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Who gets to cross the border? The impact of mobility restrictions on labor flows in the West Bank[☆]



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HIGHLIGHTS

- I examine the impact of mobility restrictions on labor flows in the West Bank.
- Increases in border closures raise the unemployment rate and reduce out-migration.
- A one standard deviation rise in the number of closures costs \$1 million per day.
- Mobility restrictions deter out-migration to Israel more than the settlements.
- The return decision is driven by low wages and lacking valid legal documentation.

GRAPHICAL ABSTRACT



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ABSTRACT

This paper examines the impact of labor mobility restrictions such as border closures, physical obstacles and unequally accessed ID cards and work permits on the labor flows of West Bank residents. The results demonstrate that for Jerusalem residents, mobility restrictions reduce out-migration but they are much more pronounced in impeding out-migration to Israel proper than to Israeli settlements. Additionally, an increase in the number of border closures per quarter has a positive and significant impact on the odds of facing unemployment for all groups, but is especially high for migrant workers residing outside of Jerusalem. A lower bound estimate of the economic cost of a 50 day increase in the number of border closures (1.78 standard deviations) per quarter is about USD 1.7 million per day in the subsequent quarter. The paper also concludes that the determinants of out-migration differ from those of return-migration. For example, while border closures and unemployment status during previous visits are strong determinants of out-migration, the decision to return is driven by relatively low wages and lacking the necessary legal documentation to enter Israel. The findings in this paper are consistent with international studies that ascribe inefficiency in labor markets to restrictions on labor mobility across regions.

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1. Introduction

An increased level of labor mobility is a key step to attaining efficient labor allocation as well as enhancing economic development and growth. One way labor mobility can lead to efficient outcomes is by encouraging out-migration from labor-intensive countries to capital-intensive countries (Hamilton and Whalley, 1984; Iregui, 2005; Docquier et al., 2015). And yet, the political climate can interfere with how labor is allocated across countries. Conventional economic theory posits that individuals migrate if the expected benefit from migration exceeds the expected costs (Sjaastad (1962)). The migration decision involves evaluating the difference between the expected wage in the host country and the current wage in the source country, differences in social welfare benefits (e.g. government housing in the host country vs. living in one's parent's house in the source country), the monetary cost of migrating, loss in social capital, and the cost of acquiring the skills necessary to thrive in a new job and/or labor market (e.g. learning a new language or on-the-job training) (Chiquiar and Hanson (2005); Rosenzweig (2007); Gould and Moav (2008)). However, such a basic model does not provide much insight into the heterogeneity of the migration decision among potential immigrants.

There are two dominant models that economists have used to study such heterogeneity. One model, often referred to as the Roy model (Roy (1951)), was applied to the immigration decision by Borjas (1987) and suggests that who decides to immigrate depends on the relative wage distributions of the source and host countries. That is, low-skilled immigrants are attracted to countries with less inequality than their country of origin, while high-skilled immigrants are attracted to countries with higher inequality than their respective source country. The intuition is straightforward: more equal countries directly or indirectly “tax” individuals at the top of the wage distribution and redistribute to low-wage earners, thereby generating a more compressed wage distribution. Thus, low-wage earners potentially gain from more concentrated wage distributions and have higher economic incentives to migrate to countries where wages are relatively equally distributed. The same logic is used to argue that high-skilled workers will migrate to countries with a higher rate of return to skill as evidenced by a more unequal income distribution. While the model is quite stylized – relying on some strong simplifying assumptions such as that migration costs do not increase or decrease with skill level – it has much intuitive appeal. One challenge to the Roy model is that there is suggestive evidence that migrants from developing countries characterized by high income inequality to countries with lower income inequality are more likely to be high-wage and skilled workers (Grogger and Hanson (2011); Belot and Hatton (2012); Rosenzweig (2007)). These results are contrary to the predictions of the Roy model. To reconcile the literature, Gould and Moav (2008) propose that the Roy model is a more accurate predictor of selection for internal migration patterns (Borjas et al. (1992); Abramitzky (2011)) as opposed to international migration patterns because international moves involve additional costs of migration,² including cultural barriers, wars, language requirements, the presence of local networks in the host and source countries, immigration policy in the host country and perceptions or biases of the host country in the source country.

Indeed, a burgeoning literature on global migration flows has shown that labor mobility restrictions – in the form of stringent immigration policies including quotas, point-based systems, visa requirements, and increased border patrols in developed countries – have rapidly diminished incoming migration flows for developed countries (Mayda, 2010; Bertoli and Fernandez-Huertas Moraga, 2013; Ortega and Peri, 2009). This literature identifies immigration policy as a major deterrent of global labor flows by using aggregate country level data such as the average income per capita at the destination country, country fixed

² Note that all migration costs are assumed to be constant across skill levels in Roy's model.

effects, and variables that measure the degree of tightness of entry in a given country. The methodology is intuitive since countries have varying immigration policies, and differences in income across countries are likely to shape prospective migrants' decisions. While the results are informative and interesting, the problem is that country-level data are noisy and can yield inconsistent estimates. The aim of this paper is to quantify the effect of Israel's border policies on the labor flows of West Bank residents using individual micro-level panel data.

The West Bank is a natural context to investigate the role of mobility restrictions on labor flows. Firstly, following the eruption of the second intifada (uprising) in September 2000, West Bank residents were subjected to heightened security measures leading to several forms of labor mobility restrictions such as border closures and mandatory procurement of a permit upon entry.³ Another advantage of setting this study in the West Bank is the availability of micro-level household panel data from the 2000 to 2010 waves of the *Palestinian Labor Force Survey* (PLFS). These data allow the econometrician to observe the earnings and employment statuses of West Bank residents both in the source country (West Bank) and the host country (Israel); and thirdly, the data are longitudinal which means that I can estimate the economic tradeoffs for the immigration decision (and the decision to return) better than most previous studies. Finally, studying migration patterns in the West Bank allows for a more accurate and complete analysis of labor flows since the unique political circumstances in the region separating West Bank residents from Israeli residents result in data which consists of (at least theoretically) a representative sample of migrants and return-migrants.

Using similar data, Miaari and Sauer (2011) show that border closures in the West Bank have a negative impact on labor market outcomes such as Palestinian employment in Israel and mean earnings. Furthermore, Calfi and Miaari (2012) approximate the costs of internal closures to the West Bank economy at USD223 million in 2007 by measuring the effect of closure obstacles on hourly wages and the number of working days. This paper contributes to the literature by quantifying the effect of mobility restrictions on labor flows rather than labor market outcomes. For example, to what extent do internal and external closures hinder out-migration? Are there differences with respect to migrant destinations? Are the factors that deter out-migration different from those that encourage return-migration? In a context of high frequency circular migration, are first-time migrants affected differently from circular migrants? To what extent are ex-migrants absorbed by the local economy when stringent border policies are implemented? In the West Bank and other developing nations where political turmoil is common, remittances are a major source of income, contributing more than five times as much as the sum of foreign aid and foreign investment (World Bank). Hence, there is a state of urgency for researchers and policy makers to understand the gains and losses associated with restricting labor to both the sending and receiving countries in order to make appropriate policy recommendations concerning immigration policy.

2. Background

2.1. Migrant or commuter?: the special case of West Bank migrant workers

According to the United Nations, a migrant worker is “a person who is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national.” Palestinian workers in Israel or the settlements qualify since they are not citizens of Israel but are receiving payments for working on neighboring Israeli land (see Map), which

³ This study focuses solely on the West Bank since the number of Gaza residents working in Israel diminished rapidly after Israeli withdrawal of the settlements in 2005 and came to a complete halt after the implementation of the blockade in June 2007 (Adnan, 2014b). Thus, for most years, there is neither sufficient variation for the number of migrant workers nor the number of closure days per quarter in Gaza.



Map. Map showing the territory under Palestinian control and Israeli settlements in the West Bank and Gaza.

includes Israel proper as well as Israeli settlements (denoted by triangles on the Map) in the West Bank. One distinguishing feature of Palestinian migrant workers is that they are not allowed to reside in Israel due to the nature of the conflict, and therefore, must commute daily to Israel.⁴ Hence, one may question whether Palestinians qualify as migrants or merely commuters. Indeed, in the context of globalization and

increased labor mobility, the line between migrant and commuter is ever more blurred. For example, following the enlargement of the European Union, terms such as trans-national migration and cross-border commuting were introduced to investigate the economic consequences of the (relatively) free movement of workers across nations within the EU (Kahanec and Zimmerman, 2009; Kaska and Paas, 2013). While the term 'migration' usually refers to one-off moves for permanent residence, this notion is challenged by an emerging literature on less conventional forms of migration, such as circular, temporary and seasonal migration (Constant et al., 2013; Hugo, 2013). Technically, West Bank residents who commute daily to Israel for work can be considered cross-border commuters or temporary/circular/seasonal

⁴ For the majority of the paper, Israel implies "Israel or the settlements" since the econometrician cannot distinguish between the two in the main survey used, the Palestinian Labor Force Survey (see data section). When data from the supplementary survey – the Social Survey of Jerusalem (SSJ) – is described and analyzed, then the distinction between Israel and Israeli settlements is made.

migrants. However, in most contexts, (cross-border) commuters are citizens of the country of employment or citizens of countries that have bilateral trade agreements with the country of employment and thus, are usually granted much more freedom of mobility than is typically the case with migrants.⁵ Upon entry of the host country(s), many migrants face stringent immigration policies that usually limit their mobility. In the West Bank, this is especially the case because Palestinian workers in Israel must confront these challenges daily when crossing the border. Thus, throughout this paper, I refer to Palestinian employees of Israel as migrants, although they commute daily to work.

