

Who Gets to Cross the Border?: The Impact of Politically-Determined Barriers on Labor Flows  
in the West Bank<sup>1</sup>

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## Abstract

Increased levels of labor mobility is a key step to attaining efficient labor allocation as well as enhancing economic development and growth. One way higher labor mobility can lead to efficient outcomes is by encouraging out-migration from labor-intensive countries to capital-intensive countries. And yet, the political climate can interfere with how labor is allocated across countries with inter-connected economies. In this paper, I examine the impact of politically-determined barriers on labor mobility by studying the migration decisions of West Bank residents.

After accounting for the expected wage gain from migration, I find that border closures and closure obstacles significantly reduce the likelihood of out-migration but have almost no effect on return-migration. However, when controls for valid work permits in Israel or the settlements are included, the point estimates suggest that having legal documentation decreases the likelihood of returning to the West Bank by a statistically significant 5%. I also find that if migrant workers are defined such that only those working in Israel are considered migrants, labor mobility restrictions play an even greater role in impeding out-migration. The findings in this paper are consistent with international studies that ascribe inefficiency in labor markets to restrictions on labor mobility across regions.

## I. Introduction

Increased levels 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 (2003)). And yet, the political climate can interfere with how labor is allocated across countries with inter-connected economies.

Economic theory posits that individuals migrate if the expected benefit from migration exceeds the expected costs (Sjaastad (1962)). Therefore, as will be discussed in further detail in the literature review, 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 (2009)). As such, migrants are a non-random subsample of the population since seeking to migrate involves a wide variety of familial, cultural, legal, social and economic factors. Additionally, in regions where conflict is commonplace the political climate may also impact the migration decision.

In this paper, I examine the impact of politically-determined barriers on labor mobility by studying the migration decision of West Bank residents. The West Bank is a natural context to investigate the role of politically-determined barriers on labor flows. Firstly, following the eruption of the second intifada (uprising) in September 2000, Israel heightened security measures leading to several forms of labor mobility restrictions on West Bank residents. Another

advantage of setting this study in the West Bank is the availability of micro-level household panel data from the 2000-2010 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.

The goal of this paper is to expand the empirical evidence on the determinants of migration by incorporating political factors. The analysis proceeds in the following steps. First, I estimate the expected wage gain from migration for a sample of West Bank residents who are currently employed in the domestic sector. Next I compute the impact of the expected wage gain on the decision to migrate. Then, proxies for politically-determined barriers are included to estimate the value-added of these barriers on the decision to migrate. Finally, I include a variety of demographic and socio-economic controls for a sample of West Bank residents observed working in the West Bank to address the degree of omitted variable bias. Note that this analysis is replicated for a sample of West Bank residents observed working in Israel or Israeli settlements in order to explore the determinants of return-migration as well.

The results demonstrate that for West Bank residents, the expected wage gain has almost no effect on the decision to migrate but politically-determined barriers play a major role. A marginal increase in 100 closure obstacles per district per quarter reduces the likelihood of

becoming a migrant worker in the subsequent quarter by 2 percentage points for wage-earners residing in the Northern area of the West Bank, 0.8 points for residents in the Southern West Bank and 1.5 points for residents in the Central West Bank. Furthermore, when closure obstacles are included as regressors, the variation explained increases by approximately nine-folds. For return-migrants, a one percentage point marginal increase in the expected wage gain from migration reduces the likelihood of returning by a statistically significant 21.4 percent. In addition, the point estimates imply that closure obstacles have almost no impact on return-migration and explain a negligible portion of the variation of the decision to return. However, proxies for whether or not workers can legally enter Israel or the settlements (these proxies are not available for the migration analysis) suggests that having legal documentation decreases the likelihood of returning to the domestic sector by a statistically significant 5%, which implies that return migrants are more deterred (from remaining migrant workers) by the lack of legal documentation to enter Israel or the settlements and less so by physical mobility restrictions as shown by negligible impact of closure obstacles. In fact, the variation in the decision to return as measured by the McFadden R<sup>2</sup> barely increases after closure obstacles are included but increases by one-third when proxies for legal entry are included.

One drawback of the *Palestinian Labor Force Survey*, the primary dataset used in this paper, is that migrants who work in Israel cannot be distinguished from those who work in Israeli settlements. However, using a supplemental survey on Jerusalem residents which distinguishes between those working in Israel versus Israeli settlements, I find that if a migrant worker is narrowly defined such that only individuals observed working in Israel are considered migrants, the evidence is suggestive that labor mobility restrictions play an even greater role in impeding out-migration. The findings in this paper are consistent with international studies that ascribe

inefficiency in labor markets to restrictions on labor mobility across regions (Hamilton and Whalley (1984), Iregui (2003), Walmsley and Winters (2005)).

The next section provides a brief synopsis of the literature. The first part of section III defines migrants and return migrants in the West Bank and the remainder of the section is background information on the barriers to labor mobility in the context of the West Bank. Section IV describes the quarterly labor force survey data for Palestinian residents of the West Bank. Section V develops the theoretical framework and the empirical strategy used throughout this paper. Section VI presents the results and section VII checks the robustness of the results when the definition of a migrant or a return migrant is altered; section VIII concludes.

## II. Literature Review

Conventional economic theory posits that an individual will choose to immigrate if the net benefits exceed the net costs. In broad terms, benefits include the expected wage that an individual would earn in the host country and costs include pecuniary and social costs associated with migration. However, such a basic model does not provide much insight into the heterogeneity in the likelihood of migration 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 who leave developing countries with high income inequality to countries with lower income inequality are more likely to be high-wage and skilled workers (Feliciano (2005); Grogger and Hanson (2008); Belot and Hatton (2008); Rosenzweig (2007)). These results are contrary to the predictions of the Roy model. To reconcile the literature, Gould and Moav (2009) propose that the Roy model is a more accurate predictor of selection for internal migration patterns (Borjas, Bronars and Trejo (1992); Abramitzky (2007)) as opposed to international migration patterns because international moves involve additional costs of migration<sup>2</sup>, 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.

An alternative model for heterogeneity in the migration decision posits that migration costs are not constant across skill levels and play a relatively large role in the migration decision. Migration costs can impede out-migration for credit-constrained individuals who experience difficulty accessing capital markets; this is especially relevant for potential immigrants in developing economies. To the extent that credit market constraints lead to higher borrowing costs for low-wage earners, the cost of immigration is also greater for low-wage individuals

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<sup>2</sup>Note that all migration costs are assumed to be constant across skill levels in Roy's Model.

(Chiquiar and Hanson, (2005)). For example, as Fernandez (2011) argues, Mexican migrants (to the US) from rural areas are positively selected while those from urban areas are negatively selected because individuals in rural areas are less likely to have access to capital markets. The composition of migrants can also be affected by relative gains in social capital. MacKenzie and Rapaport (2007) find that the strength of migration networks impacts the composition of Mexican migrants so that negatively-selected migrants work in regions of the host country with strong migration networks (which implies overall lower migration costs) while positively selected migrants work in areas of the host country with tenuous migration networks (which implies higher migration costs).

Of course, migration costs can also include the political climate of a given region, thereby producing political barriers to migration. The major contribution of this paper is to incorporate such costs in the migration decision. In the next section, I provide relevant background information necessary to understand the results and conclusions of this study. This includes defining the terms "migrant" and "return-migrant" as used in this analysis as well as a description of the politically-determined barriers faced by migrants and return-migrants.

### III. Background

#### A. Definition of a Palestinian Migrant and/or Return-Migrant

There are several features which distinguish the case of Palestinian migrant workers from other cases where Roy's model and (other) extensions are usually tested in the literature. Given the nature of the Palestinian-Israeli conflict, Palestinian migrant workers must commute to Israel or the settlements daily because they are not allowed to reside in Israel or the settlements. Therefore, one may question whether Palestinians are really migrants or merely commuters. There are various definitions of a 'migrant worker' across the world, depending on the definition



a particular country uses and/or the political context in question. I use the United Nation's broad definition of a migrant worker as "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 includes Israel proper as well as Israeli settlements (denoted by triangles on the Map) in the West Bank. Likewise, Palestinian return-migrants are Palestinians who received payment for working in Israel or Israeli settlements but are no longer employed on Israeli land.

#### B. Border Closures and Closure Obstacles

Another convention that is specific to Palestinian-Israeli migration is the source and nature of the primary form of migration costs across West Bank residents: politically determined barriers. The sources of migration costs identified in the literature include foregone earnings, the fixed cost of relocating, learning another language, country-specific skills, credit constraints, migration networks and residence permits. In the context of the West Bank, however, a major source of migration costs is a combination of physical barriers that limit and may even prohibit Palestinian labor from entering Israel and/or the settlements due to political or security reasons. The three main types of politically-determined barriers used throughout this paper are: a.) the number of closure obstacles per West Bank district per quarter, b.) the number of comprehensive closure days 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<sup>3</sup>. During closure days,

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<sup>3</sup>Data on comprehensive closures in the Palestinian territories (the West Bank and Gaza) are obtained from B'tselem, an Israeli human rights organization.

the movement of people and goods are prohibited even if Palestinians have legal documentation to work or enter Israel and/or the settlements. 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. Figure 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<sup>4</sup>; 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. In the first three quarters of the year 2000 (prior to the second intifada), there were no comprehensive closure days in the Palestinian territories. In contrast, in 2001, Palestinians experienced quarters where every day the Israeli border was closed; these closures were partially in response to violence by Palestinian extremists during the fourth quarter of 2000. In March 2002, Israel launched Operation Defense Shield in response to suicide bombings in Israel; it was the largest military incursion on the Palestinians since the Arab-Israeli war of 1967. This explains the spike in the second quarter of 2002. The spike in closure days during the second quarter of 2003 can be explained by the cycle of violence after Israel's plan to start building the separation wall<sup>5</sup>. In this paper, the blockade in Gaza, in which Gaza was completely closed to Israel, the West Bank and

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<sup>4</sup>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.

<sup>5</sup>The existence and frequency of border closures are not only driven by direct acts of violence from Palestinians. Clearly, if a suicide bomber attacks or attempts to attack Israeli civilians, border closures are implemented. However, border closures also take place during special occasions such as Jewish holidays, large Israeli protests or the mourning of a famous figure to curb Israeli fears that a Palestinian attack--exploiting the mass gathering of Israelis-- takes place.

Egypt, is relevant only in that labor and product market integration between the West Bank and Gaza fully ceased (Adnan, 2012b).

Another impediment to labor mobility is the presence of closure obstacles<sup>6</sup>. Closure obstacles are physical obstacles primarily intended to separate Palestinian areas from Israel proper and Israeli settlements. The most common form of closure obstacles are checkpoints manned by Israeli soldiers to ensure Palestinians enter Israel or Israeli settlements legally (more on this in the next subsection--ID Card/permit status). As the intensity of the conflict grows, searches at checkpoints become more time consuming and thorough producing long queues for employees going to and from work. 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.<sup>7</sup> The number of closure obstacles per district per quarter depends on the geography of the district, as well as recent political events. Closure obstacles usually separate Palestinian areas from Israel proper and Israeli settlements but if (for example) Israeli Defense Forces suspect the presence of local terrorist networks, closure obstacles can be used to separate Palestinian areas from each other.

