

Employment Restrictions and Political Violence in the Israeli-Palestinian Conflict*

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Abstract

Following the outbreak of the Second Intifada in 2000, Israel imposed severe restrictions on the employment of Palestinians within its borders. We study the effect of this policy change on the involvement of West Bank Palestinians in fatal confrontations with Israelis during the first phase of the Intifada. Identification relies on the fact that variation in the pre-Intifada employment rate in Israel across Palestinian localities was not only considerable but also unrelated to prior levels of involvement in the conflict. We find robust evidence that localities that suffered from a sharper drop in employment opportunities were more heavily involved in the conflict.

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1 Introduction

Do economic conditions affect political violence? The answer to this question has important implications for understanding the root causes of violence and may guide policies aimed at countering violence. Conventional wisdom seems to hold that improving economic conditions have the potential to reduce violence by raising the opportunity cost of involvement in violent activities. The United States government, for example, adopted this view and has taken measures to improve the economic conditions of local populations in conflict areas such as Afghanistan and Iraq. Nevertheless, research has not reached a consensus yet as to whether there is a causal link between economic conditions and involvement in political violence.

This paper contributes to the debate by providing new evidence from the Israeli-Palestinian conflict. Following the outbreak of the Second Intifada in the fall of 2000, Israel immediately imposed severe restrictions on the employment of Palestinians within its borders. In this paper we analyze the effect of this policy change on Palestinian involvement in the conflict with Israel.

The employment of Palestinians in Israel started shortly after the Israeli occupation of the Territories (the West Bank and the Gaza Strip) in the 1967 war. The architect of economic integration between the Territories and Israel was the then Defense Minister, Moshe Dayan. At the time, supporters of the policy argued that Israel must take responsibility for the welfare of the Palestinians living in the Territories and therefore that it should allow them to work within its borders. Those opposed to the policy were concerned, among other things, that by allowing easier access to Israel, security would be compromised. Supporters of the integration policy raised a counter argument: that higher incomes and lower unemployment in the Territories would reduce Palestinian resistance to the Israeli occupation. Dependence on employment in Israel, it was argued, would deter Palestinians from getting involved in the conflict. Thus, from the perspective of Israel's policy makers, Palestinian employment in Israel served simultaneously as both a carrot and a stick (Gazit, 1995). The pros and cons of Palestinian employment in Israel have been debated at the highest levels of Israeli government ever since. Yet until now there has been no empirical research on the causal relationship between this employment policy and Palestinian involvement in the conflict with Israel.

Our ability to credibly estimate the impact of employment restrictions on conflict intensity rests on several key facts. First, employment in Israel was very important for the welfare of the Palestinian population: on the eve of the Second Intifada, income from this source accounted for one sixth of Palestinian national income (Palestinian Central Bureau of Statistics, 2003). Second, at that time, the share of those employed in Israel out of total

population (henceforth "employment rate") exhibited considerable variation across Palestinian localities. Third, as our analysis shows, before the outbreak of the Intifada there was no cross-locality association between the employment rate and involvement in the conflict with Israel. Fourth, following the outbreak of the Intifada, and with the aim of preventing attacks against Israelis and applying pressure on the Palestinian Authority, the Israeli government decided to drastically restrict (effectively almost completely banning) Palestinian employment in Israel. Thus the abrupt, drastic, and exogenous Israeli policy change had a differential effect on the employment opportunities of Palestinians residing in different localities.

Relying on this "quasi-natural experiment" and using a rich new dataset – which includes Israeli administrative data on each and every Palestinian employed in Israel with a permit, Palestinian labor force surveys, Palestinian census data on the economic and socio-demographic characteristics of localities, pre-intifada voting patterns in the Palestinian Authority, the number of Palestinian fatalities and more – this paper examines the causal relationship between employment restrictions and political violence. The analysis, which is carried out at the locality level, focuses on 20-49 year old male employees from the West Bank and on Palestinian fatalities in the first phase of the Intifada.

The main result of the analysis is that the Israeli employment restrictions affected Palestinian involvement in the conflict: localities that saw sharper declines in employment rates had greater numbers of fatalities. All else being equal, at the locality level, a one percentage point decline in the employment rate was associated with a 0.13 increase in the total number of Palestinian fatalities from the outbreak of the Second Intifada (September 28, 2000) until the start of the large-scale military operation "Defensive Shield" (March 29, 2002). Overall, employment restrictions explain roughly one fifth of the total number of fatalities during this period. We also find that involvement in the conflict increased with the locality's level of education and that it was influenced more by declines in the employment of younger workers – two results which are consistent with the existing literature.

From a policy perspective, the results of this study seem to suggest that improving the welfare of Palestinians by allowing them to work in Israel may reduce their involvement in the conflict. However, due to the following data and methodological limitations the results of the analysis should be interpreted with care. First, involvement in the conflict is proxied here by the number of Palestinian fatalities. It is clear that some of the fatalities are not due to involvement in political violence and that many incidents of violence do not end up costing lives. Second, our analysis does not take into account all the actions taken by the Israeli (and Palestinian) security forces with the aim of reducing violence. Third, the study does not provide a counterfactual, i.e., we do not know what the intensity of the conflict

would have been had Israel not decided to restrict Palestinian employment. Furthermore, we relate variation in employment declines to variation in conflict intensity, but cannot estimate the effect of the policy change on the overall level of violence. Our analysis also ignores the question of the "cycle of violence", i.e., whether and to what extent Israel reacts to Israeli fatalities and the Palestinians react to Palestinian fatalities.¹ The paper examines the effect of employment declines on involvement in conflict; the effect of employment increases may not necessarily be symmetric. Finally, our study focuses on the Israeli-Palestinian conflict and on a specific policy intervention and thus the results may not necessarily carry over to other contexts.

Our study contributes to the small but growing literature on (a) the causal effect of economic conditions on conflict and (b) the effectiveness of measures aimed at countering political violence. As we discuss below, this literature is plagued by methodological obstacles that undermine credible identification of causal relationships. By exploiting a "quasi-natural experiment" and relying on high quality data, this paper overcomes some of these obstacles.

The rest of the paper is organized as follows. Section 2 reviews the relevant literature. Section 3 explains how we constructed the dataset used in the analysis. The first part of Section 4 describes patterns of Palestinian employment in Israel and estimates, at the locality level, the determinants of (a) the level of employment in Israel during the pre-Intifada period and (b) the decline in employment following the outbreak of the Intifada. The second part of Section 4 examines political and economic developments in the West Bank following the outbreak of the Intifada. Section 5 focuses on estimating the effect of employment restrictions on conflict intensity. At the end of this section we discuss potential mechanisms that might link employment restrictions to political violence. Section 6 summarizes the results and provides concluding remarks.

¹Two prominent papers, Jaeger and Paserman (2008) and Haushofer, Biletzki and Kanwisher (2010), investigate the question of the "cycle of violence" in the Intifada context by estimating reaction functions for Israelis and Palestinians. The former study finds evidence of Granger causality from Palestinian to Israeli violence but not in the opposite direction while the latter finds that causality operates in both directions. These conflicting findings make it difficult to establish the direction of bias in our key result regarding the effect of employment restrictions on political violence. Assume first that Israel reacts to Palestinian violence. If this reaction leads to incapacitation then the coefficient of interest would be biased downward. If, on the other hand, the Israeli reaction leads to escalation then the coefficient of interest would be biased upward. If Israel does not react to Palestinian violence (or if Israeli actions do not affect the level of Palestinian actions) then the coefficient of interest may be unbiased.

2 Existing literature

This paper is related to two strands of the literature on conflict. The first investigates the relationship between economic conditions and conflict.² The second examines the effectiveness of policies aimed at countering political violence.

Research on the relationship between economic conditions and political violence largely focuses on testing the following hypothesis: that poor economic conditions (e.g. low levels of income or high levels of unemployment) lower the opportunity cost of involvement in political violence and breed frustration, despair and instability, all of which make it easier to garner support for – and motivate active participation in – political violence. Despite the simplicity and intuitiveness of this hypothesis, empirical research has not yielded consistent results: studies – most of which rely on cross-sectional variation between countries – find that better economic conditions are associated either with less violence (e.g., Blomberg, Hess and Weerapana, 2004; Tavares, 2004), the same level of violence (e.g., Abadie, 2006; Krueger and Laitin, 2008), or even more violence (e.g., Berman, Callen, Felter and Shapiro, 2011).

Several previous studies have examined the relationship between economic conditions and the involvement of Palestinians in the conflict with Israel.³ Taking the Territories as a single unit of observation and examining time series variation for the period 1990-2002, Saleh (2004, 2009) shows that deterioration in economic conditions (higher unemployment and lower income) were associated with more attacks against Israelis. Employing a similar methodology for the same period, Sayre (2009) finds a positive association between the unemployment rate among younger Palestinian workers and the number of suicide bombings, but no association for other economic indicators and measures of violence intensity. Benmelech, Berrebi, and Klor (2012) have recently shown that economic conditions mattered for the *quality* of Palestinian suicide bombers during the Intifada: high levels of unemployment enabled Palestinian militant organizations to recruit better educated, more mature, and more experienced suicide bombers, who in turn attacked more important Israeli targets.

The literature on the effectiveness of policies aimed at countering political violence is relatively thin. Some studies examine the effectiveness of offensive military measures. For example, using time-series techniques, Enders and Sandler (1993) find that the 1986 United States bombing in Libya led to a short run increase in attacks directed at American and

²We focus here on research dealing with low intensity conflict (insurgency, guerrilla warfare, terrorism, etc.) and abstract from the large separate literature which examines the relationship between economic conditions and civil wars. The latter literature is surveyed by Blattman and Miguel (2010); recent contributions include Bazzi and Blattman (2011), Dube and Vargas (2011), and Vanden Eynde (2011).

³Benmelech, Berrebi and Klor (2010a) examine a causal effect that operates in the opposite direction. They show that successful attacks against Israelis during the second Intifada increased unemployment and reduced wages among Palestinians.

British targets. Lyall (2009) exploits random variation in the severity of Russian shelling of Chechen villages during 2000-05 to show that increased shelling led to a decline in the intensity of Chechen attacks against the Russians and their allies. Two recent studies have examined the effectiveness of economic measures taken by the United States as part its counter-insurgency effort in Iraq. Berman, Shapiro, and Felter (2011) find that funding of small scale public projects was effective in reducing attacks against allied forces. Iyengar, Monten, and Hanson (2011) show that funding projects which intensively use local labor had conflicting effects: it decreased insurgent attacks against civilians but increased attacks against military targets.