2.2. Border closures and closure obstacles

Another convention that is specific to Palestinian–Israeli migration is the source and nature of migration costs across West Bank residents: mobility restrictions in the form of politically-determined barriers. These costs include a combination of physical barriers and border patrols that limit and may even prohibit Palestinian labor from entering Israel due to political or security reasons. The three main types of politically-determined barriers used throughout this paper are: a) the number of comprehensive closure days per quarter, b) the number of closure obstacles per West Bank district per quarter, and c) the ID card/permit status of an individual worker.

The number of comprehensive closure days per quarter reflects the number of days the Israeli border was completely closed off from the Palestinian territories.⁶ During closure days, the movement of people and goods is prohibited even if Palestinians have legal documentation to work or enter Israel. Nevertheless, some Palestinians continue to work on Israeli land during closure days by crossing illegally or through informal arrangements with Israeli officials and security personnel. Fig. 1 presents the number of comprehensive closure days in each quarter from the year 2000 to 2008. The graph demonstrates immense volatility from one quarter to the next during the second intifada, which began in the third quarter of 2000 and continued almost until Israel's blockade of Gaza in June 2007 for more information on the effect of the blockade on Gaza's residents, see (Adnan, 2014b)⁷; both events are depicted by vertical reference lines in the graph above. Spikes in closure days can be explained by major political events that took place. Note that in the first three quarters of the year 2000 (prior to the second intifada), there were no comprehensive closure days in the Palestinian territories. Another impediment to labor mobility is the presence of closure obstacles.⁸ Closure obstacles are physical obstacles primarily intended to separate Palestinian areas from Israel. The most common form of closure obstacles is the checkpoints manned by Israeli soldiers to ensure Palestinians enter Israel legally (more on this in the next subsection – ID card/permit status).

2.3. ID card/permit status

The third mobility restriction explored in this paper is a resident's ID card. For West Bank residents, there are two types of ID cards: a Jerusalem ID card and a West Bank ID card. A Palestinian obtains a Jerusalem ID card if his/her parents lived within the borders of Jerusalem when Israel occupied the West Bank in 1967 following the Arab–Israeli war.

⁵ An example of cross-border commuters in the context of the West Bank is the Jewish settlers who reside in Israeli settlements on the West Bank and commute to Israel proper daily for work.

⁶ Data on comprehensive closures in the Palestinian territories (the West Bank and Gaza) are obtained from B'tselem, an Israeli human rights organization.

⁷ The end date of the second intifada is disputed since the violence has only partially subsided over the years and increased again recently. However, the death of Arafat, the president of the Palestinian territories, for over three decades, in November 2004 and Israel's disengagement from Gaza which was completed in August 2005 are used as the most common markers for the end of the second intifada. Therefore, I used the average date – the first quarter of 2005 – as a marker for the end of the second intifada.

⁸ Data on closure obstacles during the period 2004–2010 are obtained from the United Nations Office of Coordination and Humanitarian Affairs (OCHA).

Otherwise, a Palestinian is issued a West Bank ID card, administered by the Palestinian Authority (PA). Jerusalem ID cardholders have lower migration costs than West Bank ID cardholders because Jerusalem ID cardholders are permanent residents of Israel, enjoy national insurance and social benefits, and are free to move and work throughout Israel and the West Bank without entry or work permits. As permanent residents, Jerusalem ID cardholders are protected by Israeli labor law, which grants them at least the Israeli minimum wage plus benefits. West Bank ID cardholders must not only obtain work permits to work in Israel but must also renew them every three months. The process of acquiring and renewing work permits is cumbersome especially during times of political instability as security measures are heightened. One alternative, which many have opted for, is to work in Israel without a work permit and become an undocumented worker which can result in highly punitive repercussions.

3. Data

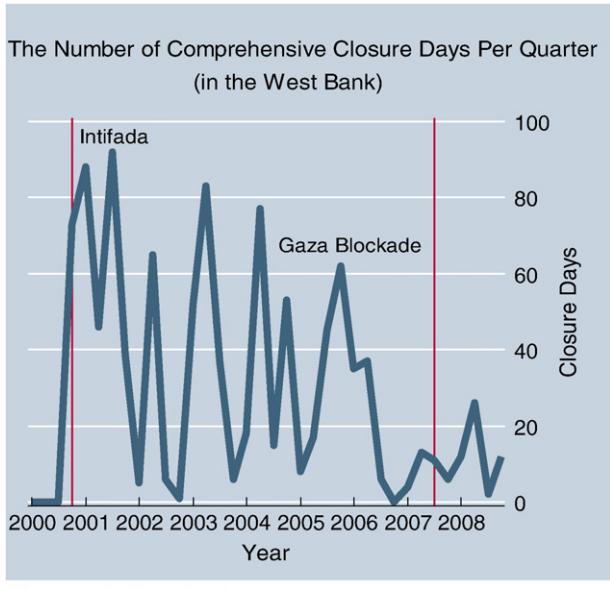
3.1. Palestinian Labor Force Survey (PLFS)

The primary dataset I use in this paper is a micro level longitudinal dataset from the *Palestinian Labor Force Survey* (PLFS) administered by the Palestinian Central Bureau of Statistics. The PLFS of the West Bank and Gaza Strip is a quarterly household survey that investigates the labor force characteristics of Palestinians living in the territories. The questionnaire is designed such that households are interviewed for two consecutive quarters, dropped for the next two quarters and then re-interviewed for the following two quarters, allowing one to construct short longitudinal panels. In this paper, I restrict the sample to males between the ages of 18–64 years that were surveyed between 2000 and 2010.⁹ In general the response rate was approximately 90%. One drawback of the data however is that during the last two quarters of 2001, the response rate was less than 40% due to the cycle of extreme violence that took place during the initial phases of the second intifada.

These data have several unique features in the context of testing different models of migration. Due to the nature of the conflict and proximity of the West Bank and Israel, residents of the West Bank cannot reside on Israeli land but can procure Israeli jobs while continuing to live in the West Bank. This distinguishing feature of the West Bank coupled with the longitudinal nature of the data allows the econometrician to observe wages and other employment characteristics of a representative sample of West Bank residents, regardless of their place of work. Thus, the econometrician can observe wages of recent (return) migrants in both, the West Bank and Israel, without being concerned about which migrants moved permanently to Israel. Secondly, information about migrants' employment and earnings in Israel is included for both documented and undocumented migrant workers so that the latter are not under-represented either. Unfortunately, the PLFS does not provide data on ID type for individuals employed in the domestic sector, which can limit the analysis on the decision to migrate since migration costs can vary substantially depending on ID type. Another shortcoming of the PLFS data is that migrant workers in Israel cannot be distinguished from those in Israeli settlements. This can be problematic since working in Israel may have considerable costs and benefits relative to working in the settlements for a majority of workers.¹⁰ Because of these two disadvantages of the PLFS data, I supplement the analysis with the Social Survey of Jerusalem (SSJ) data.

⁹ I exclude women because they generally have low labor force participation rates and conditional on being employed, women are concentrated in the domestic sector which does not allow sufficient variation to explore the migration decision. I exclude years prior to 2000 because 2000 was the first year longitudinal data was available. Prior to 1999 the data can only be used for cross-sectional analyses; in 1999, housing and individual IDs were inconsistent and could not be matched across units of time.

¹⁰ For example, according to KavLaOved, Palestinian migrant workers in Israeli settlements suffer from adverse work conditions and are paid below the minimum wage.



Source: B'tselem (2008)

Fig. 1. The number of comprehensive closure days per quarter in the West Bank, 2000–2008.
Source: B'tselem (2008).

3.2. Social Survey of Jerusalem (SSJ)

The 2005 wave of the Social Survey of Jerusalem is administered by the Palestinian Central Bureau of Statistics (PCBS). The target population was all Palestinians who reside in the greater Jerusalem area (area J1 or J2) for at least 6 months out of the year. Data collection was initiated on April 12, 2005 and completed on June 13, 2005. The dataset includes a total of 3300 households, where 2240 households resided in J1 and 1060 households resided in J2. The sample is restricted to male workers between the ages of 18 and 64 years old. The overall response rate was 75%.¹¹ These data are richer than the PLFS data in that Palestinians who work in the settlements (16% of all migrant workers in this dataset) can be differentiated from those who work in Israel. Furthermore, individuals report whether they possess a Jerusalem ID card or a West Bank ID card, but unfortunately, those who work in Israel without a permit cannot be detected in this survey. Two other disadvantages of the SSJ survey are that the data are neither longitudinal nor nationally representative since they only cover residents of the Greater Jerusalem area. While both surveys have shortcomings, they both offer sufficiently rich data to identify the extent in which mobility restrictions impede migration flows in the West Bank.

