policies. This strategy can reduce the obstacles that stand in the way of exploiting the sources that feed foreign reserves, which is reflected positively on foreign reserves. Therefore, estimating the impact of tourism income on foreign reserves in Jordan and identifying the appropriate policy in this regard to strengthen foreign reserves are very important matters. Accordingly, the study problem revolves around answering the following question: What is the impact of tourism income on foreign reserves in Jordan?

1.2 Objectives of the Study

This study mainly aims to analyze the impact of tourism income on foreign reserves in Jordan in the long and short term in the context of the sources of foreign reserves during the period 2005–2020.

The study also aims to provide the following:

1- Statement of the impact of income from the tourism sector on the volume of foreign reserves in Jordan.

2- Statement of the impact of foreign public debt on the volume of foreign reserves in Jordan.

3- Statement of the impact of deficit in the trade balance on the volume of foreign reserves in Jordan.

4- Statement of the impact of the remittances of Jordanian workers abroad on the volume of foreign reserves in Jordan.

1.3 Hypotheses of the Study

By reviewing the study literature and on the basis of previous studies, the study hypotheses can be formulated as follows:

1- There is a positive and statistically significant effect between tourism income and the volume of foreign reserves in Jordan during the study period.

2- There is a positive and statistically significant effect between foreign public debt and the volume of foreign reserves in Jordan during the study period.

3- There is a negative and statistically significant effect between trade balance deficit and the volume of foreign reserves in Jordan during the study period.

4- There is a positive and statistically significant effect between the remittances of Jordanian workers abroad and the volume of foreign reserves in Jordan during the study period.

1.4 Study Limitations

Spatial limits: The spatial framework was determined in the Hashemite Kingdom of Jordan, where the study sought to analyze the impact of tourism income on foreign reserves in Jordan.

Time limits: This study was conducted during the period (2005-2020).

2. Literature Review and Previous Studies

The relationship between tourism income and foreign exchange reserves has gained increasing importance at the level of economic analysis for any country, because it reflects the overlap and integration between local and international economies and, therefore, the strength and competitiveness of the local economy. In the context of the relationship between tourism income and foreign currency reserves, some view tourism income as one of the main pillars for achieving economic development. Thus, these services are reflected in material benefit to the government, the society, and the individual; more precisely, the income from tourism activities results in the influx of large amounts of foreign currency to the state. On the other hand, these activities represent a financial cost that tourists sacrifice to obtain services during their trip and visits to an area, such as archaeological and historical sites. Accordingly, based on the close interrelationship of tourism activity and foreign cash flows incoming to the state, this analysis clearly shows the positive relationship between tourism income and foreign currency reserves.

On the level of previous studies, the past few decades have witnessed a boom in research— on a large scale in both developed and developing countries—related to evaluating the relationship between tourism activity and various economic activities. Among the descriptive and standard studies for analyzing trends in tourism activity and measuring its impact on economic activity is that of Salleh et al. (2011), which aimed to test the relationship between the development of the tourism industry and foreign direct investment. The study sample included five countries: Malaysia, Singapore, Thailand, China, and Hong Kong. The study's hypotheses were tested using co-integration techniques and Granger's causality test, and the results indicated the existence of a long-term co-integration relationship between the tourism industry and foreign direct investment. The study also showed

that a two-way relationship between the tourism industry and foreign direct investment is present in Hong Kong, a one-way relationship between the two variables exist in Malaysia and Thailand, and no relationship exists between the variables in Singapore and China.

Meanwhile, Alam et al. (2015) sought to verify the relationship between the development of the tourism industry and foreign direct investment in Malaysia. Through empirical analysis, the study found that the tourism industry contributes positively to the Malaysian economy through the direct positive correlation of the number of tourists to foreign direct investment. Therefore, the improvement of foreign direct investment contributes to increasing the domestic product and providing income and job opportunities, thus achieving economic development in Malaysia.