Several studies have focused on the effectiveness of measures taken by Israel in its conflict with the Palestinians. Brophy-Baermann and Conybeare (1994) report that out of all the measures taken by Israel in the 1970s and 1980s, only the surprisingly strong reaction to the killing of its athletes in the 1972 Olympics was effective in reducing violence. Kaplan, Mintz, Mishal and Samban (2005) find that mass preemptive arrests of Palestinians carried out by Israel during the Second Intifada led to a decrease in the number of Palestinian suicide bombings. Zussman and Zussman (2006) show that Israeli assassinations of leaders in the military wings of Palestinian organizations during the Second Intifada were viewed by investors in the Israeli stock market as effective measures in reducing violence; in contrast, assassinations of leaders in the political wings of these organizations were viewed as counter-productive. Finally, Benmelech, Berrebi, and Klor (2010b) demonstrate that the demolition of houses of Palestinian suicide bombers during the second Intifada had a short run negative influence on the number of suicide bombings; in contrast, the demolition of houses due to building code violations had the opposite effect.

We believe that our study makes a contribution to both strands of the literature on political violence. In particular, many studies in the literature suffer from methodological problems, including omitted variables bias (differences across countries and conflicts which are not taken into account in the analysis), reverse causation (conflict intensity affecting economic conditions), or non-random implementation of measures to counter violence. In contrast, our study relies on a "quasi-natural experiment" which makes it possible to credibly identify causal relationships.

3 Dataset

We combine data from several sources which provide information on Palestinian employment in Israel, the Palestinian labor market, economic and socio-demographic characteristics of Palestinian localities, voting patterns in the Palestinian Authority, and Palestinian fatalities

in the conflict with Israel. All this information was aggregated, when necessary, to the level of the locality, which serves as the unit of analysis.

We obtained monthly administrative data on all Palestinians employed in Israel with a permit in the years 1998-2008. The data was provided by the Israeli Ministry of Industry, Trade and Labor, which is in charge of issuing the permits. For each Palestinian employee we have information on locality of residence, age, and gender. We obtained additional information on the labor market in the Territories from labor force surveys conducted quarterly by the Palestinian Central Bureau of Statistics (PCBS). Economic and socio-demographic characteristics of Palestinian localities were taken from the population census conducted by the PCBS at the end of 1997.⁴ The Palestinian Central Elections Committee provided us with results of the elections for the presidency of the Palestinian National Authority held in January 1996. Geographic coordinates of Palestinian (and Israeli) localities are from the Israeli Central Bureau of Statistics (ICBS). Data on checkpoints set up by the Israeli Defense Forces was obtained from the Applied Research Institute - Jerusalem (ARIJ) through the Palestinian Ministry of National Economy.

This study focuses on localities in the West Bank (i.e., it excludes localities in the Gaza Strip) for the following reasons: (a) the 24 localities in the Gaza Strip (according to the ICBS) are clustered together in a small number of high-density blocs (the same was true for the Jewish settlements) – this makes the distinction between localities essentially artificial; (b) most Israeli settlements in the Gaza Strip and the roads leading to them were separated from Palestinian localities. Thus contact between Palestinians and Israeli civilians and security forces during the Second Intifada was much less intense in the Gaza Strip than in the West Bank.

Our dataset includes 373 Palestinian localities in the West Bank. These are all the localities that appear both in the list of localities of the ICBS and in the list of localities of the PCBS, except for 34 localities which have a population of less than 200 persons. We exclude these smaller localities because the reliability of economic and socio-demographic data for them is low.⁵ According to the 1997 census conducted by the PCBS, the localities included in our dataset contain 92 percent of the total West Bank population (excluding East Jerusalem).⁶

⁴Detailed information on the labor force surveys and the population census can be found on the website of the PCBS at www.pcbs.gov.ps.

⁵According to the ICBS, before the outbreak of the Second Intifada there were 485 Palestinian localities in the West Bank (excluding East Jerusalem). According to the PCBS, in 1997 (when the census was conducted) there were 692 localities in the West Bank (including East Jerusalem). Almost all of the discrepancy between the two sources is due to settlements consisting of several huts and tents which are defined as localities by the PCBS.

⁶Palestinians residing in East Jerusalem, unlike those residing in the West Bank, do not need a permit

We obtained information on Palestinian fatalities during the first phase of the Intifada (September 2000 - March 2002) from B'Tselem (The Israeli Information Center for Human Rights in the Occupied Territories) and from the International Institute for Counter-Terrorism (ICT) at the Interdisciplinary Center, Herzliya. The latter source also provided the breakdown of fatalities into civilians and combatants: combatants are defined as those who carried or used firearms, explosive devices, hand grenades or Molotov cocktails as well as uniformed members of the Palestinian security forces. We further gathered information on Palestinian fatalities from the signing of the Oslo accords in September 1993 until the outbreak of the Second Intifada from B'Tselem and cross-checked it against articles published in the Israeli mass-circulation daily newspapers *Ha'aretz* and *Yedioth Ahronoth*.

During the first eighteen months of the Intifada there were 831 Palestinian fatalities from the West Bank localities included in our dataset: 510 civilians and 321 combatants. Of these fatalities, 53 died in Israel, all of them combatants. The overall figure translates into roughly 5 fatalities per 10,000 population. More than 95 percent of the fatalities were males. The median age of the fatalities was 24 (less than 5 percent were 50 or older). Summary statistics for key variables at the locality level are provided in Table 1.

[Table 1]

4 Palestinian employment in Israel

4.1 Before the Second Intifada

The employment of Palestinians in Israel began almost immediately after the Israeli occupation of the Territories in 1967. A major rationale for the policy was that allowing Palestinians to work in Israel would improve economic conditions in the Territories and thus reduce resistance to the occupation. Concern over losing this employment opportunity, it was believed, would deter Palestinians from getting involved in anti-Israeli activities. The number of Palestinians employed in Israel has been determined since then by political and economic considerations, separately for the West Bank and the Gaza Strip, and by the economic sector of the Israeli employer. Since the early 1990s Palestinians are granted work permits on individual basis. To obtain work permits for Palestinian workers, Israeli employers submit petitions to the Israeli Ministry of Industry, Trade and Labor; permits are issued subject to security screening of each prospective Palestinian employee.⁷ For more details on

to work in Israel, and are therefore excluded from the analysis.

⁷When the Second Intifada broke out, only several thousand West Bank Palestinians were specifically prohibited for security reasons from working in Israel (Berda, forthcoming).

this procedure see Mundlak (2000), State of Israel (2011) and Berda (forthcoming).

There are no publicly available sources which detail the guidelines for granting employment permits and thus help to account for variation in the employment rate across Palestinian localities. However, in conversations with us officials from the Israeli Ministry of Industry, Trade and Labor suggested that the matching between Israeli employers and prospective Palestinian employees is in many cases facilitated by Palestinians already working for these employers. The Palestinian employees typically recruit relatives and friends from their own locality. This networking generates path dependency. An additional explanation for variation across localities in the employment rate is specialization: some localities specialize in specific jobs (e.g., employees from the Hebron area specialize in marble masonry) which are in high demand in Israel.

Employment in Israel has been a major source of income for the Palestinians. According to the Palestinian Central Bureau of Statistics (2000) on the eve of the Second Intifada 146 thousand Palestinians from the West Bank and the Gaza Strip were employed – either with or without a permit – in Israel and in Israeli settlements in the Territories. This amounted to roughly 22 percent of total employment in the Territories. Income from this source accounted for roughly one sixth of Palestinian national income (Palestinian Central Bureau of Statistics, 2003).

According to the administrative data provided to us by the Israeli Ministry of Industry, Trade and Labor, on the eve of the Second Intifada about thirteen thousand Palestinians from the West Bank, almost all male, worked in Israel with a permit (Figure 1).⁸ Palestinian males employed in Israel with a permit made up about 5 percent of the total working age male population and roughly 10 percent of all employed males.

[Figure 1]

The employment rate varied considerably across West Bank districts (Appendix figure 1A) and localities. Localities closer to Israel had a higher employment rate (Figures 2A and 2B). This is likely due to regulations which prohibited Palestinian workers from staying in Israel over night and the fact that travel is costly. Another pattern evident in the data is that employment rates were higher in villages than in cities and refugee camps (which are typically located on the outskirts of cities): before the outbreak of the Intifada the average

⁸In contrast, according to the Palestinian labor force survey of the third quarter of 2000, twenty thousand Palestinians from the West Bank (excluding East Jerusalem) were employed in Israel proper with a permit at that time. It is important to note that the reliability of the data on Palestinian employment by permit is higher in the administrative records that we rely on (see also Mansour, 2010).

The labor force survey of the third quarter of 2000 shows that the correlation across localities between employment in Israel with and without a permit is high (0.75). Possible explanations for this pattern include networking (i.e. arranging work through family or friends) and common transportation arrangements.

employment rate of males ages 20-49 was 6 percent in villages and only 4 percent in cities and refugee camps.⁹ This difference is likely due to inferior employment opportunities in villages.

[Figures 2A and 2B]

Our analysis focuses on estimating the effect of the employment restrictions imposed by Israel following the outbreak of the Second Intifada on Palestinian involvement in the conflict. These estimates would be biased, however, if there is correlation at the locality level between (a) the propensity of residents to be involved in the conflict and (b) the pre-Intifada employment rate or the Intifada-induced decline in the employment rate. For example, if the issuance of permits favored localities that were perceived as more supportive of the peace process with Israel, then our estimates could potentially be biased downwards.

As mentioned above, officials at the Israeli Ministry of Industry, Trade and Labor and researchers (e.g., Berda, forthcoming) contend that the issuance of permits is independent of such considerations and is mostly driven by two factors (a) networking, i.e., current Palestinian workers attempt to arrange permits for family and friends from their own locality, and (b) demand for workers with specific skills.