### C. ID Card/Permit Status

Another politically-determined cost to migration 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

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<sup>6</sup>Data on closure obstacles during the period 2004-2010 are obtained from the United Nation Office of Coordination and Humanitarian Affairs (OCHA).

<sup>7</sup> 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). The 1949 armistice line defines the borders of Israel proper and the West Bank today. As such, the barrier along the West Bank is under great scrutiny since approximately 12% of the West Bank is on the Israeli side of the wall.

when Israel occupied the West Bank in 1967 following the Arab-Israeli war. 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, the settlements and the West Bank without entry or work permits (respectively). In addition, during times of political instability, their mobility is less affected by closure days and closure obstacles than the mobility of West Bank ID cardholders. Jerusalem ID cardholders are also allowed to work in Israel and 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 or the settlements 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. The alternative is to work in Israel or the settlements without a work permit and become an undocumented worker which can result in highly punitive repercussions.

In summary, West Bank residents ‘inherit’ a Jerusalem ID or a West Bank ID card depending on their familial residence status in 1967. Jerusalem ID cards facilitate movement (relative to PA ID cards) within areas in the West Bank and especially between the West Bank and Israel or the settlements. For migrants working in Israel or the settlements, having a work permit facilitates movement between the West Bank and Israel relative to not having a working permit (i.e. working illegally).

#### IV. Data

##### A. Palestinian Labor Force Survey (PLFS)

The primary datasets I use in this paper are micro level panel data from the *Palestinian Labor Force Survey* administered by the Palestinian Central Bureau of Statistics during the period 2000-2010. 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 survey has been administered by the Palestinian Central Bureau of Statistics since 1995, following the establishment of the Palestinian Authority (PA). During each quarter, over 7500 households are interviewed. Although the target population includes all people over the age of 10 years, labor market characteristics are only collected for those who meet the minimum work requirement age of 15 years old. 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 15-64 years that were surveyed between 2000 and 2010.<sup>8</sup> 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.

For the proceeding analysis, a migrant worker is defined as a wage earner who works in the West Bank in quarter  $q$  and then works in Israel or the settlements in quarter  $q+1$ . Similarly, a return migrant is defined as a wage earner who works in Israel or the settlements in quarter  $q$  and then works in the West Bank in quarter  $q+1$ . As depicted in Figure 2, characteristics of migrants and stayers are observed in the West Bank in quarter  $q$  and characteristics of return-migrants and migrant-stayers are observed in Israel or the settlements in quarter  $q$ .

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<sup>8</sup> 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 was only cross-sectional; in 1999, the housing and person ID's were not consistent and cannot be matched across units of time.

Due to the unique political circumstances in the West Bank, migrant workers must commute daily to Israeli land and return home daily to the West Bank because it is illegal for Palestinians in the territories to ‘move’ to Israel or an Israeli settlement. In contrast, in the majority of countries where migration is studied, migrants have the choice to commute to the host country, move alone to the host country, or move with their families or households. If the dataset originated in the host country, it omits the migrants who commute to the host country but still live in the source country and it may also miss undocumented workers residing in the host country; similarly if the dataset originated in the source country, it undercounts the number of migrants by omitting the migrants that moved to the host country, with or without their families and this subsample of migrants may not be representative of migrants.<sup>9</sup> This dataset does not encounter this problem because the political situation does not allow for West Bank migrants (or return-migrants) to move to Israel or the settlements. At least theoretically, the PLFS data provides a representative sample of migrant wage-earners and return-migrant wage-earners, all of whom are legal residents of the West Bank.

Additionally, these data have several unique features in the context of testing different models of migration. For example, longitudinal data allow the econometrician to observe wages and other observable characteristics of migrant workers in the source country (West Bank) during the quarter before migration. Similarly, characteristics of return-migrants are observed in

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<sup>9</sup> For example, Chiquiar and Hanson (2005) investigate the migration decision for Mexican immigrants using US census data, which is known to under-count Mexican immigrants (Hanson, 2006). Studies (McKenzie and Rapoport (2007a); Orrenius and Zavodny (2005)) using data from Mexico (e.g. Mexican Migration Project) were problematic in that the data was from one region in Mexico and was not nationally representative. In addition, none of these studies have longitudinal data. Ibarra and Lubotsky (2007) use the Mexican census they estimate the schooling level of Mexican migrants based on family members left behind but miss migrants who move with their entire households to the United States. Moraga (2007) and (2009) study the decision of Mexicans to migrate using the ENET dataset, which is a nationally representative and longitudinal dataset but Mexican migrants are under-counted because the ENET misses households or individual migrants that moved to the United States. The ENET also misses return-migrants who come back and do not return to their original households but create new households.

the host country (Israel) during the quarter before the migrant worker returns. Secondly, information about migrants' employment and earnings in Israel is included for both documented and undocumented migrant workers so that illegal migrant workers are not misrepresented 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 an individual's ID type. Another shortcoming of the PLFS data is that migrant workers in Israel cannot be distinguished from migrant workers in the 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.<sup>10</sup> Because of these two disadvantages of the PLFS data—lack of data on ID type for domestic workers in the West Bank and insufficient detail on the migrants' place of work (Israel or the settlements)—I supplement the analysis with the Social Survey of Jerusalem (SSJ) data.

#### B.) 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. The sampling frame is comprised of enumeration areas in the Jerusalem governorate, where the frame of Area J1 was derived from the listing project in 1999 and the frame of Area J2 was derived from the Population, Housing, and Establishments Census in 1997. Data collection was initiated on April 12, 2005 and completed on June 13, 2005. The dataset includes a total of 3300 households,

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

where 2240 households resided in J1 and 1060 households resided in J2. The sample is restricted to male workers between the ages of 15 and 64 years old. The overall response rate was 75%<sup>11</sup>.

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, everyone reports whether they possess a Jerusalem ID card or a West Bank ID card. Since the decision to migrate and return depend on the relative costs and benefits of working in the domestic and foreign sectors, data on migrant workers' ID type and work destination in the host country (Israel vs. the settlements) are extremely relevant. That being said, there are two major disadvantages of the SSJ data: the data are not longitudinal and are not nationally representative since they only cover residents of the greater Jerusalem area.

## V. Methodology

### A. Theoretical Framework

I model an individual's decision to migrate as a cost-benefit analysis such that Palestinians are assumed to seek work in Israel or the settlements when the Israeli daily wage exceeds the daily wage in the West Bank net of the total migration costs. In this setting, individuals will make the decision to either continue working in the West Bank (location 0) or become migrant workers in Israel or the settlements (location 1). If individuals are characterized by the set of observable characteristics  $X$ , then the log wage of individual  $i$  living in district  $d$  of the West Bank during quarter  $t$  in the West Bank (0) is

$$\log w_{0idt} = \mu_0 + \delta_0 X_{idt} + \epsilon_{0idt} \quad (1)$$

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<sup>11</sup> 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  $\mu_0$  is the base wage in the West Bank (location 0),  $X_{idt}$  is a set of demographic and socio-economic covariates for individual  $i$  in district  $d$  in quarter  $t$  that potentially contribute to the migration decision,  $\delta_0$  is the return to observable characteristics in the West Bank and  $\epsilon_{0idt}$  is the corresponding error term. If the same individual decides to become a migrant worker in Israel, her log wage is:

$$\log w_{1idt} = \mu_1 + \delta_1 X_{idt} + \epsilon_{1idt} \quad (2)$$

where  $\mu_1$  is the base wage in Israel or the settlements (location 1),  $\delta_1$  is the return to observable characteristics in Israel or the settlements and  $\epsilon_{1idt}$  is the corresponding error term.

At this point, the probability of working in Israel or the settlements for an income-maximizing individual  $i$  is:

$$P(I > 0) = P(\mu_1 - \mu_0 + (\delta_1 - \delta_0)X_{idt} + \epsilon_{1idt} - \epsilon_{0idt} > 0) \quad (3)$$

In this analysis migration costs vary across individuals, districts of residence and time (measured in quarters). Let  $C_{idt}$  denote the costs of migration for individual  $i$  residing in district  $d$  during quarter  $t$ .<sup>12</sup> If there are no barriers to commuting, commute costs are simply a function of the distance between an individual's residence and Israel or the settlements. To proxy for the relative commute cost of working on Israeli land relative to the West Bank, I created a binary variable that is equal to 1 if the individual resides in a district that borders Israel proper and 0 otherwise. Individuals who live in a district that borders Israel have a geographic advantage to their counterparts and are expected to have a higher likelihood of becoming migrant workers. However, this measure of commute costs is undermined by the fact that Israeli settlements are located on the West Bank. For example, Palestinians who live in close proximity to Israeli

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<sup>12</sup> For the analysis concerning migrants and stayers the costs of migration are represented by  $C_{dt}$  so that costs are not indexed by the individual. However, for return-migrants, the costs of migration are represented by  $C_{idt}$  because costs for return migrants include ID type and work permit status, which varies across individuals .

settlements but live far away from Israel's border are considered to live far away from Israeli land<sup>13</sup>.

Migration costs also include politically-determined barriers in the form of the number of border closure days per quarter and the number of closure obstacles per district per quarter. When Israel implements border closures, migrants' commuting costs rise due to additional transportation costs associated with long queues at the border and time-consuming investigations.<sup>14</sup> Similarly, a high number of closure obstacles such as checkpoints and roadblocks increase job search costs associated with working in Israel/settlements relative to the West Bank. The effect of these politically-determined barriers on entering Israel or the settlements is exacerbated for individuals who possess West Bank ID cards (relative to Jerusalem ID cards), especially for those who do not possess valid work permit. Regional variables are also included to capture the variation across regions in migration opportunities (e.g. the number of settlements) as well as local labor market opportunities. The probability of migrating is then:

$$P(I > 0) = P(\mu_1 - \mu_0 + (\delta_1 - \delta_0)X_{idt} + \epsilon_{1idt} - \epsilon_{0idt} - \gamma C_{idt} > 0) \quad (4)$$

where  $C_{idt}$  is a set of covariates that includes whether an individual lives in a district that borders Israel, region dummies, politically-determined barriers, and interaction terms between region dummies and politically determined barriers; and  $\gamma$  is the parameter vector for the set of covariates  $C_{idt}$ .

## B. Empirical Strategy

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<sup>13</sup>If the PLFS data allowed the researcher to distinguish between migrants who work in Israel and those who work in the settlements, this issue could have been resolved.

