



College of Administrative Sciences and Informatics

**The relationship between the remittances of Palestinian labor in
Israel and economic growth in Palestine**

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الإهداء

نحمد الله تعالى الذي قدرنا على النهل من هذا العلم
الواسع

فأهدي ثمرة جهدي التي طالما تمنيت إهدائها وتقديدها في
أحلى طبق

إلى التي حملتني وهن على وهن...وقاست وتأملت لألمي...إلى من
رعتني بعطفها وحنانها وسمعت طرب الليل من أجلي...إلى
أول كلمة نطقت بها شفتاي...أمي الحبيبية

إلى الذي عمل وكد وجد...فقداس ثم غلب حتى وصلت إلى هدي
هذا...إلى المصباح الذي لا يبخل إمدادي بالنور...إلى
الذي علمني سلوكه خصالاً أعتز بها في حياتي...والذي
العزيز

لكل الحب...إلى رفيق دربي...إلى من سار معي نحو
الحلم...وشجعتني على مواصلة مسيرتي العلمية...رفيق
دربي...زوجي الغالي

إلى رياحين حياتي في الشدة والرخاء...أخواتي إخواني
إلى الذين مهدوا لنا طريق العلم والمعرفة...إلى جميع
أساتذتنا الأفاضل ونخص بالتقدير والشكر...الدكتور/
إسلام حسونة...له منا كل الشكر والامتنان على
المساعدة في اتمام هذا البحث

وإلى كل من شجعنا وساعدنا على اتمام هذا العمل ومد يد
العون لنا

إلى وطني فلسطين...أرضاً وشعباً

أهدي لهم جميعاً هذا الجهد المتواضع

The relationship between the remittances of Palestinian labor in

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1. Introduction

The relationship between remittances and economic growth has attracted the attention of many researchers over years (see, for example, Sharaf, 2014; Bussolo and Medvedev, 2007; Siddique et al., 2012). Results from previous studies can be categorized into three types: positive relationship between remittances and economic growth, second negative relationship, and finally, no relationship. Despite the amount of literature and research, no previous studies has analyze the effects of Palestinian remittance from Israel on the economic growth of Palestine, which make our study important and different. Since 1968 until now, the Palestinian economy has been attached to the Israeli economy and its development has become a captive of the unbalanced and counterbalanced relationship with this larger, more dynamic and more complex economy. The occupation governments continued to convert the Palestinian labor to Israeli market to increase the dependency of Palestinian economy to Israel which cause weakening the productive capacity of the Palestinian economy and obstructing its natural growth. Our data of the number of workers in Israel and remittances at the current prices to Palestine are obtained from Palestinian Central Bureau of Statistics (PCBS), covering the period 2000-2016.

This paper is organized in five sections in addition to the introduction. Section 2 presents an overview of Palestinian economy. A brief review of the literature is presented in section 3. Section 4 discusses the methodologies used to achieve our objective, cointegration and Vector Error Correction Method (VECM). Section 5 and 6 represent the results and conclusion, respectively.

2. Overview of Palestinian economy

From 1968 until now, the Palestinian economy has been attached to the Israeli economy and its development has become a captive of the unbalanced and counterbalanced relationship with this larger, more dynamic and more complex economy. The occupation governments continued to transform the Palestinian market into a consumer market for Israeli products and services, which has weakened the productive capacity of the Palestinian economy and obstructing its natural growth (السائح، 2014). The trend of Palestinian labor towards the Israeli labor market has been growing rapidly since 1970, in the face of Israeli policy that has led to the battering and downsizing of the Palestinian productive sectors and the weakening of the Palestinian economy's ability to create jobs to accommodate the growing Palestinian labor force (أبو فياض، 2016).

After the outbreak of the first Palestinian uprising in late 1987, Palestinian workers in the Israeli market were subjected to several measures aimed at reducing them. The Israeli occupation authorities began to impose arbitrary restrictions and measures against Palestinian workers in Israel, so that they were searched in a provocative manner and subjected to humiliation. Israeli checkpoints and, in some cases, severely beaten without reason by Israeli soldiers. In May 1989, the Israeli occupation authorities imposed a new procedure requiring Palestinian workers and any Palestinian who wishes to enter Israel to obtain a magnetic card that allows the holder to enter Israel provided that he is not a member of Intifada. This actions has prevented thousands of Palestinian workers from doing business in Israel as before (أبو فياض، 2016).