To investigate this potential source of bias more rigorously we first estimate the following equation:

$$ER_i = \alpha_0 + \alpha_1 \ln D_i + \alpha_2 P_i + \alpha_3 C_i + \alpha_4 R_i + \alpha_5 U_i + \alpha_6 CO_i + \alpha_7 CC_i + \alpha_8 I_i + \alpha_9 A_i + \alpha_{10} FR(-1)_i + \epsilon_i \quad (1)$$

where ER_i is the employment rate in Israel of Palestinian males ages 20-49 (in other words, the number of those employed in Israel with a permit out of total male population ages 20-49) in locality i , averaged over the period October 1998-September 2000¹⁰, D_i is distance to Israel, P_i is population, C_i is an indicator for cities, R_i is an indicator for refugee camps, U_i is a set of indicators for the availability of various public utilities, CO_i is an indicator for the operation of charity organizations, CC_i is an indicator for the operation of culture or sports clubs, I_i is the number of checkpoints operated by the Israeli Defense Forces in the vicinity of the locality, A_i is the percentage support for Yasser Arafat in elections for the presidency of the Palestinian National Authority held in January 1996, $FR(-1)_i$ is the rate

⁹Very few permits were issued to Palestinian males in the 18-19 age group; less than 10 percent of Palestinian males employed in Israel were 50 or older.

¹⁰We average the employment rate over this two year period to capture long-run pre-Intifada employment patterns. We note that employment in Israel was highly persistent, and thus the results of estimating equation (1) do not change much when the employment rate is averaged over the period just before the outbreak of the Intifada.

(share in percent) of Palestinian fatalities in the conflict with Israel from the signing of the Oslo accords (September 13, 1993) until the outbreak of the Second Intifada (September 28, 2000) out of total locality population, and ϵ_i is a well-behaved error term.

Results presented in Table 2A demonstrate that distance to Israel is strongly and negatively correlated with the employment rate: a one percent increase in distance is associated with a 1.7 percentage point decline in the employment rate. We also find that the employment rate is about 1.5 percentage points (or roughly one third) lower in cities and refugee camps than in villages.¹¹

[Table 2A]

One potential indication at the locality level of preferential treatment by the Israeli authorities is availability of public utilities, such as electricity, water, sewage and landline telephones. We find no cross-locality correlation between the availability of these utilities and the pre-Intifada employment rate.

According to the theory of club goods, non-governmental organizations which favor the use of violence to achieve political goals may provide public goods in order to gain support (see, for example, Berman and Laitin, 2008 and Berman, 2009). Observers have claimed that Hamas has used this approach to gain political support in the Palestinian context. The results presented in Table 2A demonstrate that the operation of charity organizations and clubs is not correlated with the pre-Intifada employment rate.

We also incorporate in the analysis the number of checkpoints operated by the Israeli Defense Forces in the vicinity of each locality. These checkpoints, which may reflect Israeli security concerns, could affect the ability of Palestinians to reach Israel. We find no evidence of a relationship between this variable and the pre-Intifada employment rate.

In columns 2 through 6 we add in sequence variables that attempt to capture more directly the locality level propensity to be involved in the conflict with Israel. The first variable is the percentage support for Yasser Arafat in elections for the presidency of the Palestinian National Authority held in January 1996. A major issue on the agenda during these elections was support for the Oslo Accords signed in 1993 between Israel and the Palestine Liberation Organization (PLO) and follow-up agreements. The purpose of these agreements was to peacefully resolve the Israeli-Palestinian conflict and to establish an independent Palestinian state alongside Israel. The agreements were supported by the PLO and its chairman, Yasser Arafat, but opposed by Islamic organizations (such as Hamas) and others. The results presented in column 2 show that support for Arafat was not significantly correlated with the

¹¹The difference between the estimated coefficients for cities and refugee camps is statistically insignificant.

employment rate.¹²

We next add to the baseline regressors the share (in percent) of Palestinian fatalities in the conflict with Israel from the signing of the Oslo accords until the outbreak of the Second Intifada out of total locality population. We find that combatant fatalities (column 3), civilian fatalities (column 4) and total fatalities (column 5) are all uncorrelated with the pre-Intifada employment rate.¹³ Adding both the Arafat variable and the total fatalities variable to the baseline regression yields the same qualitative results (column 6).

In sum, Table 2A provides no evidence of locality-level correlation between the pre-Intifada employment rate and key factors that plausibly capture the propensity of residents to be involved in the conflict with Israel.

Our identification strategy builds on the exogenous nature of the immediate and differential decline in Palestinian employment in Israel following the outbreak of the Intifada. However, in many Palestinian localities employment in Israel (a) did not immediately decline to zero and/or (b) continued to fluctuate around the new minimal levels over the Intifada period. Thus the credibility of our identification strategy might be undermined if, at the locality level, the immediate decline in the employment rate was related to residents' pre-Intifada propensity to be involved in the conflict with Israel and/or if during the Intifada the employment rate was influenced by conflict intensity. We address these two concerns in turn.

To address the first concern we re-estimate equation (1), replacing the original dependent variable with the decline (in percentage point terms), from June-August 2000 to October-December 2000, in the average monthly employment by permit in Israel of Palestinian males ages 20-49 out of total male population in that age group in each locality.¹⁴ The results, presented in Table 2B, are similar to those presented in Table 2A. More specifically, the only two variables that are consistently significant are distance to Israel and the indicator for cities. This establishes that the immediate decline in the employment rate following the outbreak of the Intifada was not related to pre-Intifada propensity to be involved in the conflict with Israel.

[Table 2B]

¹²It is possible that public opinion changed from January 1996 to September 2000. However, we do not find strong evidence for this actually happening. Comprehensive public opinion polls conducted by the Center for Palestine Research and Studies (CPRS) at Birzeit University show that the correlation (at the district level in the West Bank) between the extent of support for Arafat in January 1996 and in September 2000 is 0.46.

¹³During the pre-Intifada period, 199 West Bank (excluding East Jerusalem) Palestinians were killed by Israelis: 63 combatants, 129 civilians, and 7 unclassified.

¹⁴We exclude September 2000 from the employment rate averages since the Intifada started in the last few days of the month.

To address the second concern we estimate the following equation for the Intifada period:

$$ER_{i,t} = \beta_0 + \beta_1 FR_{i,t-1} + \Gamma_i + \Omega_t + \mu_{i,t} \quad (2)$$

where $ER_{i,t}$ is the employment rate in Israel of Palestinian males ages 20-49 in locality i at period t (month or quarter), $FR_{i,t-1}$ is the fatality rate in locality i at the previous period, Γ_i is a set of locality fixed-effects, Ω_t is a set of time period indicators, and $\mu_{i,t}$ is a well-behaved error term. Results of the analysis, presented in Table 2C, demonstrate that at the locality level the employment rate was not influenced by conflict intensity during the Intifada. Overall, the results presented in this section lend support to the credibility of our identification strategy.

[Table 2C]

4.2 The Second Intifada

The years preceding the outbreak of the Second Intifada were characterized by relative calm in the Israeli-Palestinian conflict (Figures 3A and 3B). The Second (or Al-Aqsa) Intifada broke out on September 28, 2000 and eventually claimed the lives of thousands of Palestinians and Israelis. At the end of March 2002, a month that saw a peak in the number of Israeli fatalities, Israel launched a military operation ("Defensive Shield") in which large scale forces took over Palestinian localities, conducted mass arrests and set up a large number of military posts, roadblocks and checkpoints. The operation marked a turning point in the evolution of the Intifada, eventually leading to a sharp decline in Israeli and Palestinian fatalities. We chose to limit our analysis to the pre-"Defensive Shield" period because the operation had such a drastic effect on the turn of events.

[Figures 3A and 3B]

During the period from the outbreak of the Intifada until the start of operation "Defensive Shield", 831 Palestinian residents of West Bank localities included in our dataset were killed by Israelis: 510 civilians and 321 combatants. During the same period 148 Israelis were killed by Palestinians in the West Bank.

Following the outbreak of the Intifada, the number of Palestinians from the West Bank (and the Gaza Strip) employed in Israel dropped sharply (see Figure 1 above). The number of days worked by these employees dropped even more drastically (see Appendix Figure 2A), as the average number of work days per month declined. This was due to the Israeli policy of intermittently imposing curfews and closures, which made it more difficult for permit-holders

to reach their workplaces. Palestinian employment in Israel started to recover slowly after the end of operation "Defensive Shield."

The Second Intifada had a strong negative effect on economic conditions in the West Bank. Per capita real gross national product in the West Bank was 22 percent lower in 2002, at the height of the Intifada, than in 2000. The average unemployment rate in 2002 was 28.2 percent, up from 7.5 percent in the third quarter of 2000, just prior to the outbreak of the Intifada. Wages also declined. This affected mostly uneducated workers, many of whom were employed in Israel at wages higher than those prevalent in the West Bank (for more on this see International Monetary Fund, 2003; World Bank, 2004; Mansour, 2010; Miaari and Sauer, 2011).

5 Employment restrictions and political violence

5.1 Results

In this section we examine how the policy adopted by Israel at the start of the Second Intifada of drastically reducing Palestinian employment within its borders affected Palestinian involvement in the conflict during the first eighteen months of the Intifada. Identification relies on two facts established in the previous section: (a) that variation across Palestinian localities in pre-Intifada rates of employment by permit was considerable and (b) that the pre-Intifada rate of employment and the drop in this rate following the outbreak of the Intifada were both unrelated to prior levels of involvement in the conflict.¹⁵

Before turning to the econometric analysis, we provide a graphical illustration of the relationship between the decline in the employment rate and Palestinian involvement in the Intifada: Figure 4 suggests that localities that suffered from a sharper decline in the employment rate saw greater involvement in the conflict.

[Figure 4]

In order to investigate the relationship between employment restrictions and involvement in the conflict more rigorously we estimate the following equation:

¹⁵We note that according to Palestinian labor force surveys, the decline in locality level employment in Israel with and without a permit was highly correlated (0.76). This reflects the high pre-Intifada correlation in employment with and without a permit, as mentioned in the previous section. Thus while our analysis focuses on the decline in employment with a permit, it is likely that similar results would have been obtained had we examined both types of employment. However, it is important to note that the sample size in the Palestinian labor force surveys (which report both types of employment) is not large enough to reliably reflect conditions at small localities.

$$F_i = \gamma_0 + \gamma_1 \Delta ER_i + \gamma_2 P_i + \gamma_3 C_i + \gamma_4 R_i + \gamma_5 X_i + \gamma_6 A_i + \gamma_7 F(-1)_i + \gamma_8 \Delta I_i + \gamma_9 \ln D_i + \eta_i \quad (3)$$

where F_i is the number of Palestinians killed by Israelis from the outbreak of the Second Intifada (September 28, 2000) until the start of operation "Defensive Shield" (March 29, 2002) in locality i , ΔER_i is the decline (in percentage points) from June-August 2000 to October-December 2000, in the average monthly employment by permit in Israel of Palestinian males ages 20-49 out of total male population in that age group in locality i , X_i is a vector of socio-demographic characteristics of the locality (the pre-Intifada unemployment rate, the share of males with up to elementary education, and the share of households with more than 8 persons), $F(-1)_i$ is the number of Palestinians killed by Israelis from the signing of the Oslo accords until the outbreak of the Second Intifada in locality i , ΔI_i is the change in the number of checkpoints operated by the Israeli Defense Forces from 2000 to 2001 and the other variables are defined as before. η_i is a well-behaved error term.

