

The Contribution of the Palestinian Labor Force to the Productivity of the Israeli Economy

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Abstract

The purpose of this paper is to demonstrate the role of the Palestinian labor force in improving the Israeli labor productivity. The importance of this topic lies in the fact that it is possible for both nations to achieve economic growth if they co-operate. In other words, cooperation between these two communities will be a better choice and more beneficial to both nations. A time series analysis was performed to evaluate the effect of Palestinian labor on the Israeli labor productivity. The data was taken from the Palestinian Central Bureau of Statistics and the OECD for the period of 1996 to 2015. We found that the Palestinian labor has a positive impact on the Israeli labor productivity which in turn will contribute positively to Israeli total output and thus its economy. As a positive externality of such fact, the Palestinian-Israeli relations can improve and both countries can positively utilize their resources to productive sectors. Thus Israel should stop discriminating against Palestinians and end the occupation of the West Bank, Gaza strip, and Jerusalem. In other words, allowing for the complete formation of an independent and proud Palestinian State.

مساهمة الأيدي العاملة الفلسطينية في إنتاجية الإقتصاد الإسرائيلي

ملخص

الهدف من هذه الورقة هو إظهار دور الأيدي العاملة الفلسطينية في تحسين إنتاجية العمالة في إسرائيل. تكمن أهمية هذه الدراسة للتأكيد على أنه من الممكن أن يتمتع كلا البلدين -إسرائيل وفلسطين- إذا ما تعاونا. أي أن التعاون المشترك بينهما سيكون مجديا من الناحية الإقتصادية لكليهما. تم إجراء تحليل السلاسل الزمنية لتقييم أثر الأيدي العاملة الفلسطينية على إنتاجية العمالة الإسرائيلية. تم الحصول على البيانات المستخدمة في التحليل من الجهاز المركزي للإحصاء الفلسطيني ومؤسسة الـ OECD للفترة من عام 1996 إلى عام 2015. أشارت نتائج تحليل السلاسل الزمنية أن الأيدي العاملة الفلسطينية لها تأثيراً إيجابياً على إنتاجية العمالة الإسرائيلية وبدورها سوف تؤثر إيجابياً على الناتج الإجمالي الإسرائيلي والذي سوف ينعكس إيجابياً على الإقتصاد الإسرائيلي. من العوامل الخارجية التي من الممكن أن تنتج من هذه النتائج هو تحسين العلاقات ما بين الإسرائيليين والفلسطينيين وبذلك يسخر كل من الجانبين موارده الخاصة لقطاعاته الإنتاجية. ولذلك يترتب على إسرائيل أن تنهي التمييز العنصري الممارس ضد الشعب الفلسطيني وإنهاء الإحتلال الإسرائيلي للأضفة الغربية وقطاع غزة والقدس الشريف. أي السماح لدولة فلسطين أن تكون حرة أبية.

Introduction

While the number of outbreaks of bloody conflicts had decreased in the recent past, yet it did not stop. In this era of post-colonial globalization, where most nations are constantly trying to improve relations with one another, no amount of diplomatic endeavors has yet succeeded in achieving a long lasting peace between Palestine and Israel. Since the creation of the state of

Israeli in 1948, the Palestinians and Israelis had entered into a political, military, social, and economic conflict. They both tried to get rid of one another and take total control of the land. Nonetheless, the Israelis with their military superiority and the continuous support from the international community made them able to constantly be victorious and as a result occupied the West Bank and Gaza in 1967.

The occupation of 1967 did not result in a massive migration of Palestinians to neighboring countries like the 1948 war. Nevertheless, a different reality started to manifest as a result of the co-existence of the two nationalities. Palestinian workers started to supply the state of Israel with unskilled labor, consume Israeli products –Palestinians became a market for Israeli products, and use Israeli currency.