During the 1991 Gulf War, the Israeli occupation authorities stepped up their measures towards the Palestinian workers and began to use the policy of replacing them by foreign workers. As a result, many of Palestinian workers lost their jobs in Israel and thus increased rates of unemployment and the expansion of poverty in Palestine. In 1993, Israel and Palestinian Authority signed an agreement to resolve their conflict peacefully. Consequently, part of the economic responsibility went to the Palestinian Authority. In the late of 2000 and as a result of the second Intifada (Al-Aqsa Intifada), Israel has prevented around 120,000 Palestinian workers from reaching their former jobs. Specifically, the number of workers decreased from 135,700 in the third quarter of 2000 to 37,500 in the fourth quarter (أبو مدللة، 2013). With the outbreak of the Al-Aqsa intifada, the Israeli occupation authorities announced the imposition of a comprehensive siege on the Occupied Palestinian Territory. The labor sector was the most affected by the Israeli closure imposed. In 2012, the total number of Palestinian workers in Israel was about 83 thousand, constituting 9.7% of the total number of Palestinian labor force (858 thousand workers). The unemployment reached 23%, in 2012, distributed 19% in the West Bank and 31% in the Gaza Strip (أبو مدللة، 2013).

According to PCBS 2016, there are three kinds of Palestinian workers in Israel: first; legal workers (with permits) 61,300, illegal workers (without permit) 42,000, and having Israeli document of foreign passport 13,600 worker. Labor in Israeli market work in many sectors, such as agriculture, industry and construction. The construction sector recorded the highest employment rate. In particular, 63.5% of

the total Palestinian employed in Israel and the Israeli settlements worked in the construction sector.

The lack of employment opportunities as well as the low wages in Palestine are the main reasons that motivated skilled and unskilled Palestinian workers to move to the Israeli labor market. On the other hand, remittance inflows from Palestinian workers in Israel to Palestine are an important financial resource. Specifically, in 2015, remittance flows from Israel to Palestine reached an unprecedented level of more than US \$1.2 billion. This study sheds light on this issue by analyzing the impact of Palestinian remittance flows from Israel on its economic growth.

3. literature review

After Israel's establishment in 1948 in Palestine, Israel started linking the Palestinian economy to its economy and make deep linking of the Palestinian labors with the Israeli market by opening its doors to Palestinian works in 1968. The persistence of high levels of unemployment, low rates of growth in Palestinian economy as well as the low rate of wages are important factors that forced the Palestinian workers to go to Israel and settlements to work there despite the looting of many of their labor rights and thereby deepening the Palestinian labor in Israel (بوابة 2016 (اقتصاد فلسطين). In this study, we investigate this issue by analyzing the relationship between the real remittances from Palestinian labor in Israel and the economic growth of Palestine. In this section, we review the most related studies that explain the nature of the relationship between remittances and economic growth.

Fajnzyblber and Lopez (2007) study the relationship between the remittances and the economy growth in Latin America. To do so, they used panel data and find a

positive impact from remittances on recipient economies in. Results indicate that remittances seem to accelerate growth rates and reduce poverty levels. The researchers also find that remittances may have negative effects on two fronts. On the internal front, remittances seem to negatively affect labor supply (the number of hours worked per week and, in a number of countries, also labor force participation). On the external front, remittances seem to be accompanied by real exchange rate appreciation pressures.

Qayyum et al. (2008) analyze the impact of remittances on economic growth and poverty in Pakistan during the period 1973-2007 and using Autoregressive Distributed Lag (ARDL) approach. Results show that the remittances positively and significantly affect economic growth and poverty reduction. The study by Sharaf (2014) examines the causal link between remittances and output in Egypt using time series techniques (ARDL, cointegration and error-correction modeling) for the period 1977-2012. Results show that remittances and GDP are positively cointegrated and causality running from remittances to output. Saad (2015) examines the effect of remittances on the basic variables of the Palestinian economy using a standard economic model based on Keynesian theory as a theoretical basis for measuring the impact of remittances on economic activities. Results indicate that remittances affect the economy growth of Palestine in both short- and long-run period and that there is a positive impact of remittances on consumption, imports, investments and wages. Abu Siddique et al. (2012) investigated the causal link between remittances and economic growth in Bangladesh, India and Sri Lanka by running the granger causality test under a Vector Autoregression (VAR) framework. Using time series data over a 25-year period, they conclude that growth in remittances does lead to economic growth in

Bangladesh, while in India there is no causal relationship between growth in remittances and economic growth.