The focus of our investigation is the parameter γ_1 . A positive γ_1 implies that sharper policy-induced employment rate declines led to greater involvement of Palestinians in the conflict.

Following the previous literature (e.g. as discussed in Krueger and Laitin, 2008), we estimate (3) using a Zero-Inflated Negative Binomial (ZINB) regression. This method is appropriate for analyzing count data which is characterized by overdispersion and a large share of zeros in the dependent variable (see Long and Frees, 2006).¹⁶ Similar results were obtained using two alternative estimation techniques: Negative Binomial and (left-censored) Tobit.¹⁷

Our baseline results, presented in Table 3, suggest that the Israeli employment restrictions led to a rise in the number of Palestinian fatalities during the Intifada. This result is consistent across the different specifications presented in the table. We also find that, all else being equal, there were more fatalities in larger localities and in cities (relative to villages). The last result is in line with existing literature (e.g. Savitch and Ardashev, 2001, and Kis-Katos, Liebert, and Schulze, 2011) which relates it to several characteristics of urban areas: greater ability to hide and to plan and carry out acts of violence in a target-rich environment; greater exposure of the public to events which may increase support for combatants; factors that encourage political and social instability, such as fast rates of socio-demographic and

¹⁶In 64 percent of all localities in our dataset there were no Palestinian fatalities during the period under investigation.

¹⁷The Vuong (1989) test indicates that ZINB should be preferred over the Negative Binomial and Poisson models.

economic changes, prevalence of poverty, and the existence of a large number of distinct communities in competition with each other. We also find that the number of fatalities was significantly larger in refugee camps, not only relative to villages, but also relative to cities. This may be related to pre-existing differences in political views across the three types of localities.

[Table 3]

With respect to locality level differences in socio-demographic and economic characteristics, we find that the pre-Intifada rate of unemployment is not correlated with the number of fatalities during the Intifada.¹⁸ The results indicate that the number of fatalities is smaller in localities with lower levels of education. This is consistent with previous findings in the literature (Krueger and Maleckova, 2003 and Berrebi, 2007). We do not find a significant relationship between the number of fatalities and the share of households with more than eight persons, which is an indirect measure of poverty.

An interesting finding is that the number of fatalities was larger in localities that exhibited greater support for Yasser Arafat in the 1996 elections for the presidency of the Palestinian National Authority. This finding fits well with the claim that paramilitary forces close to Arafat and his Fatah movement, such as the Tanzim and the al-Aqsa Martyrs' Brigades, were leading the confrontation at the beginning of the Intifada (see Knesset - Research and Information Center, 2004). We find no significant relationship at the locality level between the total number of fatalities in the Intifada period and in the pre-Intifada period.¹⁹

Following the outbreak of the Intifada there were changes in Israeli military tactics which might have varied across localities. To examine this possibility (admittedly in an imperfect manner) we include in the regression specification the change between 2000 and 2001 in the number of checkpoints operated by the Israeli Defense Forces in the vicinity of each locality. We find that the change in the number of checkpoints is not correlated with the number of fatalities at the locality level.

Finally, we note that the credibility of our identification strategy would be compromised if distance to Israel is correlated with the propensity for involvement in political violence at the locality level (e.g., because it is easier for residents of Palestinian localities close to Israel to reach Israeli cities in order to carry out attacks). The results presented in the last column of Table 3 demonstrate that distance to Israel is not correlated with the number of fatalities. This result seems quite intuitive. As we noted above, out of the 831 Palestinian fatalities

¹⁸Because labor force surveys do not allow us to compute the unemployment rate for all localities, we use instead the unemployment rate at the district level.

¹⁹Insignificant results are obtained as well when replacing pre-Intifada total fatalities with pre-Intifada civilian or combatant fatalities.

during the period under investigation, only 53 (6.3%) died in Israel, all of them "combatants." In these cases distance to Israel might have played an operational role. However, for the remaining 778 West Bank fatalities, distance to Israel likely played a negligible role.²⁰

We next provide three tests of the robustness of our key result regarding the relationship between employment restrictions and political violence. First, as noted in the previous section, the outbreak of the Intifada brought about a decline not only in the number of Palestinians working in Israel but also in the number of work days per employee, implying that the decline in labor input was even greater than the decline in the number of workers (compare Appendix Figure A2 to Figure 1). To check whether this affects our conclusions, we re-estimate equation (3), adjusting the definition of ΔER_i to reflect the decline in the number of work days per employee. The adjustment is based on the locality-specific average number of work days per employee in the pre-Intifada period. Results of this analysis, presented in Table 4A, are similar to those reported in Table 3.

[Table 4A]

Second, until now we defined ΔER_i as the locality level decline, from June-August 2000 to October-December 2000, in the average employment rate. As Figure 1 shows, however, the employment rate continued to fluctuate after December 2000, and this pattern may have varied by locality. To check whether this changes our conclusions, we re-estimate equation (3), adjusting the definition of ΔER_i to reflect the decline in the average employment rate from June-August 2000 to the period October 2000-March 2002.²¹ Results of this analysis, presented in Table 4B, are again similar to those presented in Table 3.

[Table 4B]

Third, one may argue that the relationship between employment patterns and involvement in the conflict is inherently different across types of localities and that this is not being fully taken into account in our baseline analysis. To address this concern we re-estimate

²⁰We used equation (3) to test two additional hypothesis. In both cases there was no effect on our main result regarding the relationship between employment rate declines and involvement in the conflict.

First, to take into account potential frictions between Jewish settlers and their Palestinian neighbors we added a variable capturing the distance between each Palestinian locality and the closest Israeli West Bank settlement. This variable turned out to be insignificant.

Second, following the Oslo agreements, the West Bank was divided into three distinct areas: area A – under Palestinian security and civilian control; area B – under Israeli security control and Palestinian civilian control; area C – under Israeli security and civilian control. We find that the number of fatalities in areas B and C was significantly lower than in area A. This is likely due to the greater ability of Israeli security forces to operate in areas B and C.

²¹For the localities included in our dataset, the correlation between the average employment rates in the periods October-December 2000 and October 2000-March 2002 is 0.84.

equation (3) while restricting the analysis to villages, which make up 72 percent of the localities in our dataset. We find (Table 4C) that the effect of employment restrictions on involvement in the conflict is stronger for villages than for the entire set of localities.

[Table 4C]

In Table 5 we present a summary of the marginal effects – at the sample means of the explanatory variables – of the decline in the employment rate on the number of fatalities as derived from estimating equation (3) using different definitions of F_i (total, civilian, and combatant fatalities) as well as different definitions of ΔER_i by employee age groups (20-49, 20-34, and 35-49). We estimate equation (3) separately for the different age groups for the following reasons: (a) the restrictions on employment in Israel imposed following the outbreak of the Intifada were somewhat stricter for the younger Palestinian workers (20-34) than for their older colleagues (35-49) and (b) previous research has shown that the young are typically more heavily involved in violence (see Krueger and Maleckova, 2003; Berrebi, 2007; and Krueger, 2008).

[Table 5]

Focusing first at the results for total fatalities and workers aged 20-49, we find that a one percentage point decline in the locality-specific employment rate resulted in a 0.13 increase in the total number of Palestinian fatalities from the outbreak of the Second Intifada until the start of operation "Defensive Shield." When aggregating this effect for the entire set of localities in our dataset, this translates into 160 fatalities, or about one fifth of total fatalities during the period under investigation.²² The marginal effect of the decline in employment of workers aged 20-49 was similar for civilian and combatant fatalities. Consistent with the existing literature, we find that the effect on the total number of fatalities from the Israeli imposed employment restrictions was much stronger for young Palestinian workers (0.163) than for older ones (0.067).

5.2 Discussion

The results presented above naturally raise the question of interpretation: what are the mechanisms that connect employment restrictions to political violence? In this section we discuss three potential mechanisms.

²²To arrive at the figure of 160 fatalities we multiply the marginal effect (0.13) by the average decline in the employment share (3.3 percentage points) and by the total number of localities (373):

$$0.13 \times 3.3 \times 373 = 160.$$

The first is the well-known "opportunity cost" channel. According to this mechanism a deterioration in economic conditions in the West Bank lowered the opportunity cost of involvement in violent activities faced by the Palestinians. As mentioned above, macroeconomic conditions did deteriorate drastically following the outbreak of the Intifada, but the question remains whether the extent of deterioration was related to the loss of employment opportunities in Israel at the *locality* level.

To address this question we use data from the Palestinian labor force surveys for the third and fourth quarters of 2000 (i.e. just before and after the outbreak of the Intifada). As reported in Table 6, we find that the employment restrictions imposed by Israel following the outbreak of the Intifada had a strong negative effect on economic conditions – a rise in the unemployment rate and a decline in labor income – in Palestinian localities.²³ These results are consistent with the operation of an "opportunity cost" channel.