In Alam et al. (2016), the main objective was to determine the relationship between tourism and foreign direct investment in the Kingdom of Saudi Arabia. In the study, quarterly data covering the period 2000–2013 were used. The study adopted unit root test, co-integrated analysis, and causality test to determine the nature of the relationship between the variables. The results indicated a positive relationship between the number of tourists and foreign direct investment in the short and long term. The Granger causality test showed a two-way causal relationship between tourism spending and foreign direct investment in Saudi Arabia.

Maglawi et al. (2020) sought to investigate the impact of both tourism income and tourism spending on the GDP in Jordan during the period 2000–2018 using multiple autoregression. Their results indicated a positive relationship between the growth of the tourism sector and the provision of job opportunities in various sectors related to the tourism sector as well as between tourism revenues and GDP.

With regard to foreign currency reserves, this topic has received more attention from scholars and economic researchers, as several previous studies have been carried out in this regard. For instance, Sulaiman (2015) aimed to investigate the impact of the inward flow of foreign direct investment on reserves of foreign currency in Jordan. The study adopted the fully modified ordinary least squares (FMOLS) method to estimate the elasticities of variables in the long run. The results of the co-integration analysis showed the existence of a long-term integrative relationship between the study variables through the use of the Engel and Granger methodology. The study results also showed a positive impact of the inflow of foreign direct investment on foreign currency reserves

Yasir et al. (2012) likewise aimed to determine the nature of the relationship between a set of macroeconomic variables and foreign currency reserves in Pakistan during the period 1980–2010. The study relied on the use of VAR and VEC software to analyze the long-term relationship among the study variables. The results showed a significant positive relationship in the long and short terms between the effect of foreign direct investment and the nominal exchange rate on foreign currency reserves. Moreover, AL-Basheer (2014) conducted a study that aimed to verify the impact of monetary policy on foreign reserves in Jordan during the period 1980–2014. They used the ARDL boundary test methodology, and the results revealed a negative relationship between money supply and foreign reserves as well as a positive relationship between foreign reserves with both GDP and level of domestic prices. The study also found that the increase in domestic interest rates contributed to an increase in the outflow of foreign reserves.

Aljawdaa (2015) also tested the impact of external debt on foreign reserves in Jordan during the period 1980–2013 using the ARDL boundary test method and Granger causality test. The results showed the existence of a short-term, bi-directional, and long-term causal relationship between external debt and foreign reserves.

On the basis of the aforementioned studies, and according to the researchers' knowledge, no Jordanian study has attempted to test the impact of tourism income on foreign currency reserves in Jordan, despite the importance of this topic and its role in assisting policy makers and decision makers in formulating policies and making decisions in maintaining reserves within high and comfortable levels, thus promoting and reviving the national economy. Hence, the subject of this study is testing the impact of tourism income on foreign currency reserves in Jordan.

3. Study Methodology

This study will utilize the descriptive approach to analyze the developments of the study variables and the standard analysis method to investigate the impact of tourism income on foreign currency reserves in Jordan during the period 2005–2020 using annual data. The long-run relationship between the study variables will be tested by using the FMOLS test. It was possible to obtain the study data related to foreign exchange reserves, foreign public debt, deficit in the trade balance, and remittances of Jordanian workers abroad from the bulletins of the Central Bank of Jordan. It was also possible to rely on data issued by the Ministry of Tourism to obtain

tourism income in Jordan. The variables of the study were chosen in line with the theories explaining the relationship of tourism income with foreign currency reserves, as previous studies indicated that many variables affect foreign currency reserves, whether directly or indirectly, as evidenced by the study model below.

4. Study Model

In this work, a simplified model was formulated that links the variables of the study, where tourism income is expressed as a function of foreign currency reserves as follows:

$$FR = f\ (ITt,\ EDt,\ TBt,\ WTt)$$

For the purposes of conducting standard analysis and based on the theoretical aspect of the current study and previous literature, especially Aljawdaa (2015) and Sulaiman (2015), the following formula for the study model was adopted:

$$FR = \beta 0 + \beta 1\ ITt + \beta 2\ EDt + \beta 3\ TBt + \beta 4\ WTt + \varepsilon it$$

Where:

FR: foreign currency reserves, 1 million Jordanian dinars;

IT: tourism income in million Jordanian dinars;

ED: foreign public debt in million Jordanian dinars;

TB: trade balance deficit in million Jordanian dinars;

WT: remittances of workers abroad in million Jordanian dinars;

β0: constant limit of the model;

β1, β2, β3, β4: model parameters; and

εit: limit of random error.