While the above literatures suggest a positive relationship among economic growth and remittances, several studies provide evidence that remittances have a negative impact or no relationship on economic growth. Chami et al., (2003) analyze the impact of remittances on economic growth on a sample of 113 countries, using panel methods. Their results indicate that remittances have a negative effect on economic growth, the dependency of these transfers induces recipients to use remittances as a substitute for labor income, and to lower their work effort. Bussolo and Medvedev (2007) examine the relationship between labor supply and remittances in Jamaica using econometric techniques and find that remittances reduce labor force participation by increasing the reservation wages of recipients. This exacerbates the real exchange rate appreciation, hurting Jamaica's export base and small manufacturing import-competing sector.

4. Methodology

As mentioned, this study aims to analyze the relationship between Palestinian remittance inflows from Israel on the economic growth in Palestine. More specifically, the purpose of this study is to attempt to answer the following questions: Is there any statistically significant relationship between the Palestinian Gross Domestic Product (GDP) and Palestinian remittances from Israel (REMI)? Is it a long and / or short run relationship? Time series techniques have been used to answer these questions. Previous literature argues that the analysis of economic time series data

raises a number of unique inference issues such as time series data are often non-stationary, meaning they have averages, variances and covariances that change over time. However, Engle and Granger (1987) shows that a linear combination of non-stationary time series data may be stationary and thus the variables combined are said to be cointegrated.

The long run cointegration relations can be written as follows:

$$GDP_t - \beta_1 REMI_t = e_t \quad (1)$$

where GDP and REMI represents the Gross Domestic Product of Palestine and the Remittances of Palestinian labor in Israel at time t , respectively. e_t represents deviation from the equilibrium relationship, i.e., the error correction term. According to Engle and Granger (1987), if the two series are found to be cointegrated, a long-run equilibrium relationship exists and the short and long-run dynamics of the data can be expressed through a VECM:

$$\begin{aligned} \Delta GDP_t &= \alpha_1 + \alpha GDP_{et-1} + \sum \alpha_{11}(i) \Delta GDP_{t-1} + \sum \alpha_{12}(i) \Delta REMI_{t-1} + \varepsilon_{GDP,t} \\ \Delta REMI_t &= \alpha_2 + \alpha REMI_{et-1} + \sum \alpha_{21}(i) \Delta GDP_{t-1} + \sum \alpha_{22}(i) \Delta REMI_{t-1} + \varepsilon_{REMI,t} \end{aligned} \quad (2)$$

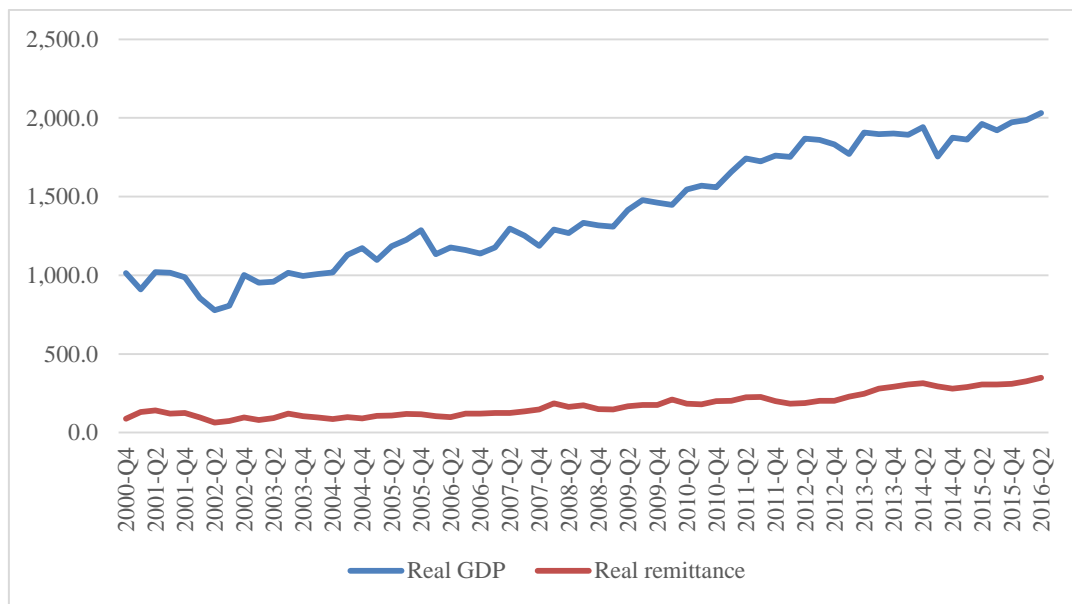
where Δ is the first difference operator, $\varepsilon_{GDP,t}$ and $\varepsilon_{EMPI,t}$ are the error terms. e_{t-1} are the error correction terms that is derived from the long-run cointegration. The dynamic parameters in the short-run are α_1 , α_2 , $\alpha_{11}(i)$, $\alpha_{12}(i)$, $\alpha_{21}(i)$ and $\alpha_{22}(i)$. These

parameters indicate the response of the dependent variable to the short run shocks. α_{GDP} , α_{REMI} are known as the speed of adjustment parameters that measure the rate at which variables adjust to disequilibrium form the long relationship. At least one of these two parameters must be not equal to zero in order to have a long-run equilibrium relationship. Otherwise, no long-run relationship would be existed (Hassouneh et al., 2010).