[Table 6]

A second possible mechanism focuses on the concept of deterrence. As argued in the introduction, a key rationale behind Israel's permits policy was that dependence on employment in Israel would deter Palestinians from getting involved in the conflict. Once the Intifada broke out, the number of permits was immediately and drastically reduced. The motivation for Palestinians (both former permit holders and others) to get involved in violence could have nevertheless remained low had they expected that the Intifada would be a short-lived episode and that once violence ends, the number of permits would revert to its pre-Intifada level. This, however, was not the case. Public opinion surveys conducted periodically by the Palestinian Center for Policy and Survey Research (PCPSR) in Birzeit University provide evidence that many Palestinians realized early on that the Intifada is going to last for a long time.²⁴ In a survey from November 2000, only two months after the outbreak of the Intifada, participants were asked how long they believed the Intifada is going to continue. Of those who had an opinion, 50% answered "months" and 38% answered "years." The same question was asked again in October 2001. The corresponding figures were 15% and 82%, respectively. In fact, the pessimists were correct: the Intifada did last for years and the number of permits remained very low throughout the period under investigation. Thus, it

²³In Table 6 we estimate regressions where the dependent variable is either the change (in percentage point terms) in the locality-level unemployment rate or the change in average household monthly labor income (in NIS) between the third and fourth quarters of 2000 and the independent variable is the decline (in percentage point terms) between these two quarters in employment in Israel (with a permit, without a permit, and total) out of the locality's labor force. To increase reliability, the analysis is restricted to localities with at least 30 survey observations in both quarters.

²⁴The surveys can be found at the following website: <http://www.pcpsr.org/survey/index.html>.

is quite possible that the Israeli policy of employment restrictions led to a loss of deterrence vis-a-vis the Palestinians.

A third potential mechanism has to do with psychological factors. From the perspective of many Palestinians, the deterioration in their economic conditions was not due to some random shock (e.g. bad weather or a decline in commodity prices) but rather part of a calculated Israeli strategy aimed at pressuring them. Such a strategy could have had negative psychological consequences. While it is difficult to provide concrete evidence on this channel, media reports from the period following the outbreak of the Intifada do suggest that the change in Israel's employment policies generated feelings of humiliation, resentment and anger among Palestinians, including former permit holders. For example, a *Financial Times* article from October 18, 2000 cites a Palestinian observer claiming that "In future, the effects of the trauma of this crisis will remain... The workers going back will have a new psychology towards their Israeli employers."²⁵

All three mechanisms, and potentially others, could have worked simultaneously and interacted with each other in complex ways. Ultimately, we believe that given the type of data at our disposal it is impossible to nail down which of these mechanisms is most important.

6 Conclusion

Policy makers, researchers and the general public are interested in learning how economic conditions affect political violence and conflict. Such knowledge can inform the design of policies aimed at countering violence. Conventional wisdom holds that poor economic conditions are one of the root causes of violence and conflict, and this view seems to underlie policies adopted by governments around the world to reduce violence. However, academic research has not reached a consensus regarding the causal relationship between economic conditions and conflict.

This paper relies on detailed data and a "quasi-natural experiment" to address this question in the context of the Israeli-Palestinian conflict. Employment in Israel was a major source of income for Palestinians before the outbreak of the Second Intifada in the fall 2000, accounting for about one sixth of Palestinian national income. Following the outbreak of the Intifada Israel imposed severe restrictions on the employment of Palestinians within its borders. We examine how this abrupt and drastic policy change affected the involvement of West Bank Palestinians in fatal confrontations in the first phase of the Intifada. Identification

²⁵Kuriansky (2006) provides a psychological perspective on the Israeli-Palestinian conflict that deals, among other things, with the effects of the loss of employment opportunities on Palestinian male workers.

relies on the fact that variation in pre-Intifada employment rates in Israel across Palestinian localities was not only considerable but also unrelated to prior levels of involvement in the conflict.

Our analysis shows that the Israeli employment restrictions led to an increase in conflict intensity: at the locality level, a one percentage point decrease in the employment rate of males ages 20-49 led to a 0.13 increase in the total number of fatalities from the outbreak of the Second Intifada until the start of operation "Defensive Shield" at the end of March 2002. Back of the envelope calculations show that the decline in employment can explain roughly one fifth of all Palestinian fatalities. Subject to several caveats mentioned in the introduction, these results suggest that allowing a greater number of Palestinian workers into Israel may not only improve the welfare of Palestinians, but could also reduce their involvement in the conflict with Israel.

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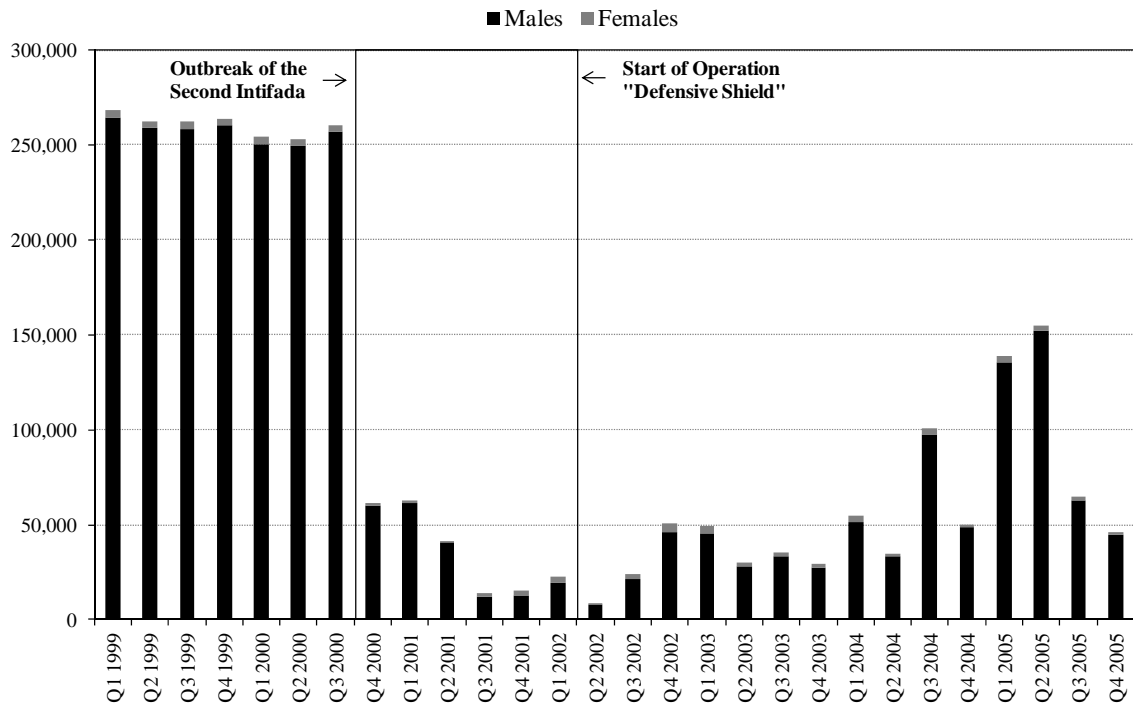
APPENDIX

FIGURE 1A: PRE-INTIFADA EMPLOYMENT RATES BY WEST BANK DISTRICT AND LOCALITY TYPE – CITY/REFUGEE CAMP (VILLAGE), IN PERCENT



Notes: Pre-Intifada employment rate refers to June-August 2000 average monthly employment by permit in Israel of Palestinian males ages 20-49 out of total male population in that age group in each district. Jerusalem district excludes East Jerusalem.

FIGURE 2A: DAYS WORKED BY WEST BANK PALESTINIANS EMPLOYED IN ISRAEL WITH A PERMIT, 1999-2005



Notes: Employment figures are monthly averages per quarter.

TABLE 1: SUMMARY STATISTICS FOR WEST BANK PALESTINIAN LOCALITIES
(shares, unless otherwise noted)

		Data source ¹	N	Mean	Standard deviation	Min	Max
Employment by permit before the outbreak of the Intifada ²		a	373	0.052	0.051	0	0.523
Distance to Israel (km)		b	373	12.6	7.6	1.0	35.3
Minimum distance to Israeli settlement (km)		b	373	3.3	1.8	0.0	11.0
Locality type	City	c	373	0.25	0.43	0	1
	Refugee camp	c	373	0.03	0.17	0	1
	Village	c	373	0.72	0.45	0	1
Population (thousands)		c	373	4.0	9.1	0.2	119.0
Refugees		c	373	0.21	0.24	0	0.99
Socioeconomic characteristics	Households with more than 8 persons	c	373	0.32	0.08	0.09	0.64
	Males with up to elementary education	c	373	0.53	0.09	0.27	0.85
	Pre-Intifada unemployment rate ³	c	373	0.07	0.04	0.03	0.14
	Charity organization	c	372	0.39	0.49	0	1
	Culture club	c	372	0.20	0.40	0	1
	Sports club	c	372	0.48	0.50	0	1
	Availability of public utilities	Electricity	d	373	0.93	0.26	0
	Water	d	373	0.73	0.44	0	1
	Sewage	d	373	0.10	0.30	0	1
	Telephone (landline)	d	373	0.75	0.44	0	1
Pre-Intifada support for Arafat ⁴		e	336	0.64	0.17	0.21	0.97
Fatalities before the outbreak of the Intifada ⁵ (%)		f	373	0.01	0.02	0	0.15
Fatalities after the outbreak of the Intifada ⁶ :							
Share (%)	Total	g	373	0.034	0.093	0	1.410
	- Civilians	g	373	0.021	0.059	0	0.822
	- Combatants	g	373	0.013	0.044	0	0.587
Absolute numbers	Total	g	373	2.23	8.29	0	73
	- Civilians	g	373	1.37	5.30	0	50
	- Combatants	g	373	0.86	3.30	0	33
IDF checkpoints ⁷	- 2000	h	372	0.73	1.08	0	4
	- 2001	h	372	1.11	1.50	0	7

Source: See text for details.

Notes:

¹ a – Israeli Ministry of Industry, Trade and Labor; b – Israeli Central Bureau of Statistics; c – Palestinian Central Bureau of Statistics (1997 census); d – Palestinian Central Bureau of Statistics (1999); e – Palestinian Central Elections Committee; f – B'Tselem (The Israeli Information Center for Human Rights in the Occupied Territories) and the Israeli daily newspapers *Ha'aretz* and *Yedioth Ahronoth*; g – B'Tselem, International Institute for Counter-Terrorism, the Israeli daily newspapers *Ha'aretz* and *Yedioth Ahronoth*; h – Applied Research Institute - Jerusalem (ARIJ) through the Palestinian Ministry of National Economy.

² June-August 2000 average monthly employment by permit in Israel of Palestinian males ages 20-49 out of total male population in that age group in each locality.

³ At the district level, third quarter 2000.

⁴ In elections for the presidency of the Palestinian National Authority held in January 1996.

⁵ Palestinians killed by Israelis from the signing of the Oslo accords (September 13, 1993) until the outbreak of the Second Intifada (September 28, 2000) out of total population in locality.