Since then a mutually beneficial relationship started to form between the occupier and the occupied. That however did not restrict Palestinians from their claim on the land. In 1994, the Palestinian National Authority (PNA) was formed backed up by the international community in order to eventually evolve into a Palestinian state neighboring the Israeli state. Despite the creation of PNA that mutually beneficial relationship did not stop, the Palestinians continued to supply Israel with (mostly) unskilled labor. At the same time, Israel continued to keep on intruding more and more inside Palestine, eventually disrupting growth of the Palestinian economy, and thus preventing both countries from having a symbiotic and peaceful relation rather than a hostile and mistrustful one.

On the other hand, Israel suffers from labor shortages. Therefore they need to bring labor from outside, and Palestine is their natural source as Palestine has excess labor. Such exchange is beneficial for both countries as Israel suffering from low labor productivity gets Palestinian workers and Palestinians get essential income as wage in Israel is substantially higher than the wages in both the West Bank and the Gaza strip. Some researches argue that wages in Israel are at least 70% higher than the average wage in the West Bank (Bank of Israel, 2010a; PCBS, 2010). However, this all nice economic concept gets frequently halted as political relationship between these two countries is far from normal and make frequent international headline. Israel actively manages participation of Palestinian labor force in its territory.

The purpose of this paper is to illustrate the importance of the Palestinian labor force in improving the Israeli labor productivity which in turn will contribute positively to the Israeli total output. As a positive externality of such fact, Palestinian-Israeli relations can improve and both countries can positively utilize their resources to productive sectors. It is possible for both nations to achieve economic growth if they cooperate. In this globalized world economic relations are more important than political ties. Mutual acceptance of Israelis (at least economically) of the existence of a Palestinian state can buy mileage in the peace process as well. In other words, the cooperation between the two communities will be a better choice and more beneficial to both nations.

The rest of the paper is organized as follows; the next section discusses some important trends of Palestinian and Israeli workers, then a discussion of literature is presented. Then comes methodology followed by results and discussion. Usual concluding remarks are presented at the last section.

Palestinian workers in Israel

The following table shows the distribution of Palestinian labor force in the Israeli economy.

Table 1: Percentage Distribution of Employed Persons Aged 15 Years and Above from Palestine Working in Israel and Settlements by Economic Activity for the Years 1996 – 2015 (Values in percentages)

| Year | Agriculture Hunting and Fishing | Mining, Quarrying & Manufacturing | Construction | Commerce, Hotels & Restaurants | Transportation, Storage & Communication | Services & Other Branches |
|------|---------------------------------------|---|--------------|--------------------------------------|---|---------------------------------|
| 1996 | 11.5 | 14.7 | 53.5 | 13.0 | 1.4 | 5.9 |
| 1997 | 10.6 | 14.1 | 55.3 | 13.1 | 1.5 | 5.4 |
| 1998 | 10.4 | 11.7 | 56.7 | 12.6 | 1.4 | 7.2 |
| 1999 | 8.4 | 13.7 | 55.4 | 13.4 | 1.8 | 7.3 |
| 2000 | 9.5 | 13.2 | 54.6 | 14.6 | 1.8 | 6.3 |
| 2001 | 7.5 | 16.2 | 49.8 | 16.9 | 1.7 | 7.9 |
| 2002 | 8.8 | 18.2 | 40.7 | 19.6 | 2.4 | 10.3 |
| 2003 | 7.8 | 16.9 | 46.4 | 18.2 | 1.9 | 8.8 |
| 2004 | 7.7 | 17.1 | 41.3 | 20.5 | 2.8 | 10.6 |
| 2005 | 7.1 | 19.2 | 41.9 | 19.7 | 2.6 | 9.5 |
| 2006 | 8.5 | 19.8 | 39.1 | 21.2 | 2.2 | 9.2 |
| 2007 | 8.4 | 17.0 | 44.5 | 18.2 | 2.5 | 9.4 |
| 2008 | 6.9 | 16.1 | 44.3 | 19.5 | 2.8 | 10.4 |
| 2009 | 10.7 | 15.2 | 49.1 | 14.8 | 3.9 | 6.3 |
| 2010 | 7.8 | 12.7 | 49.2 | 16.5 | 6.3 | 7.5 |
| 2011 | 6.8 | 13.6 | 51.9 | 14.5 | 6.8 | 6.4 |
| 2012 | 8.7 | 11.0 | 57.4 | 11.8 | 6.1 | 5.0 |
| 2013 | 9.1 | 11.5 | 60.1 | 11.3 | 4.6 | 3.4 |
| 2014 | 9.0 | 11.4 | 62.8 | 11.1 | 2.4 | 3.3 |
| 2015 | 8.6 | 13.0 | 64.1 | 9.9 | 1.9 | 2.5 |

Source: Palestinian Central Bureau of Statistics (2015). Website: www.pcbs.gov.ps.