4. Empirical strategy

Following Sjaastad (1962) and Borjas (1987), I model an individual's decision to migrate as a cost–benefit analysis. That is, Palestinians seek a job in Israel when the (expected) Israeli daily wage exceeds the (expected) daily wage in the West Bank net of total migration costs. I model this decision using a logistic regression where the probabilities are bound between 0 and 1. To isolate the effect of mobility restrictions on labor flows, socioeconomic controls are used as covariates to control for characteristics that increase one's propensity to become a migrant worker.

$$Y_{idt}^* = \beta X_{idt} + \gamma C_{idt} + \varepsilon_{idt} \quad (1)$$

¹¹ This is a relatively low response rate and was primarily due to closures in the region as well as the building of the separation barrier. The response rate in the 2003 wave of the same survey was approximately 89%.

where Y^* is a latent variable greater than 0 if individual i works in Israel and earns a positive wage while residing in district d in quarter t . X_{it} represents a set of individual covariates such as years of schooling, age, age squared, marital status, refugee, head of household, locality type (i.e. urban, rural, refugee camp), and industry and year fixed effects. Regional variables are also included to capture the variation across regions in migration opportunities such as the number of Israeli settlements as well as local labor market opportunities. C_{idt} represents the migration costs which include proxies for mobility restrictions and their interaction terms with regional variables in the West Bank: North, Central, South, Jerusalem. Finally, ε_{idt} is a residual with a standard logistic distribution. Eq. (1) is estimated by a maximum likelihood function where the conditional probability of working in Israel is:

$$\Pr(Y_{idt} = 1) = \frac{1}{1 + \exp(-\beta X_{idt} - \gamma C_{idt})}. \quad (2)$$

One question that arises with this specification is whether the proxies for mobility restrictions in this paper are endogenous to the error term in Eq. (1). For example, if Israeli implementation of the number of closure obstacles and/or closure days is primarily driven by Palestinian aggression towards Israel, which in turn negatively affects Israel's economy, then an individual's propensity to work in Israel may decline due to lower future expectations of Israeli wages. This implies that the impact of mobility restrictions (γ) in Eq. (1) are downward biased, exaggerating the (negative) effect of border closures. While the cycle of violence surely had an adverse effect on Israel's economy, a study by Fielding and Shortland (2005) shows the decline in tourism can account for almost the entire difference in the budget deficits between 1999 and 2004, a period of great political turmoil.¹² Since Palestinian residents of the West Bank rarely worked in Israel's tourism industry, the spillover effect of the intifada (post-September 2000) on Palestinians' decision to migrate through a downward turn in Israel's economy is likely minimal.

A similar argument is that Israel's product market suffered such great losses after the intifada (since goods were not traded as regularly as before) that Israel's overall economy contracted, making migration a less lucrative opportunity for West Bank residents. The negative shocks that took place in Israel's tourism industry and Israeli exports to the West Bank could have indeed affected all Israeli sectors to varying degrees but the intifada actually had a much stronger and more comprehensive impact on the economy of the West Bank than Israel's economy. In fact, according to the Bank of Israel, losses in Israel were between 0.7% and 1.8% of GDP in 2003; in the West Bank however, GDP decreased by 24.4% between 1999 and the end of 2002 (Aljuni, 2003; Merli, 2003). Therefore, it is unlikely the case that the ongoing cycle of violence discouraged out-migration by reducing the expected wage gain from migration. Given the deterioration of the West Bank economy, the expected wage gain from working in Israel was probably greater after the intifada than before the intifada. Thus, it is likely that the coefficients for closure days and closure obstacles in the specification are biased upwards, underestimating the (negative) impact of border closures and closure obstacles on the migration decision.

Another major concern is that the socioeconomic controls embodied in (X_{it}) are weak determinants of the expected wage gain from migration if the transfer of human capital between the two labor markets is limited. A typical problem in the literature is that counterfactual wages must be computed for the entire sample to measure the expected wage gain since the econometrician cannot observe wages for each individual in both labor markets. Alternatively, the expected wage gain is estimated as the difference in the means of country-level wages or GDP. To address both points, I fully exploit the panel nature of the data by estimating a conditional logit model with individual fixed

¹² After 2004, Palestinian violence towards Israel subsided, possibly due to the building of the West Bank barrier.

effects, where only time-variant variables are regressors: the (log) daily wage, proxies for mobility restrictions, interaction terms between proxies for mobility restrictions and regions of residence, age, age squared, year and quarter fixed effects. In this model, the number of times an individual is observed earning a wage in Israel is a sufficient statistic for the individual fixed effect α_i . Thus, the conditional probability of working in Israel during period t is given by:

$$\Pr(Y_{idt} = 1 | w_{it}; Z_{it}; C_{idt}; \alpha_i) = \frac{1}{1 + \exp(-\beta w_{it} - \gamma C_{idt} + \alpha_i)}. \quad (3)$$

For each individual, the conditional probability of an event (e.g. earning a wage in Israel during the first quarter but earning a wage in the West Bank during the second quarter) is computed. Note that the individual fixed effect, which includes the time invariant propensity to migrate, is factored out of the error term. The identification strategy here assumes the idiosyncratic error term is either exogenous to or is positively correlated with mobility restrictions for two reasons. First, as noted above, the West Bank economy suffered greater losses than Israel's economy (see [Appendix A](#)). Second, since the model is only identified for individuals who are observed earning wages in both labor markets, heightened security measures are less likely to deter individuals who have already crossed the border. Thus, estimating this model captures a lower bound for the impact of changes in mobility restrictions on labor flows – specifically, changes in the log odds of becoming a Palestinian migrant – after controlling for log wage, age, age squared, year and quarter fixed effects as well as unobserved individual heterogeneity for those whose wages are observed in both labor markets.

5. Results

5.1. Descriptive statistics for West Bank male wage earners by place of work

[Table 1](#) reports the summary statistics for West Bank male wage earners between the ages of 18 and 64 by place of work during the period 2000–2010. Employees in Israel are about two years younger than West Bank employees and are more likely to be single. Further, as opposed to the latter of whom only 2% are college-educated, the corresponding statistic for the former group is 17%. While migrant workers are more likely to live in rural areas than urban areas relative to domestic employees, they are also slightly less likely to have refugee status or live in refugee camps. Israel's employees are largely concentrated in Israel's private sector which contrasts the labor market in the West Bank, where the government employed over one-third of employees. This is consistent with the fact that the domestic private sector suffered great losses during the intifada due to uncertainty and volatility in the market as well as a limited safety net ([Miari, 2010](#)). Almost half of migrants are employed in the construction industry, which has one of the highest industry premiums in the Palestinian labor market, migrants are also over-represented in agriculture, an industry associated with a wage penalty in the West Bank ([Adnan, 2014a](#)). Thus, individuals who are employed in the construction and agriculture industries have low levels of educational attainment but are more successful in procuring Israeli jobs possibly because their industry-specific work experience is more transferable to Israel's labor market.

[Table 2](#) reports the summary statistics of key variables for each of three key periods. The first period represents the pre-intifada period which includes only the first three quarters of the year 2000. This period marks a time of relative peace and stability where there are little to no mobility restrictions. To contrast the pre-intifada period, the year 2002 was chosen to represent a time of considerable volatility and political turmoil. Finally, the year 2010 is marked by continued recovery and represents the most current data available in this paper.

The first four rows of [Table 2](#) show the percentage of wage earners residing in each region of the West Bank. Note how the percentage of wage earners in Israel who resided in Jerusalem increased by 28 percentage

Table 1
Summary statistics by place of work (2000–2010).

	Mean (SD)	(1) Work in Israel	(2) Work in the West Bank
Age	32 (10.0)	34 (10.7)	
Married	0.71 (0.46)	0.70 (0.46)	
Head	0.63 (0.48)	0.62 (0.48)	
Refugee	0.26 (0.44)	0.33 (0.47)	
Years of schooling	9.2 (2.9)	11.3 (3.8)	
Bachelor	0.02 (0.14)	0.17 (0.38)	
Work days/month	19.4 (6.1)	22 (5.8)	
Urban	0.39 (0.49)	0.43 (0.50)	
Rural	0.51 (0.50)	0.42 (0.49)	
Camp	0.10 (0.30)	0.15 (0.35)	
Public	0.00 (0.03)	0.37 (0.48)	
Private	0.96 (0.19)	0.58 (0.49)	
Intl/foreign	0.04 (0.19)	0.05 (0.22)	
Agro	0.11 (0.31)	0.03 (0.17)	
Manu	0.17 (0.38)	0.15 (0.36)	
Const	0.49 (0.50)	0.15 (0.36)	
Comm.	0.14 (0.35)	0.12 (0.33)	
Trans	0.02 (0.13)	0.04 (0.20)	
Service	0.07 (0.26)	0.50 (0.50)	
Full-time	0.89 (0.31)	0.91 (0.29)	
Observations	24,905	70,105	

points, while the corresponding statistic for the remaining regions decreased substantially for residents of the Northern and Southern West Bank. Since almost all Jerusalem ID card holders live in Jerusalem, then it is likely that residing in Jerusalem serves as a proxy for possessing JID cards which can then explain the dramatic rise in the percentage of Palestinian wage earners in Israel residing in Jerusalem. Indeed, between the pre-intifada period and the year 2002, the percentage of wage earners in Israel with a JID card rose from 13% to 42%. Another point worth mentioning is the drastic decrease (22 percentage points) in the number of Palestinians working in Israel with a work permit. By the year 2010, the percentage of wage earners in Israel comprised of Jerusalem residents (and JID cardholders) decreased but remains more than twice as high as during the pre-intifada level. For Palestinian wage earners in Israel without a JID card, those with a work permit have increased and exceeded pre-intifada levels while those working without a permit continued to dwindle at a much more rapid rate. This evidence is suggestive of strictly enforced border restrictions after the intifada despite the relative increases in Palestinian migrants from regions other than Jerusalem.