<sup>14</sup>During the aftermath of the intifada, Israeli foreign policy encouraged foreign migrants to work in Israel by increasing the issuance of foreign work permits. This was viewed by Palestinians as an attempt to substitute Palestinian labor. Given the high rates of Palestinian absences and low rates of punctuality in Israeli jobs due to uncertainty at the Israeli border, Palestinian fears of being replaced as Israel's low-skilled labor supply are sensible.

The model above can be rewritten as a probit model in the following way:

$$Y_{idt}^* = \beta X_{idt} + \gamma C_{idt} + \varepsilon_{idt} \quad (5)$$

where  $Y^*$  is a latent variable greater than 0 if an individual wage earner migrates next quarter and earns a positive wage.  $X_{it}$  represents a set of covariates such as years of schooling, potential labor market experience, experience squared, marital status, locality type (i.e. urban, rural, refugee camp), public/private sector, industry and occupation effects for individual  $i$  in quarter  $t$ .  $C_{idt}$  represents total migration costs which include a dummy variable for whether or not an individual lives in a district that borders Israel, the number of closure obstacles, and interaction terms between the number of closure obstacles and regional residence dummies (Northern area of the West Bank, Central, South, Jerusalem). An alternative analysis to using the number of closure obstacles for politically-determined barriers is to use closure days per quarter where the set of covariates used are a quartic in the number of closure days and interaction terms between closure days and regional residence dummies<sup>15</sup>. Although the results for both analyses are qualitatively similar, in this paper, I only report the results for the analysis that includes the number of closure obstacles. This is because while closure days vary only across quarters, closure obstacles vary across districts and quarters; thus, the period of study for this paper will cover 2004-2010 (see footnote 6).

I also implement this model to study return-migrants and migrant-stayers, all of which are observed working in Israel or the settlements at quarter  $q$ . In this case, individuals will make the decision to either continue working in Israel or the settlements (location 1) or return to the West Bank (location 0). Therefore, for this analysis,  $Y^*$  is a latent variable greater than 0 if a migrant wage earner returns to the domestic sector next quarter and earns a positive wage. Unlike the

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<sup>15</sup> It turns out that when incorporating politically-determined barriers into the regression analysis, the results concerning the impact of closure days on the migration decision are sensitive to the parametric form of the closure day variable.

case for migrants and stayers, I am able to incorporate the role of possessing Jerusalem ID cards, West Bank ID cards and work permits on the (return) migration decision.

### C. Endogeneity?

One potential problem with this specification that must be addressed is whether the measures of politically-determined barriers in this paper are endogenous to the error term in equation (5). For example, if Israeli implementation of the number of closure obstacles and/or closure days is driven by Palestinian aggression towards Israel, which in turn negatively affects Israel's economy, then individuals may be less inclined to work in Israel due to lower future expectations of Israeli wages. This implies that the coefficients of politically-determined barriers in equation (5) are downward biased. While a possibility, I do not believe such endogeneity is a large factor for several reasons.

Closure days and closure obstacles are imposed on the West Bank if a Palestinian attacks a group of Israelis directly (through a suicide bomb, a rocket or any other measure of violence) or when the perceived threat is high according to Israeli officials. The perceived threat level however is measured through a wide variety of factors such as altercations between Palestinians and Israeli settlers in the West Bank, increases in the Palestinian incarceration rate, increases in Palestinian unemployment and Jewish holidays. While all of these factors may have varying effects 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.<sup>16</sup> 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.

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<sup>16</sup>After 2004, Palestinian violence towards Israel subsided due to the building of the West Bank barrier.

Additionally, Israeli sectors where Palestinians usually worked—such as agriculture and construction—incurred losses of approximately 2% after the intifada. Some have argued that these losses cannot be attributed to bombings in Israel's cafes and buses but to Palestinian workers' inaccessibility to Israel and the settlements due to labor mobility restrictions following heightened security measures. For example, consistent with a perceived shortage of Palestinian workers, Israel increased the number of foreign work permits issued during the aftermath of the second intifada in an attempt to replace Palestinian labor with temporary foreign guest workers (Bulmer, 2003; Miaari, 2003). Another argument is that Israel's product market suffered 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 and the settlements 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 closure days and closure obstacles on the migration decision.

Like the number of closure days and closure obstacles, a potential concern is the endogeneity of Jerusalem ID cards and work permits. If Jerusalem ID cards and work permits are correlated with wealth for instance, then their parameter estimates may partially pick up the effect of the wealth endowment on the decision to migrate. Historically, Jerusalem ID cards were distributed according to the residence status of one's parents. A West Bank Palestinian can only obtain a Jerusalem ID card if his/her parents lived within the borders of (Arab) Jerusalem when Israel occupied the West Bank in 1967. Otherwise, Palestinians inherit a West Bank ID card from their parents.

Since Jerusalem was the largest metropolitan area in the West Bank, some may be concerned that residents of Jerusalem in 1967 were not representative of the population in the West Bank. Specifically, the concern lies in that current Jerusalem ID cardholders are a non-random sample of current West Bank residents and may have more (or less) migration opportunities for reasons other than having a Jerusalem ID card (i.e. ability, savings, family connections, etc.). Whether residents of (Arab) Jerusalem in 1967 were representative of the population in the West Bank or not in terms of characteristics that are relevant to the (return) migration decision requires data that pre-dates the 1967 Israeli occupation of the West Bank. Unfortunately there is no such data to assess whether individuals residing in Jerusalem prior to 1967 are comparable to their West Bank counterparts in terms of demographic and socio-economic characteristics. Given that historically urban areas in the West Bank such as Hebron and Nablus were also hubs of economic activity in the West Bank, it is unlikely that residents of Jerusalem had significantly greater migration opportunities than other residents in 1967 to generate substantial bias in the results from recent time periods.

As for work permits, while there is no official protocol for what Palestinians must do to obtain and renew work permits in a timely manner, there is weak anecdotal evidence that Israel's Civil Administration favors certain demographic groups (married, over 40 years old, non-refugees, etc) over others and that these (unofficial) policies vary over time. To address the potential bias due to endogeneity from different types of ID cards and work permits, I include controls for demographic and socio-economic characteristics.

#### D. Computing the Expected Wage Gain

A key hypothesized determinant of the decision to migrate is the expected economic gain from migration. To compute the expected wage gain over one period for migrants, stayers, return-migrants and migrant-stayers, I first assume there are only two periods, period 0 and period 1. In period 0, both migrants and stayers earn positive wages in the West Bank while in period 1, migrants earn positive wages in Israel or the settlements but stayers continue to earn positive wages in the West Bank. The situation is reversed for return-migrants and migrant-stayers so that in period 0, both return-migrants and migrant-stayers earn positive wages in Israel or the settlements while in period 1, return-migrants earn positive wages in the West Bank but migrant-stayers continue to earn positive wages in Israel or the settlements.

Let  $f_{i,1}(w|x)$  represent how the wage  $w$  responds to changes in observable characteristics  $x$  and  $h_{i,1}(x)$  be the density of characteristics at period 1. Then the actual wage distribution for stayers ( $i = s$ ) and migrants ( $i = m$ ) can be represented by:

$$g_{i,1}(w) = \int f_{i,1}(w|x)h_{i,1}(x)dx; i = s, m \quad (6)$$

The counterfactual wage distribution for stayers is computed by assuming stayers are rewarded for their characteristics exactly like migrants. In order to control for a quarterly time trend all actual wage and counter-factual wage distributions are deviated from the quarter average.

Formally, the counterfactual wage distribution for stayers deviated from their quarter average is represented by:

$$\hat{g}_{s,1}(w) = \int f_{m,1}(w|x)h_{s,1}(x)dx \quad (7)$$

In order to estimate this counterfactual wage distribution, Dinardo Fortin and Lemieux (1996) rewrite the density as:

$$\hat{g}_{s,1}(w) = \int f_{m,1}(w|x)h_{s,1}(x)dx = \int f_{m,1}(w|x)h_{m,1}(x) \frac{h_{s,1}(x)}{h_{m,1}(x)} dx \quad (8)$$

The above equation is equivalent to computing the actual wage distribution of migrants using

equation(6) and then reweighting it by  $\frac{h_{s,1}(x)}{h_{m,1}(x)} = \frac{\frac{P(s|x)}{1-P(s|x)}}{\frac{P(s)}{1-P(s)}}$ . P(s) simply represents the portion of

stayers in the sample and P(s|x) can be estimated from a probit model. The dependent variable is 1 if a Palestinian works in Israel/settlements the following quarter and 0 otherwise. Whether or not a Palestinian becomes a migrant worker the next quarter is regressed on the years of schooling, potential labor market experience, experience squared, locality type, industry, working in the private sector, industry and occupation fixed effects.

Similarly, the counterfactual wage distribution for migrants (deviated from their quarter average) had they been paid like stayers is:

$$\hat{g}_{m,1}(w) = \int f_{s,1}(w|x)h_{m,1}(x)dx$$

Therefore the expected return to migration for migrants is the difference between their actual wage in Israel in location 1 (deviated from the quarter average) and their counterfactual wage in the West Bank (deviated from the quarter average). For stayers, the expected wage gain is the difference between their counterfactual wage in Israel (deviated from the quarter average) and their actual wage in the West Bank (deviated from the quarter average):



Expected Wage gain for migrants =  $g_{m,1}(w) - \hat{g}_{m,1}(w)$

Expected Wage gain for stayers =  $\hat{g}_{s,1}(w) - g_{s,1}(w)$

I repeat this exercise for return migrants and migrant stayers. The expected wage gain for migrant-stayers is their actual wage in Israel or the settlements (deviated from the quarter average) minus the counterfactual wage in the West Bank (deviated from the quarter average). Similarly, for return migrants the expected wage gain is their counterfactual wage in Israel or the settlements (deviated from the quarter average) minus their actual wage in the West Bank (deviated from the quarter average):

Expected Wage gain for migrant-stayers =  $g_{ms,1}(w) - \hat{g}_{ms,1}(w)$

Expected Wage gain for return-migrants =  $\hat{g}_{rm,1}(w) - g_{rm,1}(w)$

## VI. Results

### a.) Descriptive Statistics for Migrants and Stayers

Tables 1 and 2 report summary statistics for migrants, stayers, return-migrants and migrant-stayers for the sample studied in this paper, male West Bank residents between the ages of 15 and 64 during the entire period 2000-2010. Migrants are 3.3 years younger than stayers and are more likely to be single while stayers are more frequently household heads. On average, stayers have over 2 years of schooling more than migrants; about three-quarters of migrants (unreported) have a middle-school diploma or less compared to 40% of stayers. Further, as opposed to only 3% of migrants who are college-educated, the corresponding statistic for stayers is 20%. In the context of the West Bank, Palestinians either reside in an urban area, rural area or

refugee camp. While migrants are more likely to live in rural areas than urban areas relative to stayers, they are also slightly less likely to have refugee status or live in refugee camps.