Table 1 reveals that majority of the Palestinian workers who are employed by Israel do not have high value added jobs. They are mostly engaged in the construction sector, followed by the mining, quarrying and manufacturing sector, and the commerce, hotel, and restaurants sector. Thus Palestinians provide mostly unskilled labor to Israel. There are some doctors, engineers and other Palestinian professionals who work in Israel and occupied territory. Researchers found that Israeli workers rarely take employment below the minimum wage (OECD, 2010) however Palestinian workers accept below the minimum wage rather frequently (Bank of Israel, 2010b; OECD, 2010). This may be due to weak enforcement of minimum wage law or higher social contributions and fees that the employers have to pay for foreign workers.

The following table (table 2) shows the percentage of distribution of employed persons from Palestine by different sectors.

Table 2: Percentage Distribution of Employed Persons Aged 15 Years and Above from Palestine by Sector from the Years 2000 to 2015 (Values in percentages)

| Years | Public Sector | Private Sector | Israel and Settlements |
|-------|---------------|----------------|------------------------|
| 2000 | 19.3 | 61.9 | 18.8 |
| 2001 | 22.9 | 64.6 | 12.5 |
| 2002 | 23.3 | 67.4 | 9.3 |
| 2003 | 20.5 | 70.8 | 8.7 |
| 2004 | 22.1 | 69.9 | 8.0 |
| 2005 | 22.5 | 68.2 | 9.3 |
| 2006 | 23.2 | 68.2 | 8.6 |
| 2007 | 22.7 | 68.4 | 8.9 |
| 2008 | 24.2 | 65.7 | 10.1 |
| 2009 | 24.8 | 65.0 | 10.2 |
| 2010 | 24.0 | 65.5 | 10.5 |
| 2011 | 22.5 | 67.5 | 10.0 |
| 2012 | 22.7 | 67.6 | 9.7 |
| 2013 | 23.0 | 65.8 | 11.2 |
| 2014 | 22.9 | 65.4 | 11.7 |
| 2015 | 22.0 | 66.3 | 11.7 |

Source: Palestinian Central Bureau of Statistics (2015). Website: www.pcbs.gov.ps

The table gives relative importance of Palestinian labors working in Israel and the settlements in Palestinian economy. Although 11% seems small but had they not been working in Israel they would have most probably remained unemployed adding up to the already high unemployment figure of Palestine and depressing already wage rate there. Therefore their contribution is significant. The reason for this constant supply of labor to Israel and the settlements is higher wage rates that the Israeli pay compared to the workers having the same job in the Palestinian territories. The following table (table 3) presents average wage rates in the Palestinian public sector, Palestinian private sector, and Israel and the settlements.

Table 3: Average Daily Wage for Wage Employees Aged 15 Years and Above from Palestine by Sector from the Years 2000 to 2015 (Values in New Israeli Shackles (NIS))

| Years | Public Sector | Private Sector | Israel and Settlements |
|-------|---------------|----------------|------------------------|
| 2000 | 59.0 | 66.8 | 110.5 |
| 2001 | 59.3 | 67.9 | 106.5 |
| 2002 | 59.6 | 69.6 | 116.0 |
| 2003 | 61.4 | 66.9 | 122.8 |
| 2004 | 66.2 | 67.3 | 125.3 |
| 2005 | 70.4 | 67.4 | 125.6 |
| 2006 | 78.5 | 69.7 | 129.8 |
| 2007 | 79.3 | 69.0 | 130.0 |
| 2008 | 79.2 | 74.7 | 138.3 |
| 2009 | 82.4 | 78.2 | 148.1 |
| 2010 | 85.2 | 74.3 | 158.0 |
| 2011 | 89.1 | 72.6 | 162.2 |
| 2012 | 91.9 | 74.1 | 164.1 |

| | | | |
|------|------|------|-------|
| 2013 | 95.2 | 73.1 | 175.6 |
| 2014 | 96.7 | 76.5 | 187.5 |
| 2015 | 99.6 | 75.6 | 198.9 |