Real wages decreased in both regions from pre-intifada levels, which is consistent with the two neighboring economies having undergone a severe economic recession from the cycle of violence, which led to a decline in foreign investment and tourism. After the intifada, West Bank wages gradually increased to pre-intifada levels while Israeli wages rose sharply such that wages are \$8 higher than in the year 2000. The latter may be due to changes in the composition of Palestinian migrant workers, most of which either have a JID card or a work permit.

Table 2

Mean estimates of key variable for wage recipients.

Source: Palestinian Labor Force Quarterly Survey Data: 2000–2010 from the Palestinian Central Bureau of Statistics (PCBS).

Table of means	2000 ^a West Bank	2002 West Bank	2010 West Bank	2000 ^a Work in Israel	2002 Work in Israel	2010 Work in Israel
North	0.34 (0.47)	0.32 (0.47)	0.41 (0.49)	0.34 (0.47)	0.16 (0.37)	0.26 (0.44)
Jerusalem	0.11 (0.32)	0.11 (0.31)	0.09 (0.29)	0.16 (0.37)	0.44 (0.50)	0.35 (0.48)
South	0.31 (0.46)	0.30 (0.46)	0.26 (0.44)	0.33 (0.47)	0.24 (0.43)	0.19 (0.39)
Central	0.24 (0.43)	0.27 (0.44)	0.24 (0.43)	0.17 (0.38)	0.16 (0.37)	0.19 (0.40)
JID	–	–	–	0.13 (0.33)	0.42 (0.49)	0.34 (0.47)
PA with permit	–	–	–	0.29 (0.45)	0.07 (0.25)	0.45 (0.50)
PA without permit	–	–	–	0.58 (0.49)	0.52 (0.50)	0.20 (0.40)
Daily wages (US \$2010)	23 (13)	19 (24)	24 (21)	34 (11)	29 (11)	42 (17)
Observations	5706	4227	7968	4148	1263	2768

^a The fourth quarter of the year 2000 is not included because the intifada began in September 2000.

5.2. Heterogeneity among migration destinations

This paper aims to identify the role of mobility restrictions on labor flows in the West Bank. However, Israel's immigration policy may restrict labor unevenly across the two type migration destinations, Israel proper and Israeli settlements. Further, the Israeli wage premium is presumably higher in Israel proper and because Israeli firms located in the settlements are less likely to adhere to Israeli labor law, this results in poor working conditions, lower wages and fewer benefits for Palestinian migrants (Amro, 2008; Alenat, 2009). In order to assess the economic benefits and costs of becoming a migrant worker, two questions are asked: How does the expected wage gain associated with becoming a migrant worker influence the decision to migrate to the settlements relative to migrating to Israel proper? How do mobility restrictions impact the likelihood of working in the settlements relative to the domestic sector as well as the likelihood of working in Israel relative to the domestic sector after controlling for the expected wage gain? To address these questions, I utilize the 2005 wave of the *Social Survey of Jerusalem*.

To verify that the two datasets are similar, a table of means is constructed for the *Social Survey of Jerusalem* dataset and is compared to a table of means (similar to Table 1) using the *Palestinian Labor Force Survey* data when restricted to a sample that includes only Jerusalem residents interviewed in the year 2005 (unreported). I find that the two datasets are highly comparable. To estimate the impact of the mobility restrictions on the likelihood of becoming a migrant worker for more than one destination option (Israel or an Israeli settlement), a multinomial logit model is estimated where the reference group refers to wage earners who work in a West Bank firm. A multinomial logit model is appropriate because the dependent variable, place of work, is a categorical variable which cannot be ordered in a natural way. An undesirable assumption of multinomial logit estimations is the Independence of Irrelevant Alternatives (IIA). The assumption implies that the odds of working in Israel over the domestic sector do not change if an additional alternative (settlements) is introduced. Tests suggest this assumption does not hold in these data (unreported); nevertheless, previous attempts to relax the IIA led some researchers to conclude that applying the more complex nested or mixed logit models resulted in small changes in the model's estimation while being much more computationally burdensome (Dahlberg and Eklöf, 2003).

Table 3 presents the average marginal effects for three multinomial logit specifications.¹³ In the first model (columns (1) and (2)), only the

expected wage gain is included as a regressor. For domestic workers, the expected wage gain is the difference between their counterfactual wage in Israel and their actual wage in the West Bank. Using the method outline by DiNardo, Fortin and Lemieux (1996), the counterfactual wage distribution for domestic workers is computed by assuming domestic workers are rewarded for their characteristics exactly like migrants.¹⁴ In order to control for a quarterly time trend, all actual wage and counterfactual wage distributions are deviated from the quarter average. The results in column (1) suggest that a one percentage marginal increase in the expected wage gain does not result in out-migration for migrants who work in Israeli settlements but increases the probability of working in Israel by 6.7 percentage points. However, after controlling for ID card, residence relative to the wall, and region of residence within Jerusalem, the expected wage gain is economically and statistically significant for both migration destinations. The economic and statistical significance of the expected wage gain in column (3) can be explained by the fact that Jerusalem ID card holders earn higher wages and are also less likely to work in the settlements; thus, the point estimate in column (1) is biased downwards due to omitted variable bias.

Although the expected wage gain is influential in the migration decision for both types of migrants, Jerusalem ID cardholders are less likely to work in the settlements by 13 percentage points and more likely to work in Israel by 29.6 percentage points. Similarly, living on the West Bank side of the wall and living in the J2 area both increase the likelihood of working in the settlements and decrease the likelihood of working in Israel. Note how the variation explained by the covariates in columns (3)–(4) increased by more than four-folds relative to columns (1)–(2), suggesting that mobility restrictions explain an additional 300% of the variation explained by the expected wage gain. The differences between the two types of migrant workers are even starker when the sample is restricted to full-time employees. The results in Table 3 are robust to the inclusion of socio-economic controls (unreported).

The inability to distinguish between the two types of migrant workers in the *Palestinian Labor Force Survey* (PLFS) confines the researcher to examine labor flows for only a broad definition of migrant workers, although there is considerable heterogeneity across migrants with different destinations. Nevertheless, in the remaining analysis, I exploit the longitudinal nature of *Palestinian Labor Force Survey* (which is collected across all quarters during the period 2000–2010 and across all regions of the West

¹³ In the interest of space, see the relevant table for a description of the dependent variable(s).

¹⁴ The counterfactual wage distribution for domestic workers is equivalent to that of migrant workers after some reweighing which includes a probit model for the likelihood of becoming a migrant worker. Regressors include the years of schooling, experience and its square, locality type, private sector, industry and occupation fixed effects.

Table 3

Heterogeneity among migrant workers – working in Israel vs. the settlements – (Jerusalem residents – 2005).
Source: Social Survey of Jerusalem (2005) from the Palestinian Central Bureau of Statistics (PCBS).

Multinomial logit-marginal effects	All wage earners				Full-time workers	
	Settlements		Israel		Settlements	
	(1)	(2)	(3)	(4)	(5)	(6)
Expected wage gain	0.004 (0.004)	0.067*** (0.009)	0.016*** (0.004)	0.025*** (0.009)	0.004 (0.003)	0.037*** (0.011)
Jerusalem ID card			−0.130*** (0.041)	0.296*** (0.036)	−0.087** (0.039)	0.318*** (0.043)
Live on West Bank side of the wall			0.047*** (0.013)	−0.085*** (0.025)	0.047*** (0.015)	−0.116*** (0.028)
Live in East Jerusalem (J1) area			−0.044* (0.025)	0.177*** (0.044)	−0.046* (0.025)	0.178*** (0.051)
Observations	1567		1567		1040	
McFadden R2	0.027		0.119		0.181	

The table above displays the marginal effects for three multinomial logits: columns (1)–(2), (3)–(4) and (5)–(6). In all cases the reference group in the dependent variable includes wage earners employed in a West Bank firm. The dependent variable in columns (1) and (3) is 1 if a Jerusalem resident is observed working in the settlements and 0 if observed working in the West Bank. The dependent variable in columns (2) and (4) is 1 if a Jerusalem resident is observed working in Israel and 0 if observed working in the West Bank. Omitted categories include individuals who possess a West Bank (PA) ID card and those who live on the Israeli side of the wall; for the region of residence, the omitted category is the Jerusalem 2 area. The dependent variables in columns (5)–(6) are the same as the dependent variable in columns (3) and (4) but workers are restricted to full-time workers only.
(Standard errors in parentheses ***p < 0.01, **p < 0.05, *p < 0.1).

Bank) to examine several key questions: To what extent do border closures and other mobility restrictions hinder out-migration and affect unemployment across the regions of West Bank? Further, how are these estimates affected when controlling for unobservable individual heterogeneity? What are the determinants of out-migration and how do they differ from those of return-migration?