5. Evolution of the Study Variable

5.1 The Development of Tourism Income and the Variables of the Intermediate Study in Jordan

Tourism income is considered as one of the important activities in the Jordanian economy because it constitutes about 13% of the GDP. Jordan is a tourist attraction despite its surroundings full of political events and armed conflicts. Jordan has attractive and polarizing factors that satisfy the aspirations of those coming to it from everywhere. In addition to its distinctive geography, beautiful natural features, and historical legacy, perhaps Jordan's most prominent factor is its political stability. It is believed that despite the efforts made by the Jordanian government to improve the tourism sector, its economic policies were not sufficient to revitalize the sector. This caused Jordan to stumble in problems that could have been avoided, including the security and political instability in the region surrounding Jordan, the high income and sales tax and energy prices, the high cost of accommodations in Jordanian hotels, and the lack of a promotional program to match Jordanian tourism, all of which led to low levels of income and wages in Jordan.

As for the development of tourism income in Jordan, if we exclude the year 2020, which underwent a sharp decline in tourism income due to the Covid-19 pandemic, we note from Figure (1) that tourism income in Jordan had remarkable development during the study period when it recorded the highest level. Tourism income reached about 4108 million dinars in 2019 compared to about 1022 million dinars in 2005, setting an increased rate of 300%.

External debt is a subject of constant debate among economists. On the one hand, the classical school opposes external debt and calls for the neutrality of the state and the principle of balancing its general budget. On the other hand, many economists—led by Keynes—support external debt and advocate the principle of financing the deficit in the general budget of the state. As for the Jordanian state, it has followed the path of borrowing, thinking that the debt can be controlled and exploited to achieve development. However, in the face of its inability to pay, the Jordanian state resorted to more debt and rescheduled its debts, both of which became stumbling blocks in its economic path.

Regarding the developments of Jordan's external debt, Figure (2) shows that during the study period its levels rose to a record of about 14,098 million dinars in 2020 compared to 5057 million dinars in 2005, an increase of nearly 180% over the total foreign debt in 2005. This rise was due to the weak growth rate of the country's tourism income, the decline in remittances from workers abroad, and the growing deficit in the trade balance.

Trade balance is one of the important indicators of the economy. The existence of a surplus in trade balance

means an increase in the production capacities of the country and its acquisition of foreign currency to add to its foreign currency reserves, which it then uses to ensure financing of its imports and payment of its foreign obligations. Trade balance deficit implies a decline in the country's production capacities, which is reflected in the leakage of foreign currency outside the country and, consequently, the country's weak financing of its imports and payment of its external obligations.

About the developments of trade balance in Jordan, Figure (3) illustrates the continuous rise in the level of trade balance deficit from the beginning of the study in 2005 until 2014. This deficit rose to about 8496 million dinars in 2014 from approximately 3556 million dinars in 2005, and this rise may be due mostly to the rise in value of the oil bill in Jordan, the instability of some of Jordan's neighboring countries, and the Syrian asylum, which put pressure on Jordan's resources. After 2014 and until 2019, a slight decline in the trade balance deficit is noted, which may be due to the drop in value of Jordan's oil bill and the relative stability of its neighboring countries. In 2020, the trade deficit again increased due to the COVID-19 pandemic, which resulted in the layoff of many workers in most countries around the world and a rise in prices.