⁶ Palestinians killed by Israelis from the outbreak of the Second Intifada (September 28, 2000) until the start of operation "Defensive Shield" (March 29, 2002) out of total population in locality.

⁷ Number of checkpoints operated by the Israeli Defense Forces throughout the year within 10km of the locality.

TABLE 2A: DETERMINANTS OF PRE-INTIFADA EMPLOYMENT RATES IN ISRAEL

		<i>dependent variable: employment rate in locality</i>					
		(1)	(2)	(3)	(4)	(5)	(6)
Log distance to Israel		-1.726*** (0.363)	-1.668*** (0.367)	-1.729*** (0.364)	-1.722*** (0.364)	-1.719*** (0.364)	-1.654*** (0.368)
Population		-0.003 (0.018)	-0.009 (0.019)	-0.004 (0.018)	-0.004 (0.018)	-0.003 (0.018)	-0.009 (0.019)
Locality type	City	-1.509*** (0.558)	-1.539*** (0.590)	-1.514*** (0.558)	-1.522*** (0.562)	-1.512*** (0.560)	-1.543*** (0.592)
	Refugee camp	-1.374 (1.260)	-1.940 (1.330)	-1.377 (1.257)	-1.367 (1.273)	-1.366 (1.274)	-1.984 (1.352)
Availability of public utilities	Electricity	-1.018 (1.733)	-1.532 (2.104)	-1.024 (1.740)	-1.051 (1.737)	-1.035 (1.733)	-1.570 (2.101)
	Water	-0.080 (0.641)	-0.030 (0.687)	-0.081 (0.643)	-0.047 (0.639)	-0.055 (0.641)	0.015 (0.685)
	Sewage	-0.444 (1.191)	-0.418 (1.306)	-0.467 (1.203)	-0.351 (1.214)	-0.348 (1.225)	-0.246 (1.346)
	Telephone (landline)	-0.251 (0.713)	-0.479 (0.829)	-0.244 (0.714)	-0.264 (0.715)	-0.268 (0.717)	-0.519 (0.835)
Charity organization		0.060 (0.488)	0.098 (0.512)	0.050 (0.495)	0.102 (0.491)	0.102 (0.497)	0.179 (0.523)
Culture or sports club		0.060 (0.489)	0.178 (0.513)	0.069 (0.495)	0.039 (0.491)	0.035 (0.494)	0.130 (0.520)
IDF checkpoints		0.586 (0.442)	0.693 (0.467)	0.588 (0.444)	0.589 (0.443)	0.585 (0.442)	0.692 (0.467)
Pre-Intifada support for Arafat			-0.011 (0.012)				-0.011 (0.012)
Fatalities before the outbreak of the Intifada	Combatants			5.351 (25.801)			
	Civilians				-9.353 (13.527)		
	Total					-6.641 (12.619)	-10.924 (13.754)
Observations		371	334	371	371	371	334
R ²		0.108	0.121	0.108	0.109	0.108	0.122

Sources: See Table 1.

Notes: The dependent variable is the October 1998-September 2000 average monthly employment by permit in Israel of Palestinian males ages 20-49 out of total male population in that age group in each locality. See Table 1 for the definitions of the independent variables. Regressions estimated by OLS. Robust standard errors are reported in parentheses. *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

TABLE 2B: DETERMINANTS OF INTIFADA-INDUCED DECLINES IN EMPLOYMENT RATES

		<i>dependent variable: employment rate decline in locality</i>					
		(1)	(2)	(3)	(4)	(5)	(6)
Log distance to Israel		-1.037*** (0.273)	-1.063*** (0.284)	-1.041*** (0.274)	-1.032*** (0.273)	-1.029*** (0.273)	-1.047*** (0.284)
Population		0.005 (0.011)	0.003 (0.012)	0.005 (0.011)	0.005 (0.011)	0.005 (0.011)	0.003 (0.012)
Locality type	City	-0.819** (0.408)	-0.811* (0.433)	-0.825** (0.409)	-0.836** (0.411)	-0.823** (0.410)	-0.815* (0.434)
	Refugee camp	-0.911 (0.797)	-1.265 (0.804)	-0.914 (0.790)	-0.901 (0.804)	-0.900 (0.813)	-1.316 (0.807)
Availability of public utilities	Electricity	-0.079 (1.058)	-0.783 (1.321)	-0.085 (1.062)	-0.120 (1.057)	-0.099 (1.055)	-0.828 (1.313)
	Water	-0.378 (0.471)	-0.490 (0.512)	-0.379 (0.472)	-0.336 (0.471)	-0.347 (0.472)	-0.437 (0.511)
	Sewage	-0.782 (0.646)	-0.872 (0.705)	-0.810 (0.641)	-0.664 (0.650)	-0.661 (0.649)	-0.671 (0.714)
	Telephone (landline)	-0.074 (0.512)	-0.253 (0.597)	-0.066 (0.513)	-0.090 (0.513)	-0.096 (0.514)	-0.299 (0.601)
Charity organization	0.016 (0.377)	0.075 (0.397)	0.004 (0.385)	0.069 (0.380)	0.069 (0.386)	0.020 (0.406)	
Culture or sports club	0.299 (0.381)	0.330 (0.400)	0.309 (0.386)	0.272 (0.382)	0.266 (0.383)	0.273 (0.403)	
IDF checkpoints	0.315 (0.282)	0.339 (0.294)	0.318 (0.283)	0.319 (0.283)	0.314 (0.282)	0.338 (0.294)	
Pre-Intifada support for Arafat			-0.005 (0.009)				-0.005 (0.009)
Fatalities before the outbreak of the Intifada	Combatants			6.383 (19.028)			
	Civilians				-11.835 (7.288)		
	Total					-8.361 (7.828)	-12.779 (8.635)
Observations		371	334	371	371	371	334
R ²		0.073	0.091	0.073	0.075	0.075	0.094

Sources: See Table 1.

Notes: The dependent variable is the decline, from June-August 2000 to October-December 2000, in the average monthly employment by permit in Israel of Palestinian males ages 20-49 out of total male population in that age group in each locality. See Table 1 for the definitions of the independent variables. Regressions estimated by OLS. Robust standard errors are reported in parentheses. *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

TABLE 2C: THE EFFECT OF VIOLENCE INTENSITY ON EMPLOYMENT

<i>dependent variable: employment rate in locality</i>						
	Monthly analysis			Quarterly analysis		
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged civilian fatalities	-0.555 (1.638)			-0.240 (1.243)		
Lagged combatant fatalities		2.447 (2.197)			1.157 (1.848)	
Lagged total fatalities			0.506 (1.299)			0.218 (1.089)
Locality fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,341	6,341	6,341	1,865	1,865	1,865
R ²	0.099	0.100	0.099	0.075	0.078	0.076

Source: See Table 1.

Notes: The dependent variable in columns 1-3 is the number of Palestinian males ages 20-49 employed by permit in Israel out of total male population in that age group in each locality in a given month (from November 2000 to March 2002). The dependent variable in columns 4-6 is the average monthly number of Palestinian males ages 20-49 employed by permit in Israel out of total male population in that age group in each locality in a given quarter (from the first quarter of 2001 to the first quarter of 2002). The independent variable is the number of civilian/combatant/total fatalities out of total population in a each locality in the previous month (columns 1-3) or quarter (column 4-6). Regressions estimated by OLS. Robust standard errors are reported in parentheses. *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

TABLE 3: EFFECT OF EMPLOYMENT RESTRICTIONS ON CONFLICT INTENSITY*dependent variable: number of fatalities in locality*

	(1)	(2)	(3)	(4)	(5)	(6)
Decline in employment rate	0.068 [*] (0.037)	0.072 ^{**} (0.034)	0.081 ^{***} (0.030)	0.084 ^{***} (0.031)	0.083 ^{**} (0.033)	0.111 ^{***} (0.035)
Population (thousands)	0.091 ^{***} (0.034)	0.069 [*] (0.039)	0.066 ^{**} (0.029)	0.063 ^{**} (0.029)	0.059 ^{**} (0.029)	0.067 ^{**} (0.034)
Locality type						
City	0.752 [*] (0.390)	0.777 ^{**} (0.366)	1.003 ^{***} (0.344)	1.012 ^{***} (0.343)	1.083 ^{***} (0.364)	1.194 ^{***} (0.358)
Refugee camp	1.670 ^{***} (0.451)	1.721 ^{***} (0.458)	1.945 ^{***} (0.402)	1.961 ^{***} (0.422)	2.054 ^{***} (0.434)	2.181 ^{***} (0.426)
Pre-Intifada unemployment rate		0.013 (0.043)	0.024 (0.030)	0.025 (0.034)	0.026 (0.035)	0.044 (0.031)
Share of males with up to elementary education		-0.047 ^{**} (0.021)	-0.048 ^{**} (0.013)	-0.046 ^{***} (0.014)	-0.050 ^{***} (0.013)	-0.048 ^{***} (0.013)
Share of households with more than 8 persons		-0.019 (0.021)	-0.023 (0.018)	-0.023 (0.019)	-0.021 (0.019)	-0.017 (0.015)
Support for Arafat			0.025 ^{**} (0.012)	0.026 ^{**} (0.012)	0.022 ^{**} (0.011)	0.018 [*] (0.010)
Total Fatalities before the outbreak of the Intifada				0.014 (0.067)	0.042 (0.078)	0.045 (0.075)
Change in IDF checkpoints					0.103 (0.109)	0.085 (0.105)
Log distance to Israel						0.199 (0.178)
Observations	373	373	336	336	335	335
Wald test	55.4	83.9	114.1	112.9	114.6	117.8

Sources: See Table 1.