Since educational attainment and experience are usually positively correlated with earnings, it is unexpected to observe that the daily wage for migrants in the quarter before migration, reported in US \$2005, is about \$3 higher than stayers upon migration. Though migrants earn a higher daily wage, their monthly wage is almost equivalent to that of stayers since they work about 4 fewer days per month. This may suggest that migrants had fewer stable work opportunities in the domestic sector providing them with a greater incentive to seek work in Israel or the settlements. After taking jobs in Israel or the settlements, the gap between migrants and stayers widens to approximately \$8.50 a day.

Relative to stayers, migrants were much more likely to work in the private sector, which suffered greater losses than the public sector during the intifada due to the uncertainty and volatility in the market as well as a limited safety net (Miaari, 2006). Migrants also had tenure spells that were about 18 months shorter; this is consistent with the notion that workers in the private sector have less job security (shorter tenure spells) but high wage premiums for wage earners at the high end of the wage distribution (Miaari, 2006). Furthermore, over 45% of migrants are in the construction industry, which has one of the highest industry premiums in the Palestinian labor market (for a breakdown of industry and occupational status for each group, see Table I in the appendix). Migrants, however are also over-represented in agriculture, an industry associated with a wage penalty and under-represented in services, an industry that pays a relatively high wage premium (Adnan, 2012a). In terms of occupational status, migrant workers were concentrated in elementary occupations and craftsmanship and trade. For stayers, the most common occupational status was professionals and clerks at 35% and all the remaining

occupations were represented with the exception of work related to skilled agriculture and fishery.

Approximately 46% of migrants and 40% of stayers live in districts that border Israel, which implies that living in close proximity to Israel may reduce the cost of migration for at least some individuals. Upon migration, migrants experience an average of 26.5 closure days per quarter while stayers experience an average of 28 days of closure per quarter suggesting that although individuals may base their migration decision on the number of closure days experienced in a given quarter, this is unlikely since the average number of closure days per quarter is almost the same for migrants and stayers. Closure obstacles may show more disparity between migrants and stayers since there is variation in the number of closure obstacles across districts. Indeed, data on the number of closure obstacles per district per quarter show that migrants have an average of approximately 47.2 closure obstacles in their district of residence during the quarter upon migration while the corresponding statistic for stayers is 56.2.

#### b.) Descriptive Statistics for Return-migrants and Migrant-Stayers

Return-migrants are more likely to be single and less likely to be household heads than migrant-stayers. Furthermore, return-migrants are about 2 years younger than stayers and have a schooling distribution slightly to the left of migrant-stayers. Locality type and refugee status are about the same for both groups. Moreover, return-migrants have a job tenure that is one year shorter than migrant-stayers and make about \$3.30 dollars less a day. In addition, they work about a day and one-third less per month than migrant-stayers. Both groups predominantly work in Israel's private sector, though return-migrants are over-represented (relative to migrant-stayers) in agriculture and construction and under-represented in manufacturing and commerce.

This is consistent with anecdotal evidence that agriculture and construction industries are characterized by a large number of seasonal and temporary workers.

The simple measure of commute costs, measured by whether or not a district borders Israel, varies between return-migrants and migrant-stayers as migrant-stayers are 16 percentage points more likely to live in a district that borders Israel. As shown in the table, the difference between the average number of closure days and closure obstacles for the two groups is negligible. These summary statistics contrast the previous summary statistics reported for migrants and stayers. This may suggest that cost factors that explain the decision to migrate may differ from those that explain the decision to return from migration. The last measure of cost in this analysis is ID type and permit status, which varies widely between the migrant-stayers and return-migrants. The portion of return-migrants with Jerusalem ID cards are slightly more than one-half of the percentage of migrant-stayers with Jerusalem ID cards. Moreover, illegal migrants comprise only 31.2% of migrant-stayers but 52.3% of return-migrants. These simple measures of statistic insinuate that the decision to return may be more influenced by ID type and permit status than other politically-determined barriers.

#### c.) What Drives the Migration Decision?

In conventional migration models, the likelihood of migration increases with the expected wage gain from migration while the likelihood of return-migration increases with the expected wage loss from migration. The expected wage gain is calculated using a probit specification (where socio-economic and demographic controls include years of schooling, experience, experience squared, locality type, marital status, household head, refugee status, living in a district that borders Israel, industry and occupation fixed effects) for all workers and full-time workers for all four groups: migrants, stayers, return-migrants and migrant-stayers.

Table 3 displays the marginal effects (at the mean) for a probit model for migrant workers and stayers as well as full-time workers. In column (1), the only regressors are the expected wage gain and living in a district that borders Israel. The point estimate on the expected wage gain suggests that a one percentage point increase in the expected gain increases the likelihood of becoming a migrant worker by 1.5 percentage points but the point estimate is statistically insignificant. Living in a district that borders Israel increases the likelihood of becoming a migrant worker by a statistically significant 0.7 percentage points. Column (2) includes proxy measures for mobility restrictions where the proxies for mobility restrictions include the number of closure obstacles per district per quarter and interaction terms between regions—Northern West Bank, Southern West Bank and the Central West Bank--and the number of closure obstacles per district per quarter where the Greater Jerusalem Area is the reference regional group.

Note that increases in the number of closure obstacles raise the likelihood of migration for residents of the Greater Jerusalem Area. The (unexpected) sign may be a reflection of the fact that residents of the greater Jerusalem Area are more likely to have Jerusalem ID cards and as the conflict progresses and the number of closure obstacles increases, Jerusalem residents exploit the use of their Jerusalem ID cards by working in Israel/settlements as the local economy deteriorates. For all other regions, proxies for mobility restrictions have the expected signs and are statistically significant. A marginal increase in 100 closure obstacles per district per quarter reduces the likelihood of becoming a migrant worker by 2 percentage points for wage-earners residing in the Northern area of the West Bank, 0.8 points for residents in the Southern West Bank and 1.5 points for residents in the Central West Bank.

When proxy measures for mobility restrictions are included the point estimates (column 2) for the expected wage gain and living in a district that borders Israel are both attenuated and are both statistically insignificant. The sign of the point estimate of the expected wage gain implies there is some inefficiency by which labor is allocated; in other words, those who are expected to benefit the most from migration are not predicted (by the model) to become migrant workers and the expected wage gain from migration explains little to no variation for the migration decision. Similarly, individuals whose costs of migration are mitigated by living in close proximity to Israel are less likely to migrate. Furthermore, the McFadden R<sup>2</sup> increases by approximately nine-folds suggesting that the expected wage gain calculated by accounting for socio-economic characteristics and living in close proximity to Israel's border have little to no explanatory power in the decision to migrate relative to politically-determined barriers.

As previously mentioned, given the greater variation across districts, closure obstacles are a better measure of politically-determined barriers than closure days. Nevertheless, I repeat the exercise above (unreported) for the period 2000-2008 to determine whether the results are sensitive to alternative proxies for mobility restrictions such as closure days. The covariates used in this analysis include: a quartic in the number of closure days per quarter and interaction terms between regions—Northern West Bank, Southern West Bank and the Central West Bank--and the number of closure days per quarter where the Greater Jerusalem Area is the reference regional group. The findings suggest that the marginal effect of a 90 day increase in the number of closure days (which has actually occurred during the worst stages of the intifada as shown in Figure 1) increase the probability of migration by 4.3 percentage points for residents of the Greater Jerusalem Area, and decrease the likelihood of migration by 4.1 percentage points for residents of the Northern West Bank, 0.9 points for residents of the Southern West Bank, and 1.1

points for residents of the Central West Bank.<sup>17</sup> These results corroborate the findings above for the period 2004-2010 where closure obstacles were used to proxy for mobility restrictions. Both findings demonstrate that labor mobility restrictions-- whether measured by the number of closure days per quarter or the number of closure obstacles per district per quarter--impede out-migration in all regions of the West Bank except the Greater Jerusalem Area..

Above, I have argued that controlling for socio-economic characteristics can ameliorate the bias arising from the potential endogeneity of ID cards and work permits. However, controlling for socio-economic characteristics may also partially address the omitted variable bias arising from the endogeneity of closure obstacles, which may stem from the variation across districts (e.g. local labor market opportunities). Therefore, in column (3), additional controls include years of schooling, experience, experience squared, locality type, marital status, household head, refugee status, industry and occupation fixed effects (coefficients for socio-economic characteristics are reported in Table II in the appendix); In column (4), the same specification is restricted to a sample of migrants and stayers who work full-time.

As depicted in column (3), the point estimates of closure obstacles and the interaction terms between closure obstacles and regional variables are all statistically significant after the inclusion of socio-economic variables. As before, increases in the number of closure obstacles unexpectedly raise the likelihood of migration for residents of the Greater Jerusalem Area but the point estimate in this specification is much smaller in magnitude. While the magnitude of the impact of closure obstacles on the likelihood of migration for other regions is smaller in column (3) than column (2), the attenuation does not substantially alter the results. In fact, the inclusion

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<sup>17</sup>Note that during both periods 2000-2008 and 2004-2010, the results suggest that Southern residents of the West Bank who are seeking migration opportunities are less likely to be affected by mobility restrictions than their counterparts in the Northern and Central areas; this may be attributed to the presence of larger settlement blocs in the Southern West Bank which facilitate finding work in the settlements and increasing the likelihood of migration.

of socio-economic controls did not alter the point estimate for Central West Bank residents. As in column (2), changes in the expected wage gain and living in close proximity to Israel have little to no impact on the migration decision. Finally, the point estimates for full-time workers are almost equivalent to that of other specifications (column (4)).

Note that socio-economic characteristics have a significant amount of explanatory power, causing a drastic increase in the McFadden R2 between columns (2) and (3). As Table II in the appendix shows, the majority of socio-economic and demographic variables have little to no impact on the decision to migrate with the exception of industry affiliation in the quarter before migration. The services industry is the omitted category and represents the industry in which migrants are least likely to exit when becoming migrant workers in Israel or the settlements. The economically and statistically significant point estimates for the agriculture and construction industries are consistent with the notion that Palestinian labor in Israel is primarily low-skilled elementary occupations in construction and agriculture.

#### d.) What Drives Return Migration?-The Expected Wage Gain or Costs?

Table 4 displays the marginal effects (at the mean) for a probit model for return-migrants and migrant-stayers as well as full-time workers. For return-migrants, a one percentage point marginal increase in the expected wage gain from migration reduces the likelihood of returning by a statistically significant 21.4 percentage points. Residents who live in close proximity to Israel are 3.7 percentage points less likely to return to the West Bank. The point estimate for the expected wage gain is unaltered when closure obstacles and interaction terms of closure obstacles and regions are included as regressors. This is not surprising since the magnitude and statistical significance of all point estimates imply that closure obstacles have a minimal impact



on return-migration. Moreover, the F test that closure obstacles and the interaction terms between closure obstacles and regional residence are jointly equal to zero cannot be rejected<sup>18</sup>.