As for the remittances of Jordanian workers, it is one of the main sources of foreign currencies. In particular, the remittances of workers from Arab Gulf countries to the total foreign reserves in Jordan accounted for an average of 29% during the study period, though these remittances suffered from fluctuation over the years. Figure (4) clearly shows that this fluctuation is attributed to the turmoil and armed conflicts in the Arab region, in addition to the pandemic, which led to the layoff of many workers in most countries around the world.
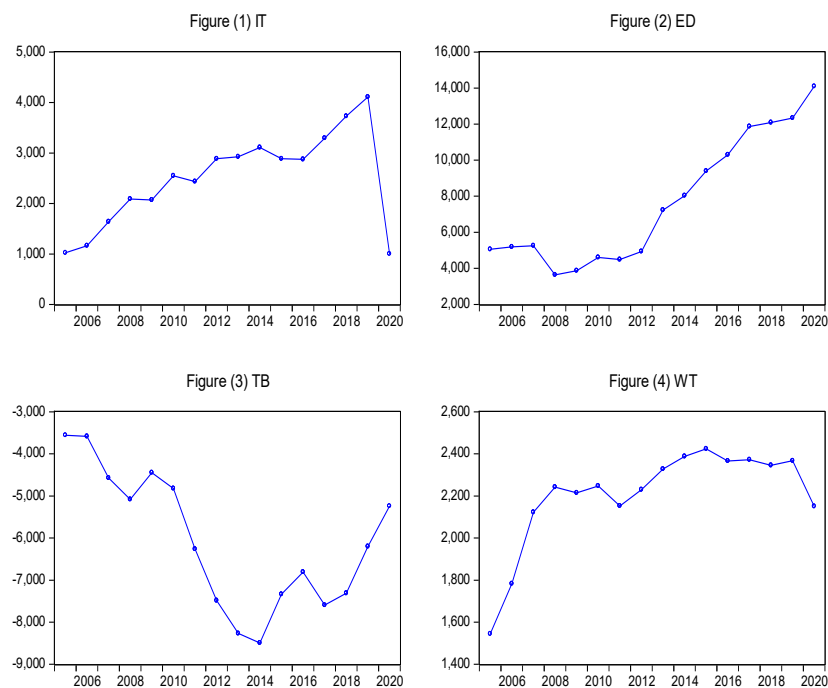

Figure 1. Graph of the evolution of variables during the study period

Source. Prepared by researchers from the statistics of the Central Bank of Jordan and the Jordanian Ministry of Tourism and Antiquities.

5.2 The Development and Adequacy of Foreign Reserves in Jordan

Foreign reserves represent the cash reserves of foreign currency held by the Central Bank in addition to the gold balance it owns, the units of special drawing rights, and the net reserve position with the International Monetary Fund (IMF) (Central Bank of Jordan). The provision of comfortable foreign currency reserves is a primary source of the initial financial payments that Jordan needs for various import operations of goods and services to the local market.   Jordan's accumulation of large reserves of foreign currencies also contributes to enhancing the confidence of investors and local and foreign business owners alike in the national economy from several aspects, including providing a stable source to cover the state's imports of goods and services, usually for a period of up to six months.

Figure 5 shows that foreign currency reserves in Jordan have undergone continuous growth from the beginning

of the study to the end of the study. The external debt of Jordan exceeded its foreign reserves until the year 2007, but after this date, the reserves grew at an accelerating pace to reach their highest level in 2020 with a value of 11,287 million Jordanian dinars. The reason for this is the continuous rise in Foreign reserves, particularly Jordanian remittances and remittances of Jordanian workers abroad.

The desired goals of forming foreign reserves differ from one country to another, and perhaps the most prominent of these goals depends on the extent of the reserves' ability to face financial crises. In this context, the guidelines for managing international reserves issued by the IMF in 2011 identified a set of economic indicators that can be used as a guide to indicate the appropriateness or optimization of the volume of foreign reserves held by the country. These are discussed below.