Source: Palestinian Central Bureau of Statistics (2015). Website: www.pcbs.gov.ps

Table 3 clearly shows the large differences in the wage rates that the Palestinian labor force faces in the different sectors of the Palestinian and Israeli economies. Naturally, higher wages induces people to work harder, this dynamics is working here.

Since 1990, Israel noticing their labor shortage, started allowing foreign workers (mostly from Asia) to work in Israel with renewable contracts. However many of them stay back in Israel as illegal worker after expiration of their contract period and thus increase the number of effective workers working in Israel. Palestinian workers also work as permit holder workers in Israel. However studies have found that they are mostly treated as reserve bench workers. They are usually the first to get fired when a recession occurs and last to hire when things start moving in a positive direction. They work with low self-esteem and receive harsh treatments compared to Israeli workers.

Now let us take a closer and a brief look at the conditions that the Palestinian workers face when working in Israel. The Palestinian workers are paid daily –rather than hourly compared to the Israeli workers, and work longer hours – they work from 7 am to 6pm or 7 pm. They do the harder and more dangerous jobs –they differ in the type of job when compared with the Israeli workers, and finally there is negligence in the safety procedures when dealing with Palestinians. Sometimes the Israeli employer puts a lower daily wage on the papers compared to what he pays the workers in order for the worker to obtain a lower amount of end of service compensation. In addition, the permission that the Palestinian workers receive is restricted and applicable to only one employer –the employer that went through the sponsoring process- i.e. he cannot switch employers. They have to leave their homes from the early mornings usually at 3 or 4am and go through the humiliating check points –where the check points are not designed to cope with a large number of people.

Due to the fact that Israel is benefiting from the productivity of the Palestinian workers it must implement the same laws that are applicable to the Israeli workers.

On the other hand, there is ample documented evidence that Israeli labor force lacks productivity compared to their OECD counter parts (see Ben-David, 2013, International Monetary Fund, 2015 among others). GDP per hour worked for Israeli labors were around 32 while that of their G7 partners was around 45 in 2012. Comparison of standard of living index, employment rate and other similar parameters show similar trend. Israeli authorities are also aware of this fact and they along with other interested groups have produced studies to investigate possible reasons behind such lacking. Some of the factors contributing to the low productivity are:

- a) Low standard of education. Israeli children have showed low performance in core curriculum subjects like science, mathematics etc. Ultra-orthodox Jews along with Arab Israelis sometimes follow different curriculum which may not necessarily enhance modern productive skills.
- b) Israel has unusually large number of young population creating flow of low skill workers with low level of working experience.

- c) The transportation sector is weak in Israel, especially the rail transportation sector.
- d) The low level of capital per capita in the production sector is another problem. The security expenditure (due to geo political situation) further hampers the growth process.
- e) The high level of bureaucracy effectively hampers business growth.
- f) The large size of unreported economy also affects the labor productivity.

While some of the factors are quite inherent to the economy and it is not possible for the outside workers to improve the situation. However, happy workers getting expected wage (higher than their reservation wage) can be helpful to improve the situation and enhance the productivity scenario.

Literature Review

There are two main views or sets of assumptions about how migrants and natives compete. One view tells that migrants and local workers having similar skill levels are perfect substitutes for each other (see Bhagwati and Srinivasan, 1983). In that case migrant workers expand labor supply in local economy. In other view, migrant workers take jobs that are not preferred by the locals even when the locals have the expertise to do those things. In that case if job distribution is coercion free then such practice is welfare enhancing (see Martin, 1988 and Greenwood & McDowell, 1988). Employment of Palestinians in Israel mostly falls in the second category.