5.3. What happens after the border is closed?

In columns (1)–(3) of Table 4, a logistic model is estimated during the period 2000–2008 to quantify the impact of border closures on the log odds of earning a wage in Israel, relative to the log odds of earning a wage in the West Bank. In column (1), the dependent variable (equals one if individual i earns a positive wage in Israel and 0 if individual i earns a positive wage in the West Bank) is regressed on the number of closure days per quarter divided by 100, regional dummies and interaction terms between regional dummies and the number of closure days per quarter divided by 100. The coefficients estimate the impact of changes in border closures on log odds of out-migration at the cross-section. Standard errors are clustered at the district level to control for serial correlation of error terms among individuals living in the same district. The negative estimates on the regional variables suggest that even in the absence of border closures, the log odds of working in Israel for residents in the Northern, Southern and Central areas of the West Bank are lower than those for Jerusalem residents by approximately one point. This means the odds of working in Israel for Jerusalem residents is about three times greater than other residents of the West Bank. The presence of border closures reduces the odds further for those living outside the Greater Jerusalem Area, but there is heterogeneity among the regions so that those in the North are the most affected by changes in border closures while those in the South are least affected. The coefficients of interest have the expected sign and exhibit both statistical and economic significance. For example, a 50 day increase in the number of closure days in a given quarter reduces the log odds of working in Israel by 0.61 [50/100 * (−1.31 + 0.09)] points for a resident living in the Northern area of the West Bank.¹⁵ Note that increases in the number of closure days raise the likelihood of migration for residents of the Greater Jerusalem Area. The (unexpected) sign can be explained if increases in closure days lead to the deterioration of the local economy in the Greater

Jerusalem area, compelling Jerusalem residents to exploit the use of their Jerusalem ID cards by working in Israel (see Appendix A).

If increases in the number of closure days deter out-migration due to third factors, then column (1) is misspecified. In column (2), socioeconomic covariates are included to mitigate omitted variable bias, and year fixed effects are also incorporated to control for temporal variation in the propensity to migrate. Unlike the previous specification, an increase in border closures has a negative effect on Jerusalem residents, suggesting that border closures induce the more qualified of West Bank Jerusalem residents to seek jobs in Israel. In addition to socioeconomic and temporal controls, district fixed effects, a quarterly time trend and interaction terms between district fixed effects and a quarterly time trend are introduced to account for the social, political and economic conditions of potential migrants. The impact of changes in the number of border closures substantially deters out-migration, though it has little or no effect on residents of the Greater Jerusalem Area.

Not only do mobility restrictions prevent workers from procuring lucrative job opportunities across the border, but it is also highly likely that many will not be absorbed by a fragile and dependent local economy, rendering them unemployed. In fact, as Fig. 2 shows, there is a clear inverse relationship between the number of closure days per quarter and the percentage of employed West Bank residents who earned a wage in Israel during the period 2000–2008. Furthermore, there is a positive relationship between the number of closure days per quarter and the unemployment rate (Fig. 3). As shown in column (4), increases in border closures have a robust impact on the odds of unemployment, although the effect is dampened for Jerusalem residents. The sample is limited to those who were recently unemployed and reported a wage in the previous quarter. These specifications remove individuals who may have been unemployed due to factors other than border closures (e.g. no work experience, long unemployment spell). As expected, the effect of closures is now more pronounced across all regions of the West Bank for this sample. Further, the results suggest that even in the absence of closures, Israeli jobs are less secure than local jobs; however, the presence of closures considerably widens the unemployment gap between migrant workers and domestic workers.¹⁶

To quantify the effect of closures on unemployment in quarter $t + 1$, conditional logit regressions are estimated in Table 5 for three distinct groups of workers, each of which represents the reference group in its

¹⁵ Throughout the paper, the results are reported as the log odds rather than the odds in order to preserve the linearity of the specification. This is especially important for interpreting the coefficients of the interaction terms.

¹⁶ The previous wage earned in Israel is used to control for omitted variable bias. For example, if those at the high end of the wage distribution were more likely to face unemployment than their counterparts, there will be a spurious positive effect of working in Israel on the log odds of becoming unemployed.

Table 4

The effect of border closures on becoming a migrant worker.

Source: Palestinian Labor Force Quarterly Survey Data: 2000–2008 from the Palestinian Central Bureau of Statistics (PCBS).

Logit model	Working in Israel/settlements			Unemployed		
	(1)	(2)	(3)	(4)	(5)	(6)
Previous Ln wage (US \$2010)						0.06 (0.07)
Worked in Israel						0.70*** (0.17)
Closure days/100	0.09*** (0.02)	-0.22* (0.12)	-0.07 (0.07)	0.27*** (0.06)	0.58*** (0.06)	0.56*** (0.06)
North * closure days/100	-1.31*** (0.18)	-1.02*** (0.21)	-1.22*** (0.13)	0.45*** (0.10)	0.68*** (0.16)	0.71*** (0.16)
South * closure days/100	-0.63*** (0.13)	-0.43*** (0.15)	-0.64*** (0.17)	0.62*** (0.04)	0.86*** (0.15)	0.95*** (0.15)
Central * closure days/100	-0.88** (0.35)	-0.65** (0.33)	-0.71*** (0.24)	0.55*** (0.08)	0.85*** (0.17)	0.90*** (0.18)
North	-1.12*** (0.13)	-1.31*** (0.24)	-6.86*** (0.36)	-1.38*** (0.17)	-15.96*** (0.38)	-14.52*** (0.30)
South	-0.92*** (0.02)	-1.21*** (0.16)	-7.20*** (0.21)	-2.09*** (0.17)	-16.55*** (0.39)	-15.10*** (0.21)
Central	-1.15*** (0.37)	-1.42*** (0.45)	-7.10*** (0.35)	-2.90*** (0.19)	-17.58*** (0.38)	-16.08*** (0.35)
Controls/year FE	X	X	X	X	X	X
District * controls						
Constant	-0.02 (0.02)	-0.67*** (0.23)	5.38*** (0.41)	1.30*** (0.26)	14.63*** (0.27)	13.01*** (0.35)
Observations	73,841	73,841	73,841	166,391	47,916	47,916
R-squared	0.05	0.15	0.18	0.16	0.12	0.13

The dependent variable in columns (1)–(3) is 1 if a West Bank wage earner is observed working in Israel and 0 if observed working in the West Bank. In columns (4)–(6), the dependent variable equals one if the resident is unemployed and 0 if employed. The samples in columns (5) and (6) are limited to West Bank residents who earned a wage in the previous quarter. The omitted regional category is the Greater Jerusalem Area. Socioeconomic controls include a quadratic in the years of schooling and age, marital status, refugee, head of household, locality type (urban, rural, refugee camp), industry dummies and year dummies. District controls include district dummies and an interaction term between district dummies and a quarterly time trend. Standard errors are clustered at the district level for all specifications. (Standard errors in parentheses ***p < 0.01, **p < 0.05, *p < 0.1).

specification. Individuals are sorted into the groups based on their employment status during quarter t . The first group consists of migrant workers, the second group is comprised of domestic workers who worked outside their district of residence and the third group includes domestic workers who worked and resided in the same district. The estimates show that after controlling for unobserved heterogeneity, a 50 day increase in border closures in a given quarter raises the odds of facing unemployment by a factor of 1.2 for Jerusalem migrant workers and 2.5 to 3 for remaining migrant workers. The corresponding figures for West Bank residents who live outside of Jerusalem but work in the local economy are 1.8 to 2 for those employed outside their district of residence and 1.2 to 1.5 for those who work in the same district of residence. A Wald test where coefficients are compared across specifications rejects the null hypothesis that the effect of border closures is uniform among the three groups. Jerusalem residents who work in the

local economy are the least likely to be affected. In columns (4)–(6), the sample is limited to wage earners; the qualitative nature of the results does not differ from those in columns (1)–(3).

Table 6 estimates the conditional logit regressions to quantify the effect of border closures on the log odds of working outside the district of residence (column 1), working in the district of residence (column 2) and unemployment (column 3) for migrant workers, relative to maintaining their migrant status. The results indicate that after accounting for individual heterogeneity, as border closures increase, unemployment status is by far the most likely labor force status outcome for migrant workers, especially those who live outside of Jerusalem. Additionally, a 50 day increase in the number of border closures in a given quarter raises the odds of employment in own district of residence by a factor of 1.3 to 1.5 but has almost no effect on migrant workers' odds of working outside their district of residence relative to maintaining their migrant status.

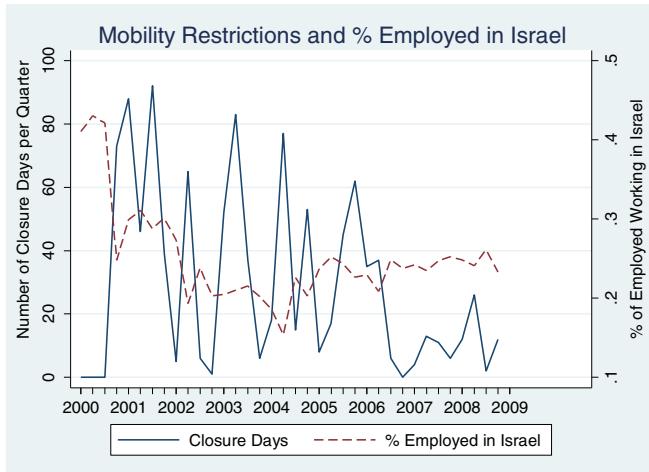


Fig. 2. Closure days per quarter and % employed in Israel over time.