Notes: The dependent variable is the number of Palestinians killed by Israelis from the outbreak of the Second Intifada (September 28, 2000) until the start of operation "Defensive Shield" (March 29, 2002) in each locality. The main independent variable is the decline, from June-August 2000 to October-December 2000, in the average monthly employment by permit in Israel of Palestinian males ages 20-49 out of total male population in that age group in each locality. See Table 1 for the definitions of the other independent variables. Regressions estimated by ZINB. Robust standard errors are reported in parentheses. *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

TABLE 4: EFFECT OF EMPLOYMENT RESTRICTIONS ON CONFLICT INTENSITY
PANEL A: TAKING INTO ACCOUNT CHANGES IN EMPLOYMENT INTENSITY

<i>dependent variable: number of fatalities in locality</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
Decline in <i>adjusted</i> employment rate	0.054 [*] (0.032)	0.063 ^{**} (0.032)	0.076 ^{***} (0.030)	0.078 ^{***} (0.030)	0.076 ^{**} (0.032)	0.097 ^{***} (0.032)
Population (thousands)	0.090 ^{***} (0.033)	0.069 [*] (0.036)	0.065 ^{**} (0.028)	0.063 ^{**} (0.029)	0.059 ^{**} (0.028)	0.067 ^{**} (0.033)
Locality type						
City	0.750 [*] (0.401)	0.787 ^{**} (0.378)	1.025 ^{***} (0.348)	1.032 ^{***} (0.347)	1.099 ^{***} (0.367)	1.196 ^{***} (0.363)
Refugee camp	1.645 ^{***} (0.459)	1.708 ^{***} (0.463)	1.960 ^{***} (0.410)	1.972 ^{***} (0.427)	2.054 ^{***} (0.436)	2.153 ^{***} (0.431)
Pre-Intifada unemployment rate		0.016 (0.038)	0.026 (0.030)	0.027 (0.033)	0.027 (0.034)	0.044 (0.032)
Share of males with up to elementary education		-0.046 ^{***} (0.018)	-0.048 ^{**} (0.013)	-0.046 ^{***} (0.014)	-0.050 ^{***} (0.013)	-0.048 ^{***} (0.013)
Share of households with more than 8 persons		-0.019 (0.020)	-0.024 (0.018)	-0.024 (0.019)	-0.022 (0.019)	-0.019 (0.015)
Support for Arafat			0.026 ^{**} (0.011)	0.027 ^{**} (0.012)	0.023 ^{**} (0.011)	0.019 [*] (0.010)
Total Fatalities before the outbreak of the Intifada				0.011 (0.065)	0.037 (0.076)	0.038 (0.074)
Change in IDF checkpoints					0.098 (0.110)	0.082 (0.109)
Log distance to Israel						0.194 (0.175)
Observations	373	373	336	336	335	335
Wald test	49.5	82.9	111.0	110.0	114.1	117.2

Sources: See Table 1.

Notes: The dependent variable is the number of Palestinians killed by Israelis from the outbreak of the Second Intifada (September 28, 2000) until the start of operation "Defensive Shield" (March 29, 2002) in each locality. The main independent variable is the decline, from June-August 2000 to October-December 2000, in average monthly "full-time" employment by permit in Israel of Palestinian males ages 20-49 out of total male population in that age group in each locality; adjustment for "full time" employment is based on the average number of work days per employee in locality prior to the outbreak of the Second Intifada. See Table 1 for the definitions of the other independent variables. Regressions estimated by ZINB. Robust standard errors are reported in parentheses. *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

TABLE 4: EFFECT OF EMPLOYMENT RESTRICTIONS ON CONFLICT INTENSITY
PANEL B: COMPUTING DECLINE IN EMPLOYMENT OVER A LONGER HORIZON

		<i>dependent variable: number of fatalities in locality</i>					
		(1)	(2)	(3)	(4)	(5)	(6)
Decline in employment rate		0.062 [*]	0.064 ^{**}	0.073 ^{***}	0.075 ^{***}	0.077 ^{***}	0.098 ^{***}
		(0.033)	(0.029)	(0.025)	(0.026)	(0.030)	(0.030)
Population (thousands)		0.091 ^{***}	0.069 [*]	0.066 ^{**}	0.064 ^{**}	0.060 ^{**}	0.067 ^{**}
		(0.034)	(0.037)	(0.028)	(0.029)	(0.028)	(0.034)
Locality type	City	0.769 [*]	0.782 ^{**}	1.009 ^{***}	1.014 ^{***}	1.100 ^{***}	1.187 ^{***}
		(0.396)	(0.371)	(0.346)	(0.344)	(0.378)	(0.362)
	Refugee camp	1.672 ^{***}	1.707 ^{***}	1.939 ^{***}	1.944 ^{***}	2.058 ^{***}	2.112 ^{***}
		(0.455)	(0.458)	(0.408)	(0.423)	(0.459)	(0.415)
Pre-Intifada unemployment rate			0.013	0.023	0.023	0.023	0.033
			(0.040)	(0.030)	(0.034)	(0.035)	(0.032)
Share of males with up to elementary education			-0.045 ^{**}	-0.047 ^{**}	-0.045 ^{***}	-0.049 ^{***}	-0.047 ^{***}
			(0.019)	(0.013)	(0.014)	(0.013)	(0.012)
Share of households with more than 8 persons			-0.020	-0.024	-0.024	-0.022	-0.019
			(0.021)	(0.018)	(0.019)	(0.019)	(0.016)
Support for Arafat				0.025 ^{**}	0.027 ^{**}	0.022 ^{**}	0.018 [*]
				(0.011)	(0.012)	(0.011)	(0.010)
Total Fatalities before the outbreak of the Intifada					0.008	0.039	0.041
					(0.064)	(0.078)	(0.073)
Change in IDF checkpoints						0.113	0.121
						(0.109)	(0.118)
Log distance to Israel							0.202
							(0.191)
Observations		373	373	336	336	335	335
Wald test		53.9	82.4	113.3	112.4	111.1	139.6

Sources: See Table 1.

Notes: The dependent variable is the number of Palestinians killed by Israelis from the outbreak of the Second Intifada (September 28, 2000) until the start of operation "Defensive Shield" (March 29, 2002) in each locality. The main independent variable is the decline, from June-August 2000 to October 2000-March 2002, in average monthly employment by permit in Israel of Palestinian males ages 20-49 out of total male population in that age group in each locality. See Table 1 for the definitions of the other independent variables. Regressions estimated by ZINB. Robust standard errors are reported in parentheses. *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

TABLE 4: EFFECT OF EMPLOYMENT RESTRICTIONS ON CONFLICT INTENSITY
PANEL C: RESTRICTING ANALYSIS TO VILLAGES

	<i>dependent variable: number of fatalities in locality</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
Decline in employment rate	0.115** (0.047)	0.086*** (0.033)	0.088*** (0.034)	0.097*** (0.033)	0.117** (0.051)	0.123*** (0.040)
Population (thousands)	0.264 (0.226)	0.284 (0.225)	0.334 (0.219)	0.267 (0.206)	0.306 (0.209)	0.223 (0.138)
Pre-Intifada unemployment rate		0.105 (0.070)	0.100 (0.067)	0.095 (0.064)	0.079 (0.060)	0.072 (0.052)
Share of males with up to elementary education		-0.037* (0.022)	-0.038** (0.019)	-0.037** (0.018)	-0.049*** (0.016)	-0.044** (0.017)
Share of households with more than 8 persons		0.022 (0.022)	0.006 (0.061)	-0.004 (0.041)	0.002 (0.026)	0.002 (0.018)
Support for Arafat			0.036 (0.037)	0.037 (0.031)	0.033** (0.017)	0.025** (0.011)
Total Fatalities before the outbreak of the Intifada				0.495 (0.378)	0.474 (0.325)	0.657** (0.294)
Change in IDF checkpoints					0.289* (0.158)	0.228 (0.142)
Log distance to Israel						-0.056 (0.196)
Observations	267	267	234	234	234	234
Wald test	8.1	21.9	23.7	28.3	41.5	37.8

Sources: See Table 1.

Notes: The dependent variable is the number of Palestinians killed by Israelis from the outbreak of the Second Intifada (September 28, 2000) until the start of operation "Defensive Shield" (March 29, 2002) in each locality. The main independent variable is the decline, from June-August 2000 to October-December 2000, in the average monthly employment by permit in Israel of Palestinian males ages 20-49 out of total male population in that age group in each locality. See Table 1 for the definitions of the other independent variables. Regressions estimated by ZINB. Robust standard errors are reported in parentheses. *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

TABLE 5: MARGINAL EFFECTS OF EMPLOYMENT RESTRICTIONS ON CONFLICT INTENSITY

		<i>dependent variable</i>		
		Total fatalities	Civilian fatalities	Combatant fatalities
Decline in employment rate in age group	20-49	0.133 ^{***}	0.088 ^{**}	0.079 ^{***}
	20-34	0.163 ^{***}	0.089	0.048
	35-49	0.067 ^{***}	0.050 ^{***}	0.034

Sources: See Table 1.

Notes: The dependent variable is the number of total/civilian/combatant Palestinians killed by Israelis from the outbreak of the Second Intifada (September 28, 2000) until the start of operation "Defensive Shield" (March 29, 2002) in each locality. The main independent variable is the decline, from June-August 2000 to October-December 2000, in average monthly employment by permit in Israel of Palestinian males ages 20-49 or 20-34 or 35-49 out of total male population in the corresponding age group in each locality. See Table 1 for the definitions of the other independent variables. Regressions estimated by ZINB. Robust standard errors are reported in parentheses. *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