Nissim & De Vries (2014) argued that the increasing acceptance of various non-standard forms of employment is resulting in changes in the labor markets. These changes in the labor markets places the workers' committees in a state of permanent "liminality", reducing their role to merely seeking compromises and ad hoc solutions. Nonetheless, the opposition to the adverse effects of non-standardized employment remains localized and fragmented, thus consolidating such arrangements.

Flaig et. al (2013) using computable general equilibrium (CGE) model found that opening the Israeli labor market to more Palestinian workers would increase Israeli domestic production. They found the result robust across a wide range of substitution elasticities and are consistent with the results of Carter (2005). They also found that such action will be generally welfare enhancing for Israel as there will be welfare gains for all household groups in Israel.

This current study will use cointegration based methodology (in the spirit of Johansen) to find out whether there is any relationship between Israeli labor productivity and Palestinian labor participation in Israel and occupied territory.

To the best of our knowledge there is no prior study that addressed this issue in some details. Therefore this study will fill the gap in the available literature.

Methodology

Stationary is an important concept to be examined, it guarantees that there are no fundamental fluctuations in the structure of the process. Thus, this property allows the possibility of predicting future values.

To test for the stationary we used the Augmented Dickey Fuller (ADF) test and Phillips Perron (PP) tests. Both of the methods are widely used in literature. The cointegration tests are then performed following the spirit of Johansen. The Bivariate version of this methodology is quite used among applied researchers. Generally, if two variables are integrated to different orders, the linear combinations of the two variables will have an order of the higher of the two orders.

Thus y_t is I(1) and x_t is I(0) then the linear combination given by regressing y_t on x_t represented by $e_t = y_t - bx_t$ will be I(1). If two independent variables y_t and x_t are non-stationary but there exists a stationary linear combination of the integrated variables, then the two variables are cointegrated. In this case, there exists a long-run relationship between the two variables were the two variables drift together. This relationship is distinguished from the short-term dynamics that is measured by the relationship between the deviations of y_t from its long-term trend and deviations of x_t from its long-term trend. Nonetheless, cointegration test does not determine the direction of the causality (Greene, 1995).

The only method of determining causality, Granger causality (Rather precedence) is used to determine which variable occurs first. Basics of these methodologies are quite a common place and can be found in any higher level Econometrics text.

In our case we will use the cointegration test whether the Palestinian workers working in Israel is cointegrated with the Israeli labor productivity.

Finally, we look at the sign of the relationship between two cointegrated variables. In order to determine the sign of the relationship we will use the Fully Modified Least Squares regression method (FM-OLS), Dynamic Ordinary Least Squares (DOLS) regression method, and Canonical Cointegration Regression (CCR). The FMOLS regression method was developed to determine the optimal estimates of cointegrating regressions. As the name implies, the Least Squares method was modified to take into consideration the serial correlation effects and the endogeneity of regressors resulting from the existence of a cointegrated relationship. Meanwhile, the CCR method is a regression formulated with the transformed data

This procedure involves simple adjustments of the integrated processes using stationary components in the cointegrating models. In spite of the simple adjustments that are required, the CCR still represents the same cointegrating relationships as the original models. The adjustments are constructed in such a manner that the ordinary least squares method yields an asymptotically efficient estimators and chi-square tests.

The DOLS deals basically with regressing any I(1) variables with any I(1) variables with another I(1) variables, any I(0) and leads and lags of the first differences of I(1) variables. Thus we run the FMOLS, CCR, and DOLS regression models for the cointegrated Palestinian workers working in Israel and the Israeli labor productivity.

First we included all the Palestinian workers that work in Israel and the settlements (PWORKERS), then we considered Palestinian workers from the West Bank only working in Israel and the settlements (PWWB), and finally all the Palestinian workers from Gaza only working in Israel and the settlements (PWGAZA).

Results

The data was collected from the Palestinian Central Bureau of Statistics and the OECD labor statistics database, where the data covered the period from 2000 to 2015 for the Israeli labor productivity which is represented by the Israeli GDP per labor hour worked. This was used to perform the different statistical analysis.