5.2.1 The Ratio of Coverage of Foreign Reserves to Imports

This indicator was suggested by Triffin in 1947. Proponents of this indicator believe that the ratio of reserves to imports should range between 30% and 40%, while others believe that covering the volume of reserves for three months from imports is an appropriate level for reserves (Blqasim, 2009)

As for Jordan, the percentage fluctuates from year to year, as shown in Figure (6), but it reached an average of 66% during the study period. The period of covering reserves to imports reached an average of 6.5 months. Thus, the result indicates that the reserves in Jordan exceeded their ideal size. In this regard, Jordan's imports are raw materials and intermediate goods that the industrial sector needs from the foreign market and paid for in a foreign currency. This indicates that approximately 30% of the imports of raw materials and intermediate goods are from the European market, which only accepts the euro for purchased goods while the dollar plays the most prominent role in the rest of the world (AL-husami, 2017).
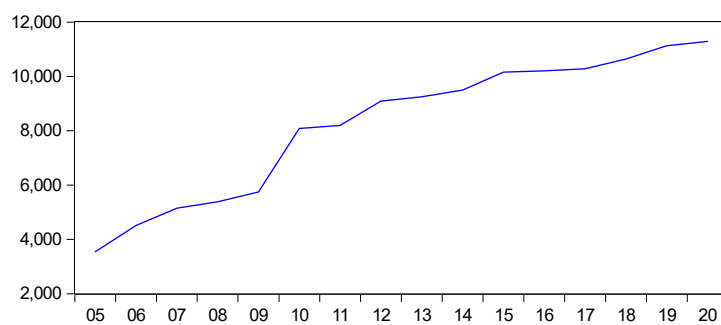

Figure 5. Development of foreign reserves in Jordan

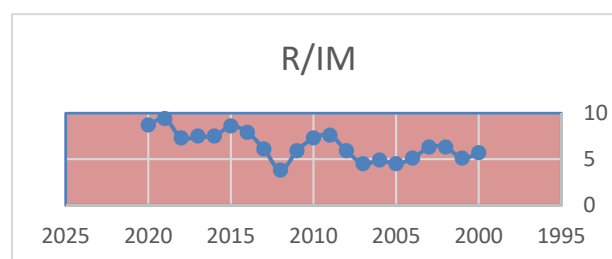*Source*. Prepared by researchers from the statistics of the Central Bank of Jordan.

Figure 6. Ratio of foreign reserves coverage to imports in Jordan

Source. Prepared by researchers using the statistics of the Central Bank of Jordan.

5.2.2 Foreign Reserves Coverage Ratio Indicator for the Money Supply

This ratio represents one of the important indicators at the level of the national economy. It makes it possible to predict the occurrence of financial crises in the country early, determine the degree of capital flight that will compress the reserves, and measure the degree of confidence in the currency and the efficiency of the banking system (Sellouh et al., 2018). In The IMF, according to the guidelines it issued in 2011 for the management of foreign reserves, confirmed that the ratio of coverage of foreign reserves to the broad money supply (M2) is in the range of 1:1 in countries that do not follow the fixed exchange rate system and within 10%–20% in countries

that do follow the system.

Accordingly, through Figure (7), we see that the ratio of foreign reserves to the money supply in Jordan averaged around 32% during the study period, indicating that this ratio exceeded its optimal size. This outcome is due to Jordan following the fixed exchange rate system, which means the state maintains satisfactory levels of reserves, has sufficient capacity to fulfill its obligations, and maintains its currency exchange rate, which will positively affect the degree of confidence in the national currency.
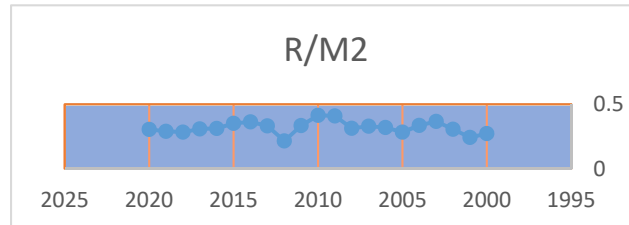

Figure 7. Ratio of foreign reserves coverage of the money supply

Source. Prepared by researchers using the statistics of the Central Bank of Jordan.