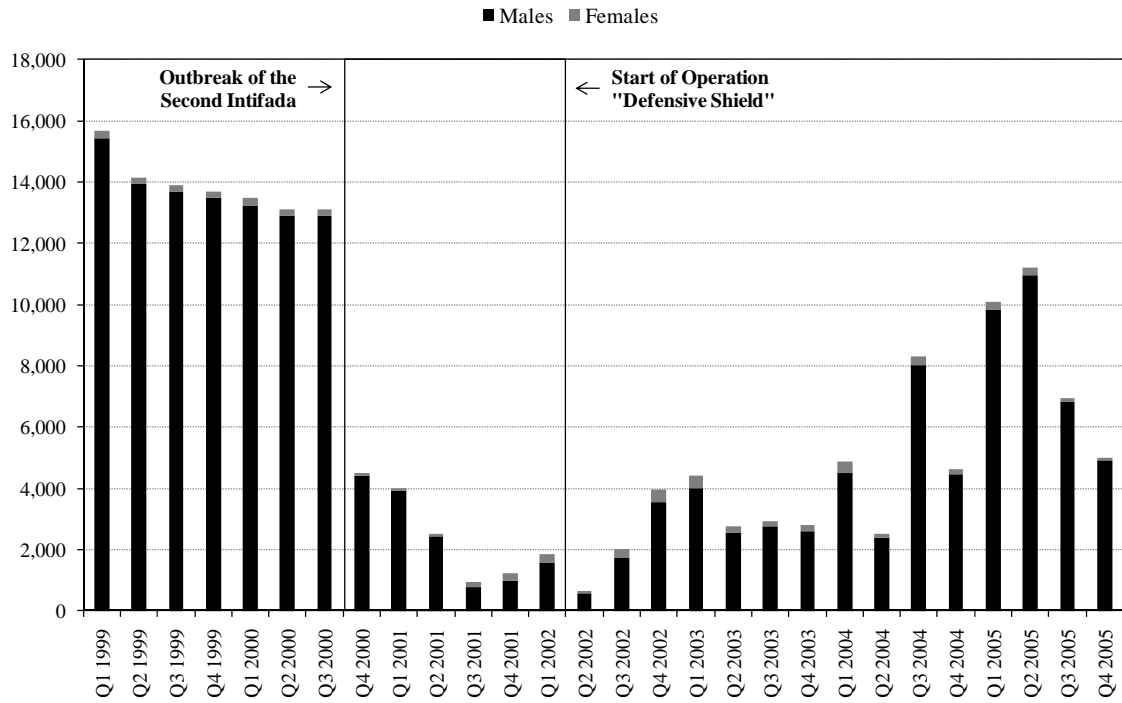
TABLE 6: EFFECT OF EMPLOYMENT RESTRICTIONS ON ECONOMIC CONDITIONS

Dependent variable:	Unemployment rate			Labor income		
	(1)	(2)	(3)	(4)	(5)	(6)
Employment with permit	1.850 ^{***} (0.449)			-26.182 ^{***} (3.792)		
Employment without permit		1.563 ^{***} (0.196)			-11.135 ^{***} (2.483)	
Total employment			1.384 ^{***} (0.154)			-12.750 ^{***} (1.659)
Observations	193	193	193	193	193	193
R ²	0.123	0.295	0.367	0.233	0.141	0.294

Source: Palestinian labor force surveys and authors' calculations.

Notes: The dependent variable in columns 1-3 is the change in the locality-level unemployment rate (in percentage point terms) between the third quarter and the fourth quarter of 2000. The dependent variable in columns 4-6 is the change in average monthly labor household income (in NIS) at the locality between the third quarter and the fourth quarter of 2000. The independent variable is the decline (in percentage point terms) from the third quarter to the fourth quarter of 2000 in employment in Israel (with a permit, without a permit, and total) out of the locality's labor force. The analysis is restricted to localities with at least 30 survey observations in both the third quarter and the fourth quarter of 2000. Regressions estimated by OLS. Robust standard errors are reported in parentheses. *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

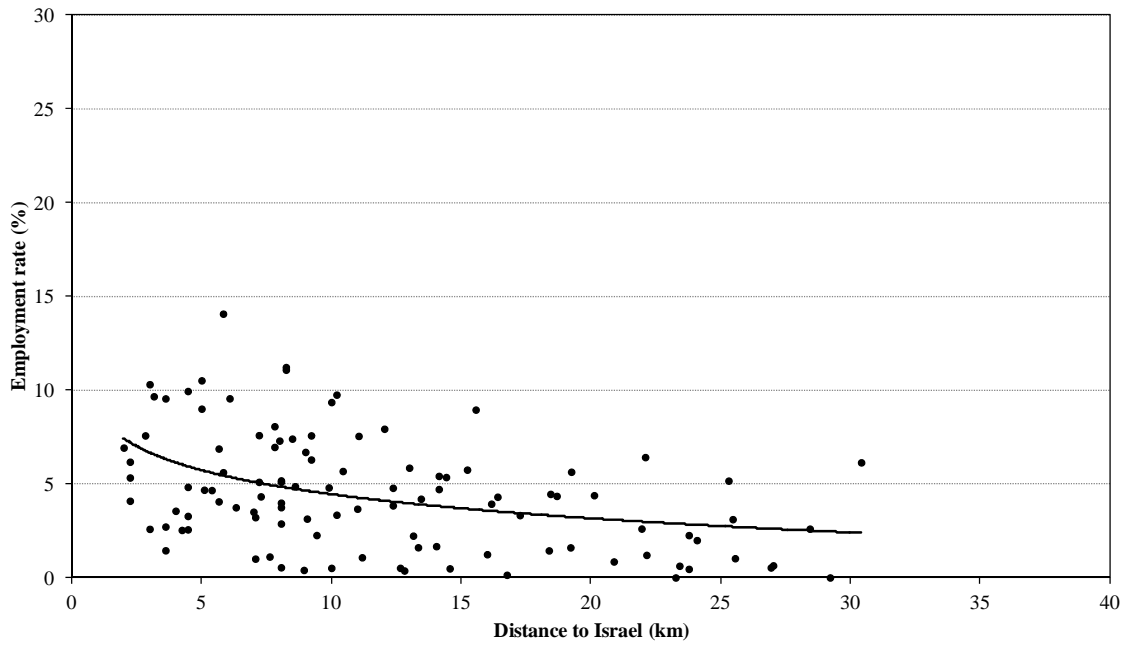
FIGURE 1: WEST BANK PALESTINIANS EMPLOYED IN ISRAEL WITH A PERMIT, 1999-2005



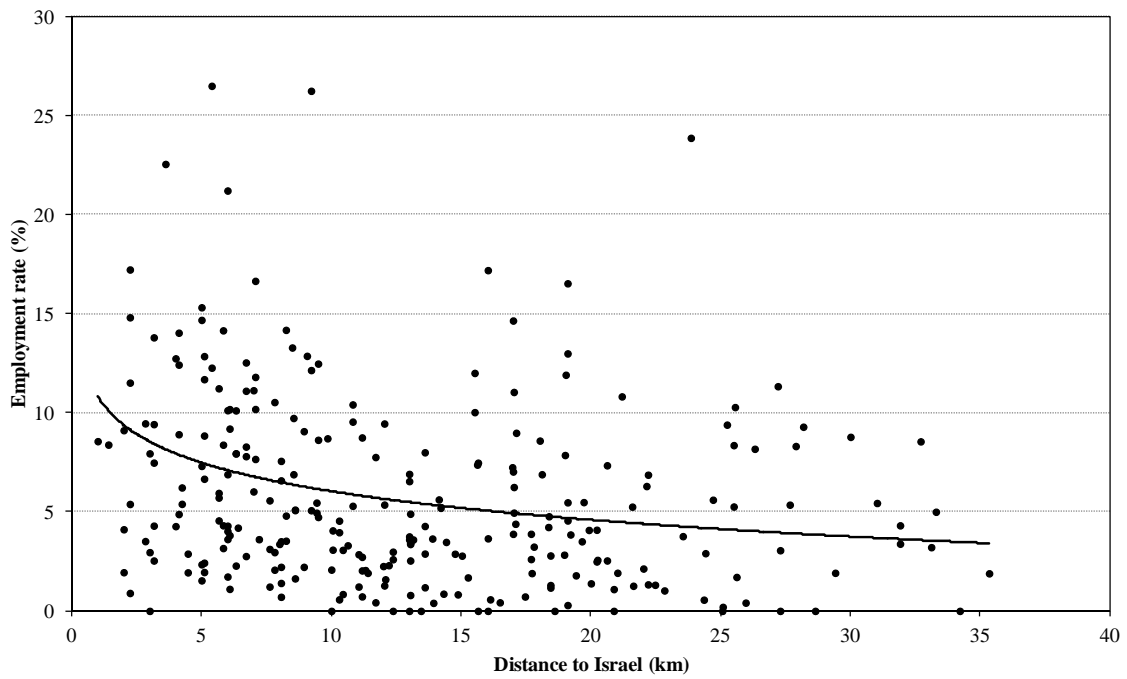
Notes: Employment figures are monthly averages per quarter.

FIGURE 2: EMPLOYMENT RATE AND DISTANCE TO ISRAEL

PANEL A: CITIES AND REFUGEE CAMPS



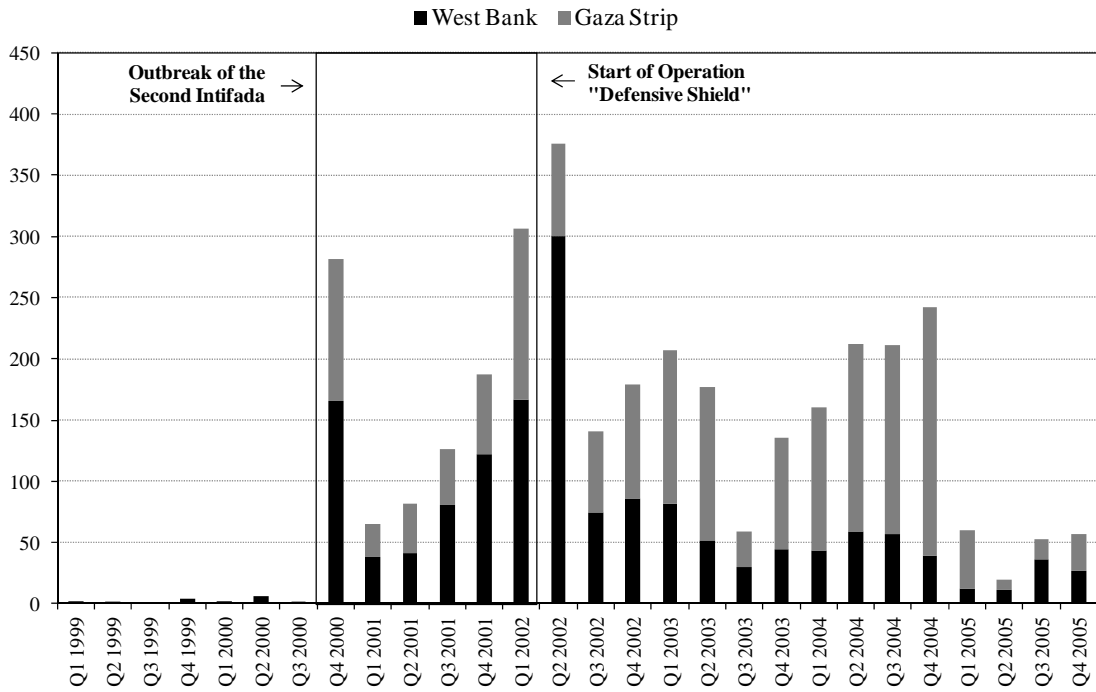
PANEL B: VILLAGES