We will now use the time series analysis to test the nature of the relationship between the Palestinian workers working in Israel and the Israeli labor productivity. We will start out with the unit root test. Now we will run a unit root test to determine whether the variables are stationary or non-stationary at the first difference. All results are tested against a confidence interval of 95%:

Table 4: Augmented Dickey Fuller (ADF) test results¹

| Variable Name | Unit Root |
|---------------|--|
| ISRPROD | No Unit Root at 1 st difference |
| PWORKERS | No Unit Root at 1 st difference |
| PWGAZA | No Unit Root at 1 st difference |
| PWWB | No Unit Root at 1 st difference |

A cointegration test will be used to show whether each of the 3 Palestinian labor forces are cointegrated with the Israeli labor productivity.

Table 5: Results of Cointegration test between Israeli labor productivity and Palestinian workers working in Israel

| | | | | |
|---|------------|-----------|----------------|---------|
| Sample (adjusted): 2002 2015 | | | | |
| Included observations: 14 after adjustments | | | | |
| Hypothesized | | Trace | 0.05 | |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.** |
| None * | 0.618597 | 16.08197 | 15.49471 | 0.0408 |
| At most 1 | 0.168742 | 2.587409 | 3.841466 | 0.1077 |
| Trace test indicates 1 cointegrating eqn(s) at the 0.05 level | | | | |
| * denotes rejection of the hypothesis at the 0.05 level | | | | |
| **MacKinnon-Haug-Michelis (1999) p-values | | | | |

For differentiated labor participation from Gaza and West Bank we also found existence of cointegration (detailed results available upon request).

This leads us to the Pairwise Granger Causality Test. Results are presented in the following table for the pairs of variables that demonstrated cointegrating relationship:

¹ Detailed results available upon request

Table 6: Results of Granger causality test between Israeli labor productivity and Palestinian workers working in Israel

Sample: 2000 2015

Lags: 2

| Null Hypothesis: | ObsF-Statistic | Prob. |
|---|----------------|--------|
| ISRPROD does not Granger Cause PWORKERS | 14 2.22277 | 0.1642 |
| PWORKERS does not Granger Cause ISRPROD | 7.30754 | 0.0130 |

Table 7: Results of Granger causality test between Israeli labor productivity and Gaza workers working in Israel

Sample: 2000 2015

Lags: 1

| Null Hypothesis: | ObsF-Statistic | Prob. |
|---------------------------------------|----------------|--------|
| PWGAZA does not Granger Cause ISRPROD | 15 0.69063 | 0.4222 |
| ISRPROD does not Granger Cause PWGAZA | 4.52515 | 0.0548 |

Table 8: Results of Granger causality test between Israeli labor productivity and West Bank workers working in Israel

Sample: 2000 2015

Lags: 2

| Null Hypothesis: | ObsF-Statistic | Prob. |
|-------------------------------------|----------------|--------|
| PWWB does not Granger Cause ISRPROD | 14 3.71659 | 0.0666 |
| ISRPROD does not Granger Cause PWWB | 2.43497 | 0.1428 |

To find the sign of the relationship we will use the FMOLS, DOLS, and CCR. Results are given in the following tables:

Table 9: Results of Fully Modified OLS (FMOLS) regression test between Israeli labor productivity and Palestinian workers working in Israel

| Method: Fully Modified Least Squares (FMOLS) | | | | |
|--|-------------|--------------------|-------------|--------|
| Sample (adjusted): 2001 2015 | | | | |
| Included observations: 15 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| ISRPROD | 2.959708 | 1.439102 | 2.056636 | 0.0604 |
| C | -205.6827 | 140.4873 | -1.464066 | 0.1669 |
| R-squared | 0.132896 | Mean dependent var | 71.13333 | |
| Adjusted R-squared | 0.066196 | S.D. dependent var | 22.30588 | |
| S.E. of regression | 21.55497 | Sum squared resid | 6040.016 | |
| Durbin-Watson stat | 0.161290 | Long-run variance | 949.1246 | |