When ID type and permit status are included in column (3), the point estimates for the expected wage gain is slightly attenuated. Note that having a work permit reduces the likelihood of returning more than having a Jerusalem ID card relative to undocumented workers. Nevertheless, the point estimates for both covariates, ID type and work permit status, are large and statistically significant, which suggests that return migrants are more deterred by lack of legal documentation to enter Israel or the settlements and less so by physical mobility restrictions as shown by the point estimates for closure obstacles. In fact, the variation in the decision to return as measured by the McFadden R2 barely increases after physical mobility restrictions are included (column 2) but increases by one-third when ID type and permit status are regressors (column 3).

In column (4), socio-economic controls are included in the regression analysis to partially address the potential endogeneity of politically-determined barriers, especially ID type and work permits. The qualitative nature of the results barely changed but one interesting result is that ID cards now play a larger role than work permits in the return-migration decision. That said, both point estimates are similar and are not significantly different from each other in both specifications. Unlike the case for migrants and stayers, the expected wage gain is the single most important factor in determining decisions regarding labor flows for return-migrants and migrant-stayers. Living in close proximity to Israel and legally accessing work in Israel and the settlements are also essential in influencing the decision to return. These estimates are robust to the inclusion of socio-economic controls to the restriction of the sample to full-time workers.

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<sup>18</sup> This is true for all specifications in Tables 4 and 6.

The implication is that once residents succeed in gaining employment on Israeli land, they are less likely to be deterred (and return to the domestic sector) by politically-determined barriers as by expected wage losses. The fact that living in close proximity to Israel and legal entry into Israel and the settlements play a larger role than closure obstacles and region of residence suggest that the costs associated with illegal entry may have more punitive consequences than the inconvenience of crossing closure obstacles. Another major difference between the analysis here and that of migrants and stayers is that socio-economic characteristics have very little explanatory power, as suggested by the minute increase in the McFadden R2 between columns (3) and (4).

As shown in Table II in the appendix, human capital and demographic variables play a small role in the return-migration decision; even industry affiliation does not contribute much in explaining the decision to return from migration. The point estimates for commerce and manufacturing suggest that industry affiliation with either industry reduces the likelihood of returning by approximately 3% and 4% respectively relative to workers in the remaining industries. When the sample is restricted to full-time workers, the results are almost identical. Note that these variables have at best modest explanatory power in contrast to the analysis regarding migrants and stayers.

On the one hand, these results are surprising given the large differences in wages (in quarter  $q$  reported in Table 1) of return-migrants and migrant-stayers. Specifically, one expects the differences in wages between these two groups to be a reflection of differences in human capital, locality type, refugee status, marital status, public/private sector or industry affiliation. On the other hand, it is sensible that these factors do not explain differences in Israeli wages earned since the accumulation of human capital (and other skills) in the West Bank may not

directly translate to higher productivity and wages in Israeli firms. In fact, Friedberg (2000) finds that the earnings differential between Israeli natives and immigrants (within Israel which does not include the Palestinian territories) can be fully explained by differences in how the human capital accumulation acquired abroad is valued across immigrants' nations of origin<sup>19</sup>.

## VII. Robustness Checks

In this next section, I assess whether the analysis above is sensitive to changes in the definition of a migrant worker.

### a.) Observe Migrant Worker One Year Prior to Migration

Thus far, migrant workers are individuals who are observed working in the West Bank in quarter  $q$  and in Israel or the settlements in quarter  $q+1$ . The results show that an increase in the number of closure obstacles deters out-migration one quarter later but an increase in the expected wage gain over one quarter has almost no effect. However, what is the effect on those who are planning to migrate one year later? To address this question, migrant workers are defined as individuals who are observed working in the West Bank in year  $y$  (quarter  $q$ ) and in Israel or the settlements in year  $y+1$  (quarter  $q+4$ ). Similarly, the definition of a return migrant refers to individuals working in Israel in year  $y$  and in the West Bank in year  $y+1$ . The results will shed light on whether politically-determined barriers and the expected wage gain impact labor flows one year later. This is especially relevant in the context of expensive and time-consuming job search costs in the Israeli labor market. Tables 5 and 6 present sensitivity analysis results that correspond to those in Tables 3 and 4.

The expected wage gain over a one year period is a much stronger predictor of migration

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<sup>19</sup>Since the earlier analysis on the migration decision ( Table II columns (1)-(2)) demonstrated that workers affiliated with the agriculture and construction industries were more likely to become migrant workers, one may infer that job-specific capital in those industries are more transferable to corresponding industries in the host (Israel/settlements) labor market.

than the expected wage gain over one quarter in both economic and statistical significance. The point estimate implies that a one percentage point increase in the expected wage gain over one year increases the likelihood of migration by a statistically significant 11 percentage points. In addition, the expected wage gain along with living in close proximity to Israel explain over 2% of the variation in the migration decision. Although the point estimate is attenuated when proxies for mobility restrictions and socio-economic characteristics are controlled for, the impact of a one percentage point increase in the expected wage gain still increases the likelihood of migration by (a statistically significant) 3.9 percentage points for the full sample and 3.1 percentage points for full-time workers. One can argue that this is due to measurement error since quarterly changes in wages are noisier than annual ones. However, differences in migrants' expected wage gain and that of stayers is much larger during a one year interval than over the course of a quarter, primarily due to the rapid growth of Israeli wages for migrant workers. This may indicate that West Bank residents may be more compelled (to migrate) by the evolution of Israeli wages over the long-term than by the immediate rise in wages that occurs during the first quarter a wage-earner is employed in Israel or the settlements.

As before, politically-determined barriers have a significant impact on the likelihood of migration and explain a considerable portion of the variation in the decision to migrate. This is an intriguing result since one might be tempted to think that if an individual experiences a relatively large number of closure obstacles in a given district in quarter  $q$ , this may discourage his/her migration decision in quarter  $q+1$  but the effect is attenuated or eliminated if one considers the impact of mobility restrictions one year in advance. One explanation may be that it takes individuals a longer time to acquire Israeli jobs (e.g. applying for/renewing work permits or saving for start-up costs) since crossing over to Israeli land to search for jobs becomes more

time-consuming and financially burdensome in the presence of conflict.

Like the case of migrants and stayers, the difference in the expected wage gain between migrant-stayers and return-migrants is larger during a one year interval than over the course of a quarter. This is mainly driven by the fact that when the expected wage gain is calculated over the course of one year, migrant-stayers are defined as Palestinians who earned wages in Israel or the settlements during quarter  $q$  and quarter  $q+4$ , which means they have either been employed in Israel or the settlements for at least five consecutive quarters or had interrupted job tenure spells in Israel or the settlements during this time period. Either way, on average, migrant-stayers in this specification have more experience and social capital in Israel or the settlements (and therefore more to gain from remaining migrant workers) than those in the previous analysis where migrant stayers are defined as Palestinians who earned wages in Israel or the settlements for at least two consecutive quarters<sup>20</sup>.

Since migrant-stayers (in this specification) have much more to gain from migration, it is expected for the magnitude of the point estimate of the expected wage gain to have increased. In fact, the point estimate in column 1 of Table 6 shows that a one percentage point increase in the expected wage gain over a one year period decreases the likelihood of returning to the domestic sector by 30.1 percentage points. The expected wage gain over a one year interval continues to be a strong predictor of return-migration (-0.276) even after mobility restrictions and socio-economic controls are included in the regression. Nevertheless, the point estimate of the expected wage gain over a one year period (-0.276) resembles the point estimate of the expected wage gain over one quarter (-0.204) in that both point estimates are statistically and

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<sup>20</sup> In other words, the previous analysis defined migrant-stayers as those who earned wages in Israel or the settlements for at least two consecutive quarters, which included many recent migrants who have not experienced the rapid growth of Israeli wages yet. This analysis (Table 6) includes migrant workers who on average have more experience and/or social capital in Israel or the settlements and therefore more to lose from returning to the domestic sector.

economically significant. Unlike the case for migrants who are newly employed in Israel's labor market, Israeli wages for Palestinians already employed in Israel or the settlements (whether migrant-stayers or return-migrants) grew less rapidly. This result suggests that the above analysis on migrants and stayers is not primarily driven by the greater amount of measurement error in quarterly changes in wages.

The presence of closure obstacles continues to have almost no effect on the decision to return whether measured one quarter later or one year later. However, the economic and statistical significance of the point estimates for ID type and permit status indicate that legal documentation has even more influence on the decision to return one year later than in the short-term. It may be that undocumented workers are more likely to return to the domestic sector during a one year interval than over a period of one quarter because of the accumulated risk associated with illegally entering Israel or the settlements.

#### b.) Heterogeneity among Migrant Workers?

There are two important elements missing from Tables 3-6. Firstly, West Bank residents who work in Israel cannot be distinguished from those that work in Israeli settlements. This is problematic since the 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, resulting in poor working conditions, lower wages and less benefits for Palestinian migrants (Amro, 2008; Alinat, 2009; Taghrid, 2011). Secondly, the type of ID card a resident has is observed only for wage earners in Israel or the settlements. Therefore, it is not possible to know the ID type each stayer possesses, which prevents us from knowing how ID cards influence the migration decision. This is especially relevant because the pervasiveness of closure obstacles and their impact on labor flows can be ameliorated or exacerbated depending on one's ID card and permit status.

To address the above-mentioned concerns, I utilize the 2005 wave of the *Social Survey of Jerusalem*. These data are richer 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, all wage earners regardless of whether they are employed in the West Bank or Israeli land report their ID type. With these data, several questions can be further examined: How do ID cards and other politically-determined barriers 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? How does the expected wage gain influence the decision to migrate to the settlements relative to migrating to Israel proper? As previously mentioned, the *Social Survey of Jerusalem* is not a longitudinal survey, which means that short panels cannot be constructed to differentiate between stayers and migrants (and between migrant-stayers and return-migrants).

To verify that the two datasets provide comparable results given the same specification, Table 7 presents three probit model specifications using the same set of socio-economic controls (as listed above). The probit model for the first column is estimated using the 2005 wave of the *Palestinian Labor Force Survey*, where all West Bank residents are included. In the second column, the sample is restricted to Jerusalem residents from the 2005 wave of the PLFS; finally, the probit model for the third column is estimated using the 2005 wave of the *Social Survey of Jerusalem*. To create model specifications with the same dependent variable, I set the dependent variable equal to 1 if an individual is observed working in Israel or the settlements or 0 otherwise. This is the only specification I can use to compare the two datasets because individuals who worked in Israel cannot be distinguished from those who work in the settlements in the PLFS dataset. Furthermore, I cannot distinguish stayers from migrants and return-migrants from migrant-stayers in the SSJ dataset.

As for independent variables, I can neither control for the number of physical barriers since those that vary over time and districts cannot be applied to the cross-sectional SSJ data nor can I control for ID type since the labor force survey data only includes ID type for those who work in Israel or the settlements. Therefore the specifications in Table 7 in columns (1)-(3) only include socio-economic controls. The results show that when restricting the sample to Jerusalem residents, the *Palestinian Labor Force Survey* data provides results similar to the *Social Survey of Jerusalem* data.