5. Empirical Results

Our empirical model uses two series of quarterly real gross domestic product and the remittances of Palestinian employments in Israel covering the period from the fourth quarter 2000 to the second quarter 2016, and yielding a total of 63 observations. The variables used in the empirical implementation are obtained from PCBS (2016). The data used are presented in Figure 1. Figure 1 shows the real Palestinian remittances as well as the real gross domestic product using 2004 as the base year.

Figure 1: Quarterly time series data.



Logarithmic transformation of the series data are used in our analysis. To apply the VECM, both series are required to be integrated of the same order. In our empirical application Augmented Dickey-Fuller (ADF) test (Dickey and Fuller, 1979) and Phillips-Perron (PP) test (Phillips and Perron, 1988) are applied. Results of ADF and PP tests with constant are presented in Table 1. As shown in Table 1, when comparing the t-statistic value of each variable with the critical value, we notice that the two series are non-stationary in level, where the t-statistic value is smaller than the critical value. However, both series are considered stationary after taking the first difference.

Table 1: ADF and PP tests.

Variable	Test type		T-statistic	Critical values 5%	Critical values 10%
LGDP	At level	ADF	-0.255	-2.910	-2.593
		PP	-0.016	-2.909	-2.592
	First difference	ADF	-9.429	-2.910	-2.592
		PP	-16.639	-2.910	-2.592
LREMI	At level	ADF	-0.883	-2.909	-2.592
		PP	-0.883	-2.909	-2.592
	First difference	ADF	-8.454	-2.910	-2.592
		PP	-8.628	-2.910	-2.592

It is necessary to test whether the two series are cointegrated over the sample period. Engle and Granger (1987) test for cointegration is thus applied. Engle and Granger results suggest that both series are linked through the following long-run relationship:

$$\text{GDP} = 0.15\text{REMI} - 6.10 - 0.010\text{Tr} + U_t$$

Standard error (0.0494) (0.2171) (0.0011) (3)

The deviations from the long-run relationship between two series must be stationary in order to determine whether the variables are actually cointegrated. Results show that the null hypothesis of unit root can be rejected (see Table 2). Given that both

series are found to be integrated of the same order I(1) and that the residual are I(0), we conclude that the series are cointegrated.

Table 2: Engle and Granger test.

	T-statistic	Critical values 5%	Critical values 10%
ADF	-7.357	-1.946	-1.61

* Critical values for the ADF test are obtained from Mackinnon (1991).

Equation 3 suggest that there is a long-run positive relationship among the series studied. More specifically, results suggest that a 10% increase in the real remittances from Palestinian labor in Israel will be followed by an increase in real GDP (1.5%). Once, we conclude that the both series are cointegrated, a VECM is performed. SIC criteria is used to determine the number of lags and suggests using one lag. However, (LM) test for autocorrelation is applied and suggest no serial correlation among residuals. VECM results are shown in Table 3.

Table 3: VECM results.

Variables	Dep: Δ GDP	Dep: Δ REMI
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	Coefficient	Porb.	Coefficient	Prob.
Ect (-1)	-0.379	0.004	-0.077	0.795
Δ GDP(-1)	-0.048	0.722	0.012	0.968
Δ REMI(-1)	0.108	0.057	-0.006	0.960

Results indicate that while remittances does not adjust to deviations from the real GDP and REMI long-run equilibrium, the remittances cause the real GDP (37.9%). Further, parameter estimates show that the lag of REMI have also the capacity to influence real GDP at the short-run (10.8%).

6. Conclusion

This paper analyses the relationship between the remittances of Palestinian labor in Israel and economic growth in Palestine during the period 2000-2016. To do so, Engle and Granger test of cointegration as well as VECM are applied. Results suggest a long-run positive relationship between Palestinian remittances from Israel and economic growth in Palestine with causality running from remittances to GDP. These results are not surprising and are consistent with the Palestinian context where Palestine economy highly depends on the Israeli economy. Results indicate that policy makers should handle the risk of Palestinian dependence on the Israeli labor market.

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