Table 10: Results of Fully Modified OLS (FMOLS) regression test between Israeli labor productivity and West Bank workers working in Israel

| Method: Fully Modified Least Squares (FMOLS) | | | | |
|--|-------------|--------------------|-------------|--------|
| Sample (adjusted): 2001 2015 | | | | |
| Included observations: 15 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| ISRPROD | 3.609780 | 1.257816 | 2.869880 | 0.0131 |
| C | -272.5280 | 122.7899 | -2.219467 | 0.0449 |
| R-squared | 0.576369 | Mean dependent var | 71.06667 | |
| Adjusted R-squared | 0.543783 | S.D. dependent var | 24.53705 | |
| S.E. of regression | 16.57327 | Sum squared resid | 3570.753 | |
| Durbin-Watson stat | 0.274754 | Long-run variance | 725.0604 | |

Table 11: Results of Fully Modified OLS (FMOLS) regression test between Israeli labor productivity and Gaza workers working in Israel

| Method: Fully Modified Least Squares (FMOLS) | | | | |
|--|-------------|--------------------|-------------|--------|
| Sample (adjusted): 2001 2015 | | | | |
| Included observations: 15 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| PWGAZA | 6.863183 | 0.181557 | 37.80190 | 0.0000 |
| C | 98.35513 | 0.454496 | 216.4048 | 0.0000 |
| R-squared | -91.405666 | Mean dependent var | 97.46489 | |
| Adjusted R-squared | -98.513794 | S.D. dependent var | 5.721449 | |

S.E. of regression 57.07523 Sum squared resid 42348.57
 Durbin-Watson stat 0.023367 Long-run variance 2.219494

Table 12: Results of Canonical Cointegrating Regression (CCR)

| Dependent Variable | Independent Variable | P-value | Alpha | | Coefficient |
|--------------------|----------------------|---------|-------|-------------|-------------|
| ISRPROD | PWORKERS | 0.0000 | 0.05 | Significant | 0.141970 |
| PWGAZA | ISRPROD | 0.0028 | 0.05 | Significant | -0.307961 |
| ISRPROD | PWWB | 0.0001 | 0.05 | Significant | 0.168327 |

Table 13: Results of Dynamic OLS (DOLS) regression

| Dependent Variable | Independent Variable | P-value | Alpha | | Coefficient |
|--------------------|----------------------|---------|-------|-------------|-------------|
| ISRPROD | PWORKERS | 0.0009 | 0.05 | Significant | 0.156811 |
| PWGAZA | ISRPROD | 0.0105 | 0.05 | Significant | -0.241436 |
| ISRPROD | PWWB | 0.0007 | 0.05 | Significant | 0.156164 |

Our results show that Palestinian workers are important for enhancing the Israeli labor productivity. They contribute positively to Israeli productivity with a lag period of two years. Such productivity gain can be due to the efficiency wage argument (since wages in the Palestinian territory are substantially below Israeli wages, therefore the workers may work hard to maintain their jobs) or may be due to some inherent reasons specific to labor composition in Israel.

For disaggregated labor data, labors from West Bank contribute to Israeli productivity again with a lag period of two years. But for the case of Gaza, Israeli productivity precedes employment. This makes sense as Gaza has a more bitter relationship with Israel and whenever there is any tension, Gaza is the first to feel the heat. Therefore, it is not unnatural to expect that during economic slowdown workers from Gaza are the first to be laid off.

Finally, the results indicated that the overall contribution of Palestinian workers coming from both the West Bank and Gaza has a positive effect on the Israeli labor productivity, and the Palestinian labor Granger causes the Israeli labor productivity.

However we did not investigate the micro channels that affect such productivity.

Conclusion

In conclusion, since Israel is suffering from low labor productivity and Palestinian labor working in Israel and the settlements contribute positively to the Israeli labor productivity, then the Palestinian labor force is the answer to the Israeli problem. Thus Israel should further improve the working conditions for the Palestinian labor in order to further benefit and improve its labor productivity.

Finally, Israel should stop discriminating against Palestinians and end the occupation of the West Bank, Gaza strip, and Jerusalem. In other words, allowing for the complete formation of an independent and proud Palestinian State.

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