To estimate the impact of the expected wage gain and politically-determined barriers 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 <sup>21</sup>; 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)).

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<sup>21</sup>To test the extent to which this assumption is valid, the ratio of workers in Israel relative to the domestic sector in 2003 is compared to the corresponding ratio in 2005 using the 2003 and 2005 waves of the Social Survey of Jerusalem (SSJ); this is because working in the settlements was almost an absent alternative in 2003 in Jerusalem and became a stronger alternative in 2005. Indeed in 2003, only 1.3% of male wage earners in Jerusalem worked in Israeli settlements while the corresponding statistic in 2005 is 6.05%. In 2003, 42.2% of male wage earners in Jerusalem worked in Israel and 56.5% worked in the domestic sector while in 2005, 34.3% worked in Israel and 59.7% worked in the West Bank. Therefore odds ratio of working in the West bank over Israel increased from 1.33 in 2003 to 1.74 in 2005, which implies a strong limitation to using the multinomial logit.



Table 8 presents the marginal effects for three multinomial logit specifications. In the first model (columns (1) and (2)), proxies for politically-determined barriers are excluded while the second model includes proxies for politically-determined barriers. The third model is similar to the second model with the exception that the sample is restricted to full-time workers only. The dependent variable in columns (1),(3) and (5) is 1 if a Jerusalem resident is observed working in Israeli settlements and 0 if observed working in the West Bank. The dependent variable in columns (2), (4) and (6) 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 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.

In columns (1) and (2), the multinomial logit is estimated using one regressor, the expected wage gain. While the change in the expected wage gain does not result in a change in working in the settlements relative to the West Bank, a one percentage point marginal increase in the expected wage gain increases the likelihood of working in Israel by a statistically significant 6.7%. This already suggests that heterogeneity among migrant workers based on work destination in the host country is crucial to understanding labor flows. In columns (3) and (4), three regressors are added: a dummy variable equal to 1 if a resident has a Jerusalem (ID) card, a dummy variable equal to 1 if a resident lives on the West Bank side of the Wall (where access to Israel and some of the settlements is presumably more difficult, see Map), and a dummy variable equal to 1 if a resident lives in East Jerusalem or the J1 area (where the majority of the population possesses Jerusalem ID cards since historically, Jerusalem ID cards were offered to residents of the J1 area).

The expected wage gain is economically and statistically significant in column (3)

suggesting that an increase in the expected wage gain results in a greater likelihood of working in the settlements relative to the West Bank after controlling for ID card, residence relative to the wall, and region of residence in Jerusalem; this result contrasts the lack of influence of the expected wage gain on working in the settlements without additional regressors (column (1)). The economic and statistical significance of the expected wage gain in column (3) when additional regressors are included is primarily explained by the fact that Jerusalem ID card holders earn higher wages and are also less likely to work in the settlements, which means the point estimate in column (1) suffers from omitted variable bias and hence is biased downwards. Similarly, although the impact of the expected wage gain on working in Israel continues to be statistically and economically significant, it is attenuated (0.025) mainly because Jerusalem ID card holders are more likely to work in Israel and earn higher wages.

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% and more likely to work in Israel by 29.6%. Similarly, living on the West Bank side of the wall or living in the J2 area increases the likelihood of working in the settlements and decreases 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 politically-determined barriers explain an additional 300% of the variation explained by the expected wage gain.

When the sample of wage-earners is restricted to full-time workers in the settlements and the domestic sector (column 5), the impact of the expected wage gain and ID type are attenuated. The expected wage gain is economically and statistically insignificant and the impact of having a Jerusalem ID card is diminished by one-third. In contrast, when full-time workers in the West

Bank are compared to those working in Israel, the estimates are exacerbated so that the point estimates for the expected wage gain, owning a Jerusalem ID and the relative residence with respect to the wall are larger in magnitude. The results in Table 8 are robust to the inclusion of socio-economic controls (unreported).

These results suggest that among Jerusalem residents, wage-earners in Israeli settlements have lower expected wage gains from migration and are more affected by politically-determined barriers than those who work in Israel since they are more likely to possess PAID cards, live on the West Bank side of the wall, and reside in the J2 area. Moreover, the differences between the two types of migrant workers is even more stark for full-time employees. These trends may not be unique to residents of the greater Jerusalem area but are perhaps applicable to residents of the remaining areas of the West Bank. Thus, 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. This limitation is unfortunate because as the preliminary analysis in this section suggests, in the context of Palestinian migration, there is a great deal of heterogeneity between the two major types of migration (Israel versus the settlements).

## VIII. Conclusion

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 a better understanding of 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, escalated by the Israeli blockade of the other Palestinian territory, the Gaza Strip, which was initiated in June 2007 and continues to the present.

The results demonstrate that for West Bank residents, the expected wage gain from migration over the course of one quarter has almost no effect on the decision to migrate but politically-determined barriers play a major role. Indeed, a marginal increase in 100 closure obstacles per district per quarter reduces the likelihood of becoming a migrant worker in the subsequent quarter by 2 percentage points for wage-earners residing in the Northern area of the West Bank, 0.8 points for residents in the Southern West Bank and 1.5 points for residents in the Central West Bank. Furthermore, the inclusion of closure obstacles increases the variation explained by approximately nine-folds. In contrast, for return-migrants, a one percentage point marginal increase in the expected wage gain from migration reduces the likelihood of returning by a statistically significant 21.4 percent. In addition, the point estimates imply that closure obstacles have almost no impact on return-migration and explain a negligible portion of the variation of the decision to return. However, documentation for legally entering Israel or the settlements (these proxies are not available for the migration analysis) decreases the likelihood of returning to the domestic sector by a statistically significant 5%, which implies that those who have already obtained wage-earning jobs in Israel or the settlements are more deterred (from remaining migrant workers) by the lack of legal documentation to enter Israel or the settlements and less so by physical mobility restrictions as shown by the negligible impact of closure obstacles. In fact, the variation in the decision to return as measured by the McFadden R<sup>2</sup> barely increases after closure obstacles are included but increases by one-third when proxies for legal entry are included.

To further examine the impact of politically-determined barriers on labor flows relative to the expected wage gain, I observe migrant workers and return-migrants one year in advance rather than one quarter prior to migration. I find that the expected wage gain over a one year period is a much stronger predictor of migration than the expected wage gain over one quarter in both economic and statistical significance. In fact, a one percentage point increase in the expected wage gain increases the likelihood of migration by (a statistically significant) 3.9 percentage points after proxies for mobility restrictions and socio-economic characteristics are controlled for. This is mainly attributed to the fact that the difference in the expected wage gain between migrants and stayers is much larger during a one year interval than over the course of a quarter, due to the rapid growth of Israeli wages for migrant workers. This may indicate that West Bank residents may be more compelled (to migrate) by the evolution of Israeli wages over the long-term than by the immediate rise in wages that occurs during the first quarter a wage-earner is employed in Israel or the settlements. The findings for return-migrants and migrant-stayers are similar in that the expected wage gain between migrant-stayers and return-migrants is larger during the course of one year than during a period of one quarter. The results also show that even when politically-determined barriers are observed one year in advance, they continue to have a significant impact on the likelihood of (return) migration and explain a considerable portion of the variation in the decision to (return) migrate.

Using a supplemental survey on Jerusalem residents which distinguishes between those working in Israel versus Israeli settlements, I find that if a migrant worker is narrowly defined such that only individuals observed working in Israel are considered migrants, the evidence is suggestive that labor mobility restrictions are even more pronounced in impeding out-migration. The findings in this paper are consistent with international studies that ascribe inefficiency in

labor markets to restrictions on labor mobility across regions (Hamilton and Whalley (1984), Iregui (2003), Walmsley and Winters (2005)).

Differential mobility costs also are an important input to estimates and discussions of welfare, economic development and inequality. Evidence in this paper suggests that there is a high level of inequality between Jerusalem (ID) cardholders and PA (ID) cardholders due to greater labor mobility costs of PA ID cardholders. This may be a concern for a variety of reasons. For example, if high-skilled West Bank residents with relatively easy access to Israel (e.g. JID cardholders) are selected to work in Israeli firms, rises in wage inequality are expected across skill groups in the West Bank. On the other hand, to the extent that Israeli firms have high demand for unskilled or semi-skilled Palestinian labor, low-skilled West Bank residents with relatively easy access to Israel (e.g. JID cardholders) are lured by the Israeli wage premium; while reducing skill-based inequality, this leads to strong disincentives for these Palestinians to acquire additional skills, which is detrimental to the economic development of a future independent Palestinian state. Either way, differential mobility costs can lead to inefficient outcomes for the West Bank economy.

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Table 1- Descriptive Statistics on Socio-Economic Variables

Socio-Economic Variables	Migrant	Stayers	Return Migrants	Migrant-Stayers
Age	31.2 (9.94)	34.5 (10.8)	30.6 (9.72)	32.6 (9.99)
Years of schooling	9.27 (2.87)	11.6 (3.88)	9.26 (2.84)	9.29 (2.87)
Head of Household	0.585 (0.493)	0.644 (0.479)	0.563 (0.496)	0.637 (0.481)
Married	0.648 (0.478)	0.711 (0.454)	0.647 (0.478)	0.709 (0.454)
Refugee	0.436 (0.496)	0.443 (0.497)	0.405 (0.491)	0.396 (0.489)
Locality Type:				
Urban	0.356 (0.479)	0.442 (0.497)	0.398 (0.490)	0.419 (0.493)
Rural	0.512 (0.500)	0.409 (0.492)	0.509 (0.500)	0.469 (0.499)
Refugee Camp	0.132 (0.339)	0.149 (0.356)	0.094 (0.292)	0.112 (0.315)
Daily wage at quarter q (\$2005)	21.7 (10.4)	19.0 (16.3)	27.5 (10.8)	30.9 (11.4)
Daily wage at quarter q+1 (\$2005)	27.5 (11.4)	19.1 (17.6)	22.0 (10.5)	31.3 (12.8)
Job Tenure in months	71.0 (82.2)	89.2 (87.9)	75.3 (78.0)	87.0 (86.6)
Work days/month	19.2 (6.54)	23.2 (5.08)	18.9 (6.21)	20.3 (5.73)
Hours Worked/ Week	42.0 (13.0)	42.0 (14.8)	41.8 (12.6)	42.6 (11.2)
Public Sector	0.025 (0.157)	0.438 (0.496)	0.001 (0.038)	0.001 (0.031)
Sample Size	749	24230	692	7186