6. Practical Side of the Study

To test the hypotheses of the study, some preliminary tests were relied on for the data of the study variables to reach the appropriate estimation method for the standard model. These tests were the unit root test for time series stability and the cointegration test.

The results of these tests are presented in the following sections.

6.1 Unit Root Test for Time Series Stability

The co-integration test for the study variables was conducted through selection (augmented Dickey-Fuller).

From Table 1, the results of the expanded Dickey-Fuller test indicate that all the time series of the study variables (FR, IT, ED, TB, WT) are not stable at the level because the value of (t) calculated in absolute value is less than the tabular value in absolute value. At all levels of significance for all the variables in this study, and after taking the first difference for these variables, their time series became stable at significant levels of 10%, 5%, and 1%. Thus, we reject the null hypothesis that there is a unit root at the first difference; specifically, the time series are stable at the first difference (I1) at significant levels of 10%, 5%, and 1%.

Table 1. Unit Root test results (Dickey-Fuller Extended)

Variable	Level		In difference	
	Prob*	t-Statistic	t-Statistic	Prob*
FR	-1.52	0.78	-2.77	0.009
IT	-1.53	0.77	-1.97	0.049
ED	-1.73	0.69	-1.90	0.057
TB	0.12	0.99	-2.04	0.043
WT	-2.25	0.43	-2.10	0.038

Source. Prepared by the researchers based on E-views 9.

6.2 Co-Integration Test

After the stability of the time series for all study variables was confirmed at the first difference, a long-term equilibrium relationship between these variables can be found by means of the co-integration test (Johansen, 1988).

When conducting the test as shown in Table 2, the outcomes of the test confirm the existence of a long-term relationship between foreign currency reserves and each of the study variables (i.e., tourism income, external debt, trade balance deficit, and remittances of workers abroad). This means that the effect of the variables on foreign exchange reserves in Jordan is independent in the long term.

Table 2. Johansson-cointegration test

Included observations: 15 after adjustments				
Trend assumption: Linear deterministic trend (restricted)				
Series: FR IT ED TB WT				
Lag interval (in first differences): B to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.870577	97.95227	88.80380	0.0093
At most 1 *	0.799958	67.28224	63.87610	0.0252
At most 2 *	0.749396	43.14379	42.91525	0.0474
At most 3	0.618697	22.38556	25.87211	0.1279
At most 4	0.410341	7.923165	12.51798	0.2580

Notes. The trace test indicates three co-integrating equations at the 0.05 level.

* denotes rejection of the hypothesis at the 0.05 level.

**MacKinnon-Haug-Michelis (1999) p-values.

Source. Prepared by researchers based on E-views 9.

Given the stability of the time series for all variables at the first difference, in addition to the existence of a joint integration between the variables in the long term, it is possible to reveal the nature of the relationship between foreign currency reserves and the variables of the independent study in the long term. The standard model that can be estimated is called an FMOLS model.

6.3 Estimation of the Standard Model Using the FMOLS Method

The FMOLS model will be used because it confirms that no false regression exists. The use of this model also helps get rid of the problems of homogeneity between the endogeneity variables, self-correlation of errors (correlation serial), and instability of the potential variance of errors. Moreover, the use of this model gives results with high confidence even in the case of the short-term period (Kunduz, 2021).

Table 3. Results of estimating the error correction model using the FMOLS method

Dependent Variable: FR
Method: Fully Modified Ordinary Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob
IT	0.3678	0.1595	2.3058	0.0416
ED	0.4083	0.0297	13.7360	0.0000
TB	-0.5224	0.0972	-5.3753	0.0002
WT	0.4960	0.2302	2.1547	0.0500
R-squared	85.7%	Mean dependent var	8572.847	
Adjusted R-squared	81.9%	S.D. dependent var	2308.830	
S.E. of regression	983.60	Sum squared resid	10642176	
Long-run variance	130634.0			

Source. Prepared by researchers based on E-views 9.