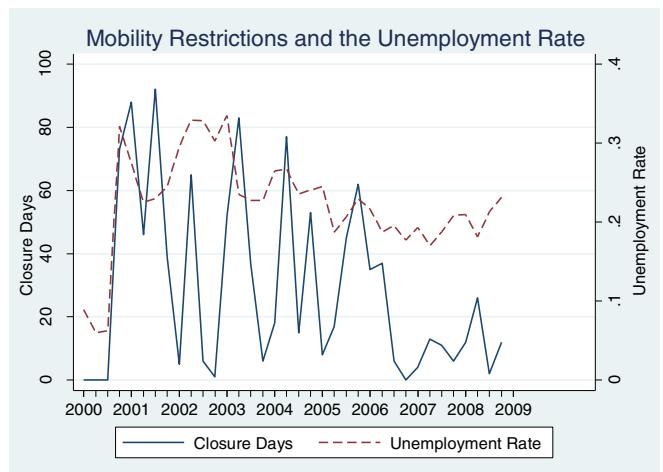


Fig. 3. Closure days per quarter and unemployment rate over time.

Table 5

The effect of border closures on unemployment by place of work.

Source: Palestinian Labor Force Quarterly Survey Data: 2000–2008 from the Palestinian Central Bureau of Statistics (PCBS).

Logit model/fixed effects	Full sample			Wage earners		
	(1) Unemployed	(2) Unemployed	(3) Unemployed	(4) Unemployed	(5) Unemployed	(6) Unemployed
Closure days/100	0.47*** (0.16)	0.02 (0.47)	0.13 (0.14)	0.45*** (0.17)	-0.37 (0.53)	0.18 (0.18)
North * closure days/100	1.28*** (0.19)	1.39*** (0.50)	0.40*** (0.15)	1.44*** (0.21)	1.31** (0.58)	0.32 (0.21)
South * closure days/100	1.54*** (0.19)	1.25** (0.54)	0.80*** (0.15)	1.69*** (0.20)	1.53** (0.62)	0.70*** (0.21)
Central * closure days/100	1.69*** (0.23)	1.25* (0.69)	0.60*** (0.16)	1.80*** (0.25)	1.96** (0.81)	0.51** (0.22)
Place of work for reference group	Israel	Out of district	Same district	Israel	Out of district	Same district
Observations	15,727	3511	35,892	13,230	2359	16,933

The table above displays the coefficient estimates for six conditional logit models with individual fixed effects. The dependent variable represents the employment status of a West Bank resident which falls into one of the following categories: a) employed in Israel, b) working outside of the district of residence, c) working in the district of residence or d) unemployed. The dependent variable equals one if the individual is unemployed for all specifications. The reference group is determined by the fifth row. The first three specifications cover the entire sample of labor force participants in columns (1)–(3) while the remaining columns estimate the same specifications except the sample size is limited to wage earners. The omitted regional category is the Greater Jerusalem Area. Controls include age, age squared and year and quarter fixed effects. Standard errors are clustered at the district level for all specifications. (Standard errors in parentheses ***p < 0.01, **p < 0.05, *p < 0.1).

Thus, while some migrant workers are absorbed by the local economy, most are unlikely to work far from their district of residence during times of conflict, even within the domestic economy.

When the sample is limited to wage earners, the log wage is included as a regressor since it is a time-variant variable and captures the effect of a wage change on migration (see equation (3)). The inclusion of the wage is especially relevant if changes in the number of closure days are associated with changes in the Israeli wage premium, biasing the effect of changes in border closures on out-migration. As is shown by the decline in the number of observations, all individuals who did not report a wage in both countries were dropped. Columns (4) and (5) show that after controlling for unobserved individual heterogeneity, a one log point decrease (increase) in the Israeli wage relative to the domestic wage is associated with a significant rise (decline) in the log odds of working in the local (Israel) economy; this finding is consistent with the positive impact of the expected wage gain found in Table 3. The results also indicate that increases in border closures continue to deter out-migration and induce labor flows towards the local economy where workers are placed in jobs in the same district of residence, although the overall effect is attenuated.¹⁷ While informative, one must keep in mind that these results are based on a small sample of West Bank residents, all of which have already crossed the border, and thus underestimate of the negative impact of closures. Moreover, these specifications do not allow the econometrician to disentangle the determinants of migration from those of return-migration.

5.4. Who migrates?

In column (1) of Table 7, a logit model is estimated where the dependent variable equals one if the individual is a migrant and 0 if the individual is a stayer (for the definition of migrants and stayers, see description of Table 7 and Fig. 4). As expected, living outside of Jerusalem is associated with a lower likelihood of out-migration. This is exacerbated by the increase in closure days, which further decreases the likelihood of becoming a migrant worker for domestic wage-earners of all regions especially those of the Northern West Bank. The results also suggest that high wage earners in the West Bank are more likely

to become migrant workers. This result can be driven by the presence of high-frequency circular migrations, who migrate and return on a frequent basis. Having worked in an advanced economy such as Israel may provide circular migrants with more marketable skills, earning them a higher wage in the West Bank.

To reduce the number of circular migrants from the analysis, I restrict the sample so that the remaining specifications estimate the log odds of becoming a first-time migrant or a migrant who has not worked in Israel for over 15 months. In these specifications, the wage refers to the last wage earned in the West Bank, which could have been reported from any of the first three visits. As displayed in column (2), those who earn higher wages in the West Bank no longer have a competitive advantage in Israel's labor market, suggesting that circular migrants drive the results in the first specification. Moreover, the adverse effect of border closures is much more pronounced for prospective migrants residing in the Northern region, while the remaining regions are less affected. One explanation is that many of those who were recently employed in the West Bank did not have sufficient time to search for a job in Israel and remained employed in the West Bank. Thus, the attenuated effect of border closures is possibly attributed to the lack of sufficient variation in the dependent variable given the reduced sample size.

To increase the sample, I removed the wage from the regression and added three indicator regressors in column (3): one if an individual was unemployed one visit ago (the previous quarter), unemployed two visits ago (one year ago), and unemployed three quarters ago (one year and three months ago). With the exception of the Central West Bank, increases in border closures have a negative effect on the log odds of becoming a migrant worker.¹⁸ Additionally, the effect is more uniform than in previous specifications, suggesting that border closures (and other mobility restrictions) are less variable across regions for first-time migrants or low-frequency circular migrants. The inclusion of unemployment lags adds extraordinary explanatory power as can be seen by the rise in the Pseudo-R2 between columns (2) and (3). Further the coefficients are both statistically and economically significant which implies that several first-time migrants or migrants who are returning to Israel's labor market (after a long spell) are usually unemployed for several months prior to finding work in Israel. One explanation is that the temporal costs of job search intensity are much higher in Israel. Further, a Harris-Todaro effect is likely, where workers queue for Israeli jobs given the large disparity between the expected Israeli wage and the

¹⁷ Although the coefficients of border closures in column (5) of Table 6 are not statistically significant, the effect of an increase in border closures on out-migration can be tested for each region separately by performing a Wald test: $\gamma_R + \gamma = 0$, where γ represents the effect of closures on out-migration and γ_R is the coefficient of the region-closures interacted term where R = North, South, or Central. The null hypothesis that an increase in the number of closure days has no effect on out-migration relative to working in the district of residence is rejected for residents living in the Northern ($p = 0.07$), Southern ($p = 0.02$), and Central ($p = 0.01$) regions of the West Bank.

¹⁸ Since the previous log wage was removed from the regression in column (3), there were 300 additional observations because these individuals were unemployed during the previous three visits and did not report a wage. This explains the attenuated effect of closures in column (2) (for all regions except the Northern region).

Table 6

The effect of border closures on employment status for migrant workers.

Source: Palestinian Labor Force Quarterly Survey Data: 2000–2008 from the Palestinian Central Bureau of Statistics (PCBS).

Conditional logit/FE reference group – working in Israel/settlements	Full sample			Wage earners		
	(1) Out of district	(2) Same district	(3) Unemployed	(4) Out of district	(5) Same district	(6) Unemployed
^a Ln wage (US \$2010)				-2.86*** (0.41)	-3.70*** (0.17)	
Closure days/100	0.06 (0.74)	0.24 (0.18)	0.47*** (0.16)	1.15 (0.93)	0.21 (0.27)	0.45*** (0.17)
North * closure days/100	0.75 (0.84)	0.82*** (0.22)	1.28*** (0.19)	0.35 (1.13)	0.53 (0.46)	1.44*** (0.21)
South * closure days/100	0.39 (0.80)	0.57*** (0.20)	1.54*** (0.19)	-0.45 (1.01)	0.32 (0.32)	1.69*** (0.20)
Central * closure days/100	0.25 (1.19)	0.57** (0.24)	1.69*** (0.23)	-1.19 (1.49)	0.69* (0.42)	1.80*** (0.25)
Observations	891	11,332	15,727	583	4530	13,230

The table above displays the coefficient estimates for six conditional logit models with individual fixed effects. The dependent variable represents the employment status of a West Bank resident which falls into one of the following categories: a) employed in Israel (reference group in all specifications), b) working outside of the district of residence (comparison group in columns (1) and (4)), c) working in the district of residence (comparison group for columns (2) and (5)) or d) unemployed (comparison group for columns (3) and (6)). The first three specifications cover the entire sample of labor force participants in columns (1)–(3) while the remaining columns estimate the same specifications except the sample size is limited to wage earners. The omitted regional category is the Greater Jerusalem Area. Controls include age, age squared and year and quarter fixed effects. Standard errors are clustered at the district level for all specifications. (Standard errors in parentheses ***p < 0.01, **p < 0.05, *p < 0.1).