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

Table 2- Descriptive Statistics on Commute Cost Variables

Commute Cost Variables	Migrant	Stayers	Return Migrants	Migrant-Stayers
<b>Region of Residence:</b>				
Northern Region of West Bank	0.249 (0.433)	0.368 (0.482)	0.251 (0.434)	0.221 (0.415)
Southern Region of West Bank	0.285 (0.452)	0.285 (0.452)	0.320 (0.467)	0.218 (0.413)
Central Region of West Bank	0.209 (0.407)	0.246 (0.431)	0.176 (0.381)	0.185 (0.388)
(Greater) Jerusalem of the West Bank	0.256 (0.437)	0.100 (0.301)	0.254 (0.435)	0.377 (0.485)
District on Israeli Border	0.460 (0.499)	0.404 (0.491)	0.422 (0.494)	0.582 (0.493)
<b>Mobility Restrictions:</b>				
Closure Days per Quarter	26.6 (29.4)	28.1 (28.0)	24.4 (28.4)	25.3 (28.3)
Closure Obstacles per district per Quarter	47.2 (39.6)	56.2 (46.2)	47.7 (39.3)	45.9 (37.3)
North*Closure Obstacles	11.0 (25.0)	17.4 (33.1)	12.0 (27.8)	9.08 (23.8)
South*Closure Obstacles	16.5 (41.3)	20.3 (46.7)	15.7 (39.3)	12.8 (38.7)
Central*Closure Obstacles	9.7 (23.8)	14.4 (30.3)	9.0 (24.0)	8.04 (20.7)
<b>ID type and Permit Status:</b>				
Jerusalem ID card (JID)	--	--	0.189 (0.392)	0.354 (0.478)
West Bank (PA) ID with work permit	--	--	0.288 (0.453)	0.334 (0.472)
West Bank (PA) ID without work permit	--	--	0.523 (0.500)	0.312 (0.463)
Expected Wage Gain (in Logs US\$ 2005 Wage)	0.191 (0.128)	0.186 (0.150)	0.136 (0.114)	0.212 (0.166)
<b>Sample Size</b>	<b>749</b>	<b>24230</b>	<b>692</b>	<b>7186</b>

Source: Palestinian Labor Force Quarter Survey Data: 2000-2010 from the Palestinian Central Bureau of Statistics (PCBS). Data for the number of Closure Days are obtained from Btselem (Data available from 2000-2008 only) and Closure Obstacles are obtained from the United Nations Office of Coordination and Humanitarian Affairs (Data available from 2004-2010 only). Standard Deviations in parentheses.

Table 3—How Do Politically-determined Barriers Affect the Migration Decision Relative to the Expected Wage Gain conditional on Socio-economic Characteristics (2004-2010)?

Probit (Y=1) if Migrants	Migrants and Stayers (Wage Earners Only)			Full-time Workers
Marginal Effects	(1)	(2)	(3)	(4)
Expected Wage Gain	0.015 (0.009)	0.004 (0.009)	-0.001 (0.005)	-0.005 (0.005)
Israeli Border	0.007*** (0.003)	-0.003 (0.004)	0.002 (0.002)	0.003 (0.002)
Closure Obstacles/100		0.056*** (0.011)	0.023*** (0.006)	0.024*** (0.006)
North*Closure Obstacles /100		-0.076*** (0.011)	-0.035*** (0.006)	-0.038*** (0.006)
South*Closure Obstacles/100		-0.064*** (0.011)	-0.027*** (0.006)	-0.028*** (0.006)
Central*Closure Obstacles/100		-0.071*** (0.001)	-0.038*** (0.006)	-0.039*** (0.006)
Socio-Economic Controls?	No	No	Yes	Yes
Observations	15520	15520	15520	12956
McFadden R2	0.003	0.023	0.195	0.207

Source: Palestinian Labor Force Quarterly Survey Data: 2004-2010 from the Palestinian Central Bureau of Statistics (PCBS). The dependent variable in columns (1)-(3) is 1 if a West Bank resident is observed working in the West Bank in quarter q and working in Israel or the settlements in quarter q+1 and 0 if observed working in the West Bank in both quarters. The dependent variable in column (4) is the same as the dependent variable in columns (1)-(3) but the sample is restricted to full-time workers only. Omitted categories include those who do not live in a district that borders Israel; for the region of residence, the omitted category is the Greater Jerusalem Area. Socioeconomic controls include years of schooling, experience, experience squared, marital status, locality type (urban, rural, refugee camp), sector (public or private), six industry dummies and seven occupation dummies. (Standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1)

Table 4-- How Do Politically-determined Barriers Affect the Return-Migration Decision Relative to the Expected Wage Gain conditional on Socio-economic Characteristics (2004-2010)?

Probit (Y=1) if Return-Migrant	Return-Migrants / Migrant-Stayers (Wage Earners Only)				Full-time Workers
Marginal Effects	(1)	(2)	(3)	(4)	(5)
Expected Wage Gain	-0.214*** (0.026)	-0.214*** (0.027)	-0.200*** (0.027)	-0.204*** (0.027)	-0.193*** (0.029)
Israeli border	-0.037*** (0.008)	-0.050*** (0.014)	-0.041*** (0.013)	-0.034** (0.014)	-0.033** (0.015)
Jerusalem (ID) card			-0.042*** (0.015)	-0.052*** (0.015)	-0.033* (0.018)
PA ID with work permit			-0.054*** (0.008)	-0.048*** (0.009)	-0.046*** (0.010)
Closure Obstacles/100		0.035 (0.032)	0.050 (0.043)	0.044 (0.043)	-0.000 (0.047)
North*Closure Obstacles/100		-0.021 (0.032)	-0.029 (0.043)	-0.015 (0.044)	0.027 (0.048)
South*Closure Obstacles/100		-0.039 (0.033)	-0.056 (0.043)	-0.054 (0.044)	-0.001 (0.0476)
Central*Closure Obstacles/100		0.001 (0.027)	0.009 (0.039)	0.003 (0.039)	0.059 (0.044)
Socio-Economic Controls?	No	No	No	Yes	Yes
Observations	4733	4733	4733	4733	4008
McFadden R2	0.036	0.038	0.051	0.064	0.062

Source: Palestinian Labor Force Quarterly Survey Data: 2004-2010. The dependent variable in columns (1)-(4) is 1 if a West Bank resident is observed working in Israel or the settlements in quarter q and working in the West Bank in quarter q+1 and 0 if observed working in Israel or the settlements in both quarters. The dependent variable in column (5) is the same as the dependent variable in columns (1)-(4) but the sample is restricted to full-time workers only. Omitted categories include those who do not live in a district that borders Israel, and individuals who work in Israel without a work permit; for the region of residence, the omitted category is the Greater Jerusalem Area. Socioeconomic controls include years of schooling, experience, experience squared, marital status, locality type (urban, rural, refugee camp), sector (public or private), six industry dummies and seven occupation dummies. (Standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1)



Table 5—Robustness Checks I- Is the Analysis Sensitive to Differences in the Definition of a Migrant (Observed working in Israel one year after observed working in the West Bank)?

Probit (Y=1) if Migrants	Migrants and Stayers (Wage Earners only)			Full-time Workers
Marginal Effects	(1)	(2)	(3)	(4)
Expected Wage Gain	0.110*** (0.012)	0.083*** (0.012)	0.039*** (0.007)	0.031*** (0.006)
Israeli border	0.017*** (0.004)	-0.003 (0.005)	0.006** (0.003)	0.006** (0.003)
Closure Obstacles/100		0.099*** (0.015)	0.039*** (0.008)	0.036*** (0.008)
North*Closure Obstacles/100		-0.128*** (0.015)	-0.054*** (0.008)	-0.050*** (0.008)
South*Closure Obstacles/100		-0.113*** (0.015)	-0.046*** (0.008)	-0.040*** (0.008)
Central*Closure Obstacles		-0.117*** (0.013)	-0.061*** (0.008)	-0.055*** (0.008)
Socio-Economic Controls?	No	No	Yes	Yes
Observations	13482	13482	13482	11229
McFadden R2	0.022	0.047	0.233	0.245

Source: Palestinian Labor Force Quarterly Survey Data: 2004-2010 from the Palestinian Central Bureau of Statistics (PCBS). The dependent variable in columns (1)-(2) is 1 if a West Bank resident is observed working in the West Bank in year  $y$  and working in Israel or the settlements in year  $y+1$  and 0 if observed working in the West Bank in both years. The dependent variable in column (3) is the same as the dependent variable in columns (1)-(2) but the sample is restricted to full-time workers only. Omitted categories include those who do not live in a district that borders Israel; for the region of residence, the omitted category is the Greater Jerusalem Area. Socio-economic controls include years of schooling, experience, experience squared, marital status, locality type (urban, rural, refugee camp), sector (public or private), six industry dummies and seven occupation dummies. (Standard errors in parentheses\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ )

Table 6-- Robustness Checks I-- Is the Analysis Sensitive to Differences in the Definition of a Return-Migrant (Observed working in the West Bank one year after observed working in Israel)?

Probit (Y=1) if Return-Migrant	Return-Migrants/Migrant-Stayers (Wage Earners Only)				Full-time Workers
Marginal Effects	(1)	(2)	(3)	(4)	(5)
Expected Wage Gain	-0.301*** (0.028)	-0.292*** (0.028)	-0.268*** (0.029)	-0.276*** (0.029)	-0.264*** (0.030)
Israeli border	-0.017 (0.010)	-0.013 (0.016)	-0.001 (0.015)	0.009 (0.015)	0.006 (0.016)
Jerusalem (ID) card			-0.080*** (0.018)	-0.114*** (0.018)	-0.098*** (0.021)
PA ID with permit			-0.074*** (0.011)	-0.073*** (0.011)	-0.076*** (0.012)
Closure Obstacles/100		-0.039 (0.040)	0.023 (0.055)	0.018 (0.055)	-0.084 (0.061)
North*Closure Obstacles/100		0.015 (0.040)	-0.0452 (0.056)	-0.032 (0.056)	0.048 (0.062)
South*Closure Obstacles/100		0.035 (0.041)	-0.029 (0.055)	-0.021 (0.056)	0.083 (0.062)
Central*Closure Obstacles/100		0.048 (0.034)	-0.014 (0.050)	-0.005 (0.0505)	0.081 (0.057)
Socio-Economic Controls?	No	No	No	Yes	Yes
Observations	4163	4163	4163	4163	3532
McFadden R2	0.041	0.042	0.057	0.079	0.088

Source: Palestinian Labor Force Quarterly Survey Data: 2004-2010. The dependent variable in columns (1)-(3) is 1 if a West Bank resident is observed working in Israel or the settlements in year y and working in the West Bank in year y+1 and 0 if observed working in Israel or the settlements in both years. The dependent variable in column (4) is the same as the dependent variable in columns (1)-(3) but the sample is restricted to full-time workers only. Omitted categories include those who do not live in a district that borders Israel, and individuals who work in Israel without a work permit; for the region of residence, the omitted category is the Greater Jerusalem Area. Socio-economic controls include years of schooling, experience, experience squared, marital status, locality type (urban, rural, refugee camp), sector (public or private), six industry dummies and seven occupation dummies. (Standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1)

Table 7—How Comparable are the Palestinian Labor Force Survey (PLFS) and the Social Survey of Jerusalem (SSJ) for the year 2005?