After making sure that there is a co-integration between foreign reserves and the independent variables, we estimate the model in the long run. The results in Table (3) showed that the value of the regression determination coefficient is 85.7%, that is, the independent variables explain 85.7% of the changes in the dependent variable represented by foreign exchange reserves, and the value of the adjusted regression determination coefficient is estimated at 81.9%. This percentage indicates that the correlation between independent variables and dependent variable is high.

We also note from the table that the coefficients of the independent variables, namely, tourism income, foreign

public debt, and trade balance deficit, are statistically acceptable at a significant level of 5%. The coefficient of the variable remittances of Jordanian workers abroad is likewise statistically acceptable at a significant level of 5%. In addition, the table presents that the value of the estimated parameter of the tourism income variable is positive and estimated at about 0.37, with a probability equal to 4.16%. This means that it is statistically significant, that is, an increase in tourism income by one point with the stability of other factors will lead to an increase in foreign currency reserves in Jordan by 0.37. This result is consistent with the result of Alam et al. (2015) in the Kingdom of Saudi Arabia.

The table also shows the positive relationship between foreign public debt and foreign currency reserves in Jordan. As the value of the estimated parameter for the variable, external debt was positive and estimated at 0.41, with a probability equal to 0.000, meaning that it is statistically significant. Specifically, the increase in external debt by one point with other factors held constant will lead to an increase in foreign currency reserves in Jordan by 0.41. This result does not agree with the study by Aljawdaa (2015), who found a negative impact of external debt on foreign reserves in Jordan.

The value of the estimated parameter of the trade balance deficit variable was negative at an estimated -52% with a probability of 0.02%, meaning that it is statistically significant. It also means that an increase in the trade balance deficit by one point with the stability of other factors will lead to a decrease in foreign reserves in Jordan by 52%.

As for the relationship of remittances of workers abroad with foreign currency reserves, the value of the estimated parameter was positive by about 0.496, that is, it is statistically significant. This outcome means that an increase in remittances of workers abroad by one point with the stability of other factors will lead to an increase in foreign reserves in Jordan by 0.496.

Accordingly, the results of the study support the hypotheses that tourism income has a positive and statistically significant impact on the volume of foreign reserves and that external debt has a positive and significant effect on the volume of foreign reserves. Additionally, the hypothesis that there is a negative impact is accepted.

7. Results

Many countries, including Jordan, are interested in foreign reserves. This is because it represents a major source of exchange rate stability, especially for countries that follow an exchange system linked to foreign currencies or a basket of foreign currencies. Foreign currencies are also a major source of the state's foreign payments. Therefore, this study focuses on investigating the impact of tourism income on foreign currency reserves. Intermediate variables are added to the study model, such as external debt, trade balance deficit, and remittances of workers abroad, for their role in influencing foreign reserves as indicated by previous studies. Data issued by the Jordanian Ministry of Tourism and Antiquities are relied upon to obtain information related to tourism income as an independent variable, while data issued by the Central Bank of Jordan were relied upon to obtain information related to foreign reserves as a dependent variable as well as external debt, trade balance deficit, and workers' remittances as intermediate variables for the study period 2005–2020.

The study indicates that Jordan has achieved an optimal reserves volume according to the ratio of its foreign reserves coverage to imports, with an average coverage rate of 66% and an average coverage period of 6.5 months during the study period. Moreover, the level of foreign reserves exceeds their optimum size in Jordan, according to the results of the ratio of foreign reserves to the money supply in Jordan, which averaged around 32% during the study period.

The experimental results of the study show a long-term equilibrium relationship between tourism income and foreign reserves as well as between the variables (foreign public debt, trade balance deficit, and workers' remittances) and foreign reserves, according to Johansen's statistical test.

The empirical results also show a positive and significant impact of tourism income on foreign currency reserves, and a positive effect of external public debt and remittances of workers abroad on foreign reserves. Meanwhile, the statistical FMOLS model reveals a significant negative impact of trade balance deficit on foreign reserves.