^a Since columns (4)–(6) limit the sample size to wage earners, the wage here refers to the individual's domestic wage in quarter t + 1 and the individual's wage in Israel in quarter t.

expected domestic wage. Indeed, using only data from the pre-intifada period (2000 Q1–Q3) to isolate the Harris–Todaro effect prior to border closures, I find that unemployment status in previous quarters is a strong determinant of out-migration (unreported). Since migrant workers are typically less skilled (see Table 1) and are thus expected to face greater adversity in the local labor market (Mansour, 2010), one expects heightened security measures to exacerbate the Harris–Todaro effect for these workers. Column (4) shows that the effect of unemployment history is robust to the inclusion of the previous wage reported by West Bank earners.

5.5. Who returns?

Once migrants have succeeded in crossing the border, why do they return? In columns (1) and (2) of Table 8, a logit model is

estimated where the dependent variable equals one if the individual is a return-migrant and 0 if the individual is a migrant-stayer. The final wage has a negative and significant impact on returning, which is consistent with conventional migration models. Indeed, those who earn low wages are the most likely to return for supply reasons (lower Israeli wage premium) or demand reasons (lower productivity). The results also show that once individuals successfully obtained jobs in Israel, increases in border closures significantly increased the likelihood of returning for residents of all regions. It is worth noting that in the absence of closures, migrants residing outside the Greater Jerusalem area are the least likely to return. As expected, the Jerusalem premium increases when controls for legal documentation are included. In addition, the impact of the previous wage earned in Israel is attenuated in column (2), most likely

Table 7

Uncovering the determinants of migration.

Source: Palestinian Labor Force Quarterly Survey Data: 2000–2010.

	Migrants	First-time migrants over 15 months			
	(1)	(2)	(3)	(4)	(5)
^a Previous Ln wage (\$US 2010)	0.88*** (0.23)	0.37 (0.39)		0.62 (0.41)	
Closure days/100	0.22** (0.09)	0.38 (0.59)	-0.94* (0.56)	0.05 (0.54)	
North * closure days/100	-2.36*** (0.39)	-2.56*** (0.84)	-1.61*** (0.57)	-2.42** (1.08)	
South * closure days/100	-0.77* (0.07)	-1.15 (0.84)	0.01 (0.69)	-0.46 (0.69)	
Central * closure days/100	-1.35*** (0.27)	0.23 (0.39)	0.99** (0.21)	1.04*** (0.36)	
Unemp_t - 1			1.42*** (0.25)	1.37*** (0.24)	1.43*** (0.16)
Unemp_t - 2			0.74*** (0.11)	0.77*** (0.18)	0.80*** (0.17)
Unemp_t - 3			0.97*** (0.25)	0.99*** (0.19)	0.82*** (0.18)
Constant	-5.03*** (0.44)	-6.22*** (1.55)	-4.20** (0.55)	-6.73*** (1.55)	-4.69*** (0.75)
Observations	21,457	6013	6316	6013	8653
Pseudo R-squared	0.271	0.297	0.431	0.345	0.414

The dependent variable in columns (1) is 1 if a West Bank resident is observed working in the West Bank in quarter q and working in Israel in quarter q + 1 and 0 if observed working in the West Bank in both quarters. The sample in columns (2)–(5) is restricted to individuals who have been visited four times and did not work in Israel during the first three visits. The dependent variable is 1 if an individual works in Israel during the fourth visit and 0 if employed in the West Bank. Controls include age, marital status, a bachelor's degree, region dummies, industry, district and year fixed effects. Standard errors are clustered at the district level. (Standard errors in parentheses ***p < 0.01, **p < 0.05, *p < 0.1).

^a For columns (1) and (2), this variable refers to the log real wage reported in the previous quarter, but for column (4), the variable refers to the last log real wage the individual reported which could be up to 15 months ago.

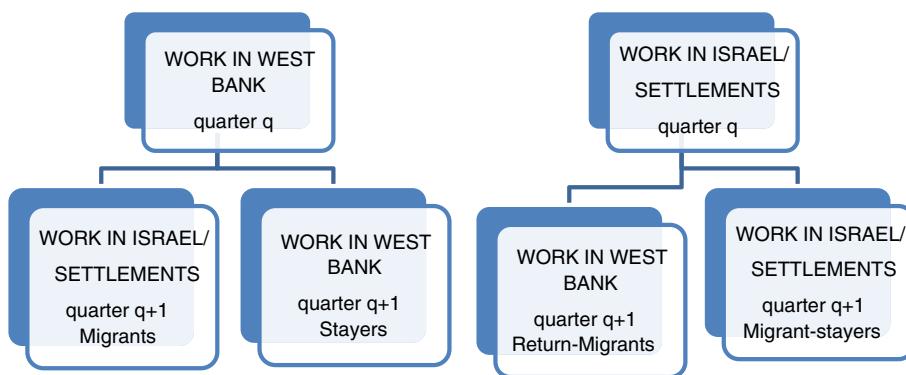


Fig. 4. How wage earners are categorized into migrants, stayers, return-migrants and migrant-stayers.

because Palestinian migrants who work legally in Israel are paid higher wages.

As before, it is possible that some migrants have returned more than once. To reduce the number of circular migrants, the sample in columns (3)–(6) is restricted to individuals who have been visited four times and were observed as Israeli employees only during their first interview. According to column (3), regions of residence have no significant effect on the likelihood of returning. Additionally, the sign for border closures changes direction from the specification in columns (1) and (2) for Jerusalem residents and is attenuated for residents of other regions. If circular migrants are more likely to live in Jerusalem, it is likely that they work in Israel when border restrictions are eased and work in the West Bank when border controls are tightened as shown in columns (1) and (2). However, when high frequency circular migrants are excluded, the permanent or long-term return may be negatively affected by border closures (for Jerusalem residents) due to the crippling effect of closures on the local economy. The same logic can be extended to understanding the effect of closures on the return of residents of other regions.

In column (4), controls are included for legal documentation, having a substantial effect on region dummies to the extent that residing outside of Jerusalem has a large and negative effect on returning in the absence of closures. While closures continue to have a modest impact, possessing a Jerusalem ID card (valid/expired work permit¹⁹) decreases the odds of returning by a factor of 13 (3) relative to working illegally in Israel. When the last wage reported in Israel is included in the regressions, it becomes more apparent that border closures have little or no role in the decision of long-term return-migration (except in Jerusalem) but that this decision is primarily driven by lacking legal documentation and lower wages (and/or productivity).

6. Conclusion

This paper aims to shed light on labor flows in a context of border controls, physical closure obstacles and unequal access to legal documentation allowing entry, not unlike visa permits. Using a supplemental survey on Jerusalem residents which distinguishes between those working in Israel versus Israeli settlements, the evidence is suggestive that various forms of labor mobility restrictions are more pronounced in impeding out-migration within Israel proper relative to the settlements. Results from the main dataset demonstrate that increases in border closures deter out-migration and increase unemployment in the West Bank (though the effect is more modest for Jerusalem residents).

¹⁹ It turns out that the results in columns (2), (4), and (6) are robust to alternative specifications, where this variable is modified so that it equals one only for workers who currently possess a valid work permit. This suggests that having an expired work permit is a signal that an individual is reliable and suitable for working in Israel since he has already passed a thorough background check when he received his initial work permit. Note that the conventional fear that immigrants may “overstay” their visas does not apply here because Palestinian migrants could never reside in Israel. For more information on how visa restrictions are used to restrict labor mobility, see Neumayer (2006).

In fact, a lower bound estimate of the economic cost of a 50 day increase in the number of border closures (1.78 standard deviations) per quarter is about USD 1.7 million per day in the subsequent quarter.²⁰ These findings are consistent with the recent literature on the effect of stringent immigration policies on migration flows (Mayda, 2010; Bertoli and Fernandez-Huertas Moraga, 2013; Ortega and Peri, 2009; Docquier et al., 2015).

The paper also concludes that the determinants of out-migration differ from those of return-migration. For example, border closures and unemployment status during previous visits are strong deterrents of out-migration for first-time migrants or migrants who have not worked in Israel for over 15 months. In contrast, closures had little or no effect on the decision to return for one-time migrants or those who have not returned for over 15 months. Instead, the decision to return was primarily driven by lacking the necessary legal documentation to enter Israel and lower wages. Whether or not individuals migrate from one country or area to the other is critical to both furthering our understanding of the economic decisions of individuals and more importantly policy discussions. A close examination of who migrates can lead to better insights on the welfare impacts of migration on both the source and host countries. This paper calls for a discussion concerning the welfare impacts of labor flows, which in this context are highly influenced by Israeli security measures on Palestinian residents in the West Bank. This is especially relevant due to recent calls for West Bank autonomy and the lifting of the Israeli blockade of the Gaza Strip, which was initiated in June 2007 and continues to the present.