Marginal Effects	Probit (Y=1) if Works in Israel/Settlements		
	PLFS (1)	PLFS (2)	SSJ (3)
Years of schooling	0.005* (0.003)	-0.006 (0.010)	-0.008 (0.006)
Experience	0.004 (0.003)	0.012 (0.011)	-0.003 (0.005)
Experience^2	-0.000 (0.000)	-0.000* (0.000)	-0.000 (0.000)
Refugee	0.004 (0.018)	0.072 (0.061)	-0.052 (0.032)
Married	0.044* (0.024)	0.003 (0.091)	0.018 (0.050)
Head of household	-0.030 (0.027)	-0.147* (0.087)	0.063 (0.048)
Rural	-0.017 (0.014)	-0.253*** (0.059)	-0.115*** (0.035)
Camp	-0.050** (0.021)	-0.125 (0.083)	0.070 (0.062)
Work in Private Sector	-0.052* (0.031)	-0.268*** (0.070)	-0.548*** (0.018)
Agriculture	0.595*** (0.0515)		0.196 (0.136)
Manufacturing	0.313*** (0.0461)	0.335*** (0.0695)	0.326*** (0.0561)
Construction	0.443*** (0.0452)	0.277*** (0.0760)	0.400*** (0.0470)
Commerce	0.406*** (0.0477)	0.434*** (0.0606)	0.344*** (0.0460)
Transportation	0.0439 (0.0548)	-0.0496 (0.126)	0.165* (0.0928)
Observations	3475	522	1567
McFadden R2	0.207	0.064	0.195

Source: Palestinian Labor Force Quarterly Survey Data: 2004-2010 from the Palestinian Central Bureau of Statistics (PCBS). The dependent variable in columns (1)-(3) is 1 if a resident works in Israel/settlements in the year 2005. The data in columns (1) and (2) is taken from the 2005 wave of the *Palestinian Labor Force Survey* and the sample in column (2) is restricted to Jerusalem residents. The data in column (3) is taken from the 2005 wave of the *Social Survey of Jerusalem*. Controls also include seven occupation dummies (Standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1)

Table 8-- Robustness Checks II-- Is the Analysis Sensitive to Differences in the Definition of a Migrant--Working in Israel vs. the Settlements--(Jerusalem Residents-2005)?

Multinomial Logit- Marginal Effects	All Wage Earners				Full-time Workers	
	Settlements	Israel	Settlements	Israel	Settlements	Israel
	(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	

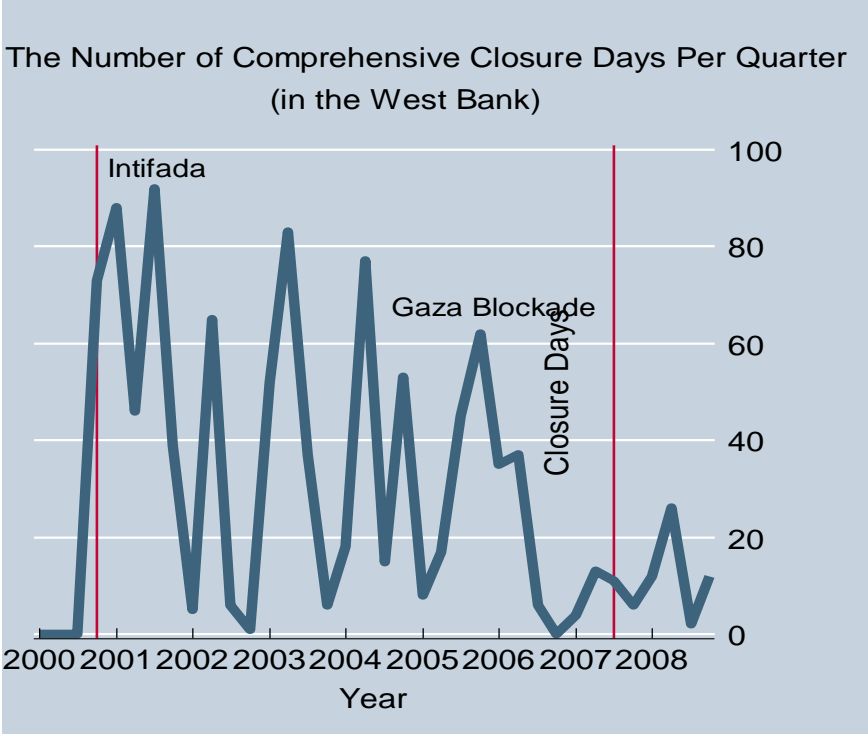
Source: Social Survey of Jerusalem (2005) from the Palestinian Central Bureau of Statistics (PCBS). The table above displays marginal effects for three multinomial logits: columns (1)-(2), (3)-(4) and (5)-(6). In all cases the reference group in the dependent variable includes wage earners employed in 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)

Map

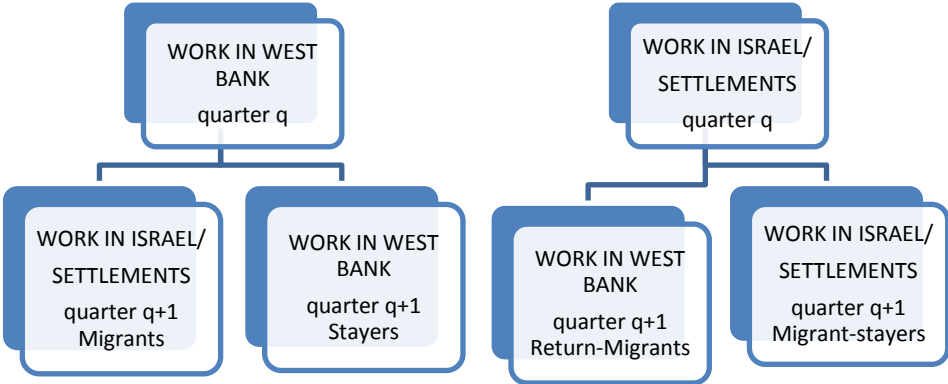


Figure 1-The Number of Comprehensive Closure Days per Quarter in the West Bank, 2000-2008



Source: B'tselem (2008)

Figure 2- How Wage Earners are Categorized into Migrants, Stayers, Return-Migrants and Migrant-Stayers



## Appendix

Table I- Summary Statistics on Industry and Occupational Status

Variables	Migrant	Stayers	Return Migrants	Migrant- Stayers
<b>Industry</b>				
Agriculture	0.109 (0.312)	0.017 (0.129)	0.137 (0.344)	0.097 (0.296)
Manufacturing	0.151 (0.358)	0.149 (0.356)	0.125 (0.331)	0.199 (0.399)
Construction	0.465 (0.499)	0.102 (0.303)	0.532 (0.499)	0.434 (0.496)
Commerce, Hotels and Restaurants	0.129 (0.336)	0.114 (0.317)	0.107 (0.309)	0.168 (0.374)
Transportation and Communication	0.045 (0.208)	0.038 (0.190)	0.020 (0.141)	0.018 (0.132)
Services	0.100 (0.300)	0.581 (0.493)	0.079 (0.270)	0.083 (0.277)
<b>Occupational Status</b>				
Politicians & Managers	0.003 (0.052)	0.045 (0.207)	0.000 (0.000)	0.001 (0.029)
Professionals & Clerks	0.045 (0.208)	0.351 (0.477)	0.027 (0.163)	0.031 (0.174)
Service, Shop & Market Workers	0.085 (0.280)	0.163 (0.369)	0.039 (0.194)	0.067 (0.250)
Skilled Agricultural & Fishery Workers	0.016 (0.126)	0.003 (0.056)	0.016 (0.125)	0.009 (0.096)
Craft and Related Trade Workers	0.251 (0.434)	0.137 (0.344)	0.310 (0.463)	0.348 (0.476)
Plant and Machine Operators	0.099 (0.298)	0.094 (0.292)	0.071 (0.256)	0.100 (0.300)
Elementary Occupations	0.501 (0.500)	0.207 (0.405)	0.537 (0.499)	0.444 (0.497)
Sample Size	749	24230	692	7186

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



Table II—The Effect of Socio-Economic Factors on the Decision to Migrate (2004-2010)

Marginal Effects	Probit (Y=1) if Migrant		Probit (Y=1) if Return-Migrant	
	All (1)	Full-time (2)	All (3)	Full-time (4)
Years of schooling	0.000 (0.000)	0.000 (0.000)	-0.000 (0.002)	-0.000 (0.002)
Experience	0.001** (0.000)	0.001** (0.000)	-0.000 (0.002)	-0.001 (0.002)
Experience^2	-0.000 (0.000)	-0.000* (0.000)	-0.000 (0.000)	0.000 (0.000)
Refugee	0.002 (0.002)	0.002 (0.002)	0.008 (0.008)	0.006 (0.009)
Married	-0.008** (0.004)	-0.006 (0.004)	0.019 (0.014)	0.019 (0.015)
Head of household	0.003 (0.003)	0.002 (0.003)	-0.010 (0.016)	-0.011 (0.017)
Rural	0.007** (0.002)	0.005** (0.002)	-0.029*** (0.009)	-0.028*** (0.010)
Camp	-0.002 (0.002)	0.001 (0.002)	-0.006 (0.014)	-0.004 (0.014)
Work in Private Sector	0.009*** (0.003)	0.010** (0.004)	-0.006 (0.024)	-0.005 (0.023)
Agriculture	0.117*** (0.028)	0.139*** (0.034)	-0.005 (0.020)	-0.014 (0.018)
Manufacturing	0.016** (0.006)	0.019*** (0.007)	-0.041*** (0.015)	-0.044*** (0.015)
Construction	0.068*** (0.014)	0.075*** (0.018)	-0.005 (0.018)	-0.005 (0.018)
Commerce	0.019*** (0.007)	0.017** (0.007)	-0.033** (0.015)	-0.030** (0.015)
Transportation	0.026** (0.011)	0.027** (0.015)	0.013 (0.036)	0.008 (0.034)
Observations	15520	12956	4733	4008
McFadden R2	0.195	0.207	0.064	0.062

Source: Palestinian Labor Force Quarterly Survey Data: 2004-2010 from the Palestinian Central Bureau of Statistics (PCBS). The dependent variable in columns (1)-(2) is 1 if a West Bank resident is observed working in the West Bank in quarter q and working in Israel/settlements in quarter q+1 and 0 if observed working in the West Bank in both quarters. The dependent variable in column (3)-(4) is 1 if a West Bank resident is observed working in Israel/settlements in quarter q and working in the West Bank in quarter q+1 and 0 if observed working in Israel/settlements in both quarters. Omitted categories include single, non-refugees, urban locality type, public sector and services industry. Additional controls include 7 occupation dummies and a time trend. (Standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1)