8. Recommendations

In light of the foregoing results, the study recommends the need for the Jordanian government to pay more attention to the issue of foreign reserves to keep them at high and comfortable levels. This can be achieved by the Jordanian government carrying out a set of procedures and reviews of laws and policies related to the tourism sector as one of the most important sources of financing foreign reserves. In this regard, the government must provide the necessary infrastructure to revitalize the tourism sector, in addition to reviewing the tax policies and fees imposed on this sector. On the part of Jordanian tourism establishments, they must provide qualified and

trained competencies to work in the tourism field, offer tourism services at appropriate prices, and provide appropriate wages for workers in the tourism sector. These efforts are in addition to marketing and professional promotion of the tourism sector locally and internationally, in cooperation with the Jordanian government, so that it contributes to the growth of existing tourism companies and the attraction of new ones. Accordingly, such growth is reflected positively on the tourism sector and its contribution to foreign reserves in the Jordanian state. In light of the importance of tourism activity in Jordan, the study suggests conducting other studies to analyze the determinants of tourism activity in Jordan, and the most important difficulties that limit this activity, so that the decision-maker and the set of economic and financial policies that contribute to increasing the effectiveness of this activity in the Jordanian economy.

References

Alam, A. F. T. A. B., Idris, E. A. A., Malik, O. M., & Gaadar, K. A. M. I. S. A. N. (2016). The relationship between tourism, foreign direct investment and economic growth: evidence from Saudi Arabia. *European Academic Research*, *4*(4), 4091-4106. https://doi.org/10.5901/mjss.2015.v6n4s3p201

Alam, A., Malik, O. M., Ahmed, M., & Gaadar, K. (2015). Empirical analysis of tourism as a tool to increase foreign direct investment in developing country: Evidence from Malaysia. *Mediterranean Journal of Social Sciences*, *6*(4), 201.

Al-Basheer, A. A. A. H. (2014). *The Impact of Monetary Policy on Foreign Reserves: Econometric Evidence (1980-2012)* (Doctoral dissertation, Yarmouk University).

AL-Husami, N. (2017). Amman Chamber of Industry, Providing a Stock of Foreign Currency Enhances Confidence in the National Economy.

Aljawdaa, H. (2015). The Impact of External Debt on Foreign Reserves in Jordan: An Econometric Study (1980–2013), Doctoral dissertation, Yarmouk University.

Bilqasim, A. (2009). The adequacy of international reserves in the Algerian economy. *Journal of North African Economics*, *5*(7), 49.

Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of economic dynamics and control*, *12*(2-3), 231-254. https://doi.org/10.1016/0165-1889(88)90041-3

Kunduz, A. K. A. (2021). Islamic Finance and Economic Growth, A Standard Study on the Countries of the Cooperation Council for the Arab Gulf States, Studies of the Training and Capacity Building Institute, Arab Monetary Fund, pp. 1-44. 5(10), 39-55.

Maglawy, A., Sugar, F. A. Z., & Yousfi, A. (2020). The economic impact of tourism activity on economic growth in Jordan during the period (2000-2018): An empirical study.

Salleh, N. H. M., Othman, R., & Sarmidi, T. (2011). An analysis of the relationships between tourism development and foreign direct investment: An empirical study in elected major Asian countries. *International Journal of Business and Social Science*, *2*(17).

Sellouh, M. L., Lakhdar, A. M., & Bouzid, S. (2018). Mechanisms for managing foreign exchange reserves in Algeria to hedge against the decline in their real value during the period (2000-2015). *el-Bahith Review*, 18(1), 213-224.

Suleiman, H. M. (2015). The impact of the inward flow of foreign direct investment on foreign reserves in Jordan: an empirical study. Doctoral dissertation (1980-2015), Yarmouk University.

Yasir, M., Shahzad, F., Sehrish, S., & Saleem, F. (2012). Relationship Among Exchange Rate, FDI and Foreign Exchange Reserves (An Empirical Investigation in Case of Pakistan). *Interdisciplinary Journal of Contemporary Research in Business*, *4*(5), 225-232.