It is difficult to test whether the escalation of the conflict leads to a greater desire to work in Israel because as the conflict progressed, Israel heightened security measures – usually in the form of increased border closures and more stringent work permit requirements – making it more difficult for West Bank residents to enter Israeli lands. However, one way to circumvent this problem is by using the number of closure obstacles per district per quarter as a proxy for mobility restrictions rather than border closures, and noting the effect of closure obstacles on Jerusalem residents since JID cardholders are the most likely to secure jobs in both the local economy and Israel. Indeed, when conditional logistic regressions are estimated to quantify the effect of changes in the number of closure obstacles on the log odds of working outside the district of residence (column 1), working in the district of residence (column 2) and unemployment (column 3) for migrant workers,

²⁰ Using the eve of the second intifada (2000 Q3) as a baseline, consider four types of workers and their respective mean wages: those who work in Israel (39%; \$33), those who work outside their district of residence (8%; \$23.3), those who work in the same district of residence (46.5%; \$20.3) and those who are unemployed (6.5%; \$0). The estimates in Table 6 suggest that a 50 day increase in border closures will result in a labor force where 23% work in Israel, 6% work outside their district of residence, 60% work in the same district of residence, and 11% are unemployed. Using population statistics from the year 2010, daily wage losses are about \$1.7 million but do include losses in the product market, downward adjustment of wages in both sectors (see Table 2), declining foreign investment, and the negative effect of other heightened security measures on the local economy.

Table 8

Uncovering the determinants of return-migration.

Source: Palestinian Labor Force Quarterly Survey Data: 2000–2008.

	Return migrants		One-time migrants who returned			
	(1)	(2)	(3)	(4)	(5)	(6)
^a Ln wage in Israel (\$US 2010)	−0.58*** (0.14)	−0.39*** (0.14)			−2.07*** (0.40)	−1.73*** (0.41)
JID card		−1.59*** (0.19)		−2.59*** (0.47)		−2.30*** (0.57)
Had a valid work permit		−1.05*** (0.12)		−0.94*** (0.23)		−0.68** (0.31)
Closure days/100	0.77** (0.32)	0.75** (0.33)	−4.09*** (1.50)	−3.49** (1.54)	−4.87*** (1.81)	−4.79** (1.91)
North * closure days/100	0.59 (0.47)	0.61 (0.47)	3.38** (1.67)	2.70 (1.71)	4.18* (2.15)	4.49** (2.26)
South * closure days/100	0.72* (0.39)	0.65 (0.40)	4.93*** (1.56)	4.33*** (1.59)	4.47** (1.88)	4.52** (1.99)
Central * closure days/100	0.89* (0.48)	0.76 (0.49)	5.07*** (1.73)	4.56** (1.78)	1.07 (2.52)	1.19 (2.58)
North	−1.80*** (0.41)	−2.59*** (0.45)	0.24 (0.73)	−1.66* (0.86)	−0.26 (0.84)	−1.91* (1.00)
South	−0.70** (0.28)	−1.67*** (0.34)	0.63 (0.59)	−1.67** (0.75)	−0.10 (0.69)	−1.99** (0.89)
Central	−1.07*** (0.32)	−1.72*** (0.37)	−0.51 (0.78)	−2.61*** (0.92)	−0.79 (0.91)	−2.46** (1.04)
Industry fixed effects					X	X
Constant	0.76 (0.54)	1.06* (0.55)	−1.50** (0.63)	0.75 (0.79)	5.70*** (1.50)	6.72*** (1.54)
Observations	6484	6484	2085	2085	1662	1662
Pseudo R-squared	0.0533	0.0854	0.0847	0.128	0.148	0.178

The dependent variable in columns (1)–(2) is 1 if a West Bank resident is observed working in Israel in quarter q and working in the West Bank in quarter q + 1 and 0 if observed working in Israel in both quarters. For these two columns, the wage refers to the wage earned in Israel during quarter q. The sample in columns (3)–(6) is restricted to individuals who have been visited four times and were observed as Israeli employees during their first interview. The dependent variable in columns (3)–(6) is 1 if the individual is observed working in the West Bank for the next three visits and 0 if the individual remains employed in Israel for the next three visits. (Standard errors in parentheses ***p < 0.01, **p < 0.05, *p < 0.1).

^a Here, the wage refers to the Israeli wage reported during the first interview. Controls include age, marital status, a bachelor's degree, district and year fixed effects.

relative to maintaining their migrant status, the results show that Jerusalem residents are much more likely to work in Israel relative to working in their district of residence (see Appendix Table 1). Time invariant variables such as age, age squared, year and quarter fixed effects are included as regressors, and standard errors are clustered at the district level. The results are robust to specifications that are limited to wage earners and where the log real wage (US \$2010) is included in the regression to mitigate omitted variable bias (Appendix Table 1 columns (4)–(6)). This result implies that increases in closure obstacles, which

is a signal that violence has escalated, induces several Jerusalem residents to seek jobs in Israel and exploit their residence status (similar to procuring a Green Card in the US) to evade working in the deteriorating local economy.

Closure obstacles

As the intensity of the conflict grows, searches at checkpoints become more time consuming and thorough producing long queues for

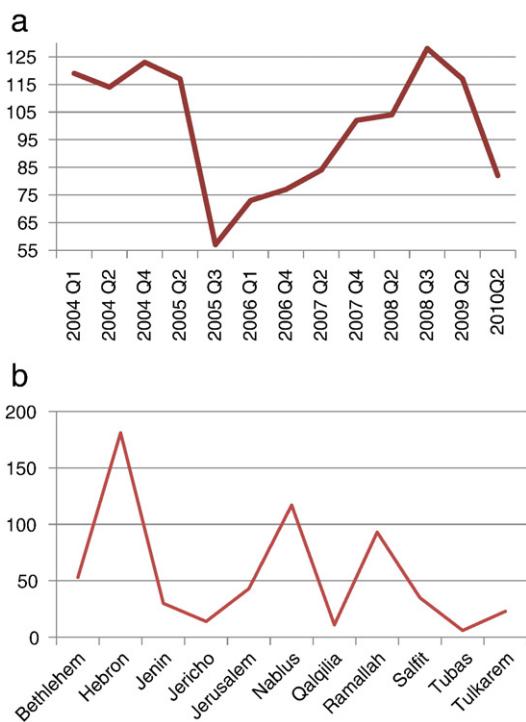
Appendix A

Robustness checks – effect of district-level closure obstacles on employees in Israel.

Conditional logit/FE	Full sample			Wage earners		
	(1) Israel	(2) Israel	(3) Israel	(4) Israel	(5) Israel	(6) Israel
Ln wage (US \$2010)				3.74*** (0.53)	4.32*** (0.21)	
Closure Obs/100	6.11 (7.46)	7.29*** (1.71)	−1.12 (2.12)	−10.94 (13.24)	11.68*** (2.55)	−1.45 (2.22)
North * closure Obs/100	−4.77 (7.52)	−5.26*** (1.80)	3.24 (2.14)	12.18 (13.20)	−9.86*** (2.95)	3.58 (2.24)
South * closure Obs/100	−6.31 (7.47)	−7.29*** (1.72)	1.14 (2.12)	11.12 (13.23)	−11.62*** (2.55)	1.49 (2.22)
Central * closure Obs/100	1.52 (10.44)	−5.68*** (1.83)	2.89 (2.19)	29.14 (19.81)	−9.74*** (2.74)	3.25 (2.29)
Place of work for reference group	Out of district	Same district	Unemployed	Out of district	Same district	Unemployed
Observations	707	8248	9455	501	3727	8034

Source: Palestinian Labor Force Quarterly Survey Data: 2004–2010 from the Palestinian Central Bureau of Statistics (PCBS). The table above displays coefficient estimates for six conditional logit models with individual fixed effects. The dependent variable represents the employment status of a West Bank resident which falls into one of the following categories: a) employed in Israel (dependent variable equals one for all individuals in this category), b) working outside of the district of residence (reference group in columns (1) and (4)), c) working in the district of residence (reference group for columns (2) and (5)) or d) unemployed (reference group for columns (3) and (6)). The first three specifications cover the entire sample of labor force participants in columns (1)–(3) while the remaining columns estimate the same specifications except the sample size is limited to wage earners. The omitted regional category is the Greater Jerusalem Area. Controls include age, age squared and year and quarter fixed effects. Standard errors are clustered at the district level for all specifications. (Standard errors in parentheses ***p < 0.01, **p < 0.05, *p < 0.1).

employees going to and from work (for more information, see Appendix A). Other examples of closure obstacles include earth mounds, road blocks, trenches, and road gates. The most permanent and costly closure obstacle for both Israel and the West Bank is the separation wall; like other closure obstacles, the official purpose of building the separation wall was to secure Israelis from Palestinian violence.²¹ Closure obstacles usually separate Palestinian areas from Israel but if Israeli authorities suspect the presence of local terrorist networks, closure obstacles can be used to separate Palestinian areas from each other. The number of closure obstacles per district per quarter depends on the geography of the district, as well as recent political events, and there is a great deal of variability across both quarters and districts. As an example, Figs. 1a and 1b display the number of closure obstacles per quarter in the district of Nablus and the number of closure obstacles per district in quarter 2 of the year 2005.



Figs. 1a and 1b. Variability in the number of closure obstacles across districts and quarters. a. The number of closure obstacles per quarter in the district of Nablus. b. The number of closure obstacles per district during the second quarter of 2005.

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²¹ The separation barrier (also known as the wall) was built to separate the West Bank from Israel proper but was not built on the green line – the 1949 armistice line (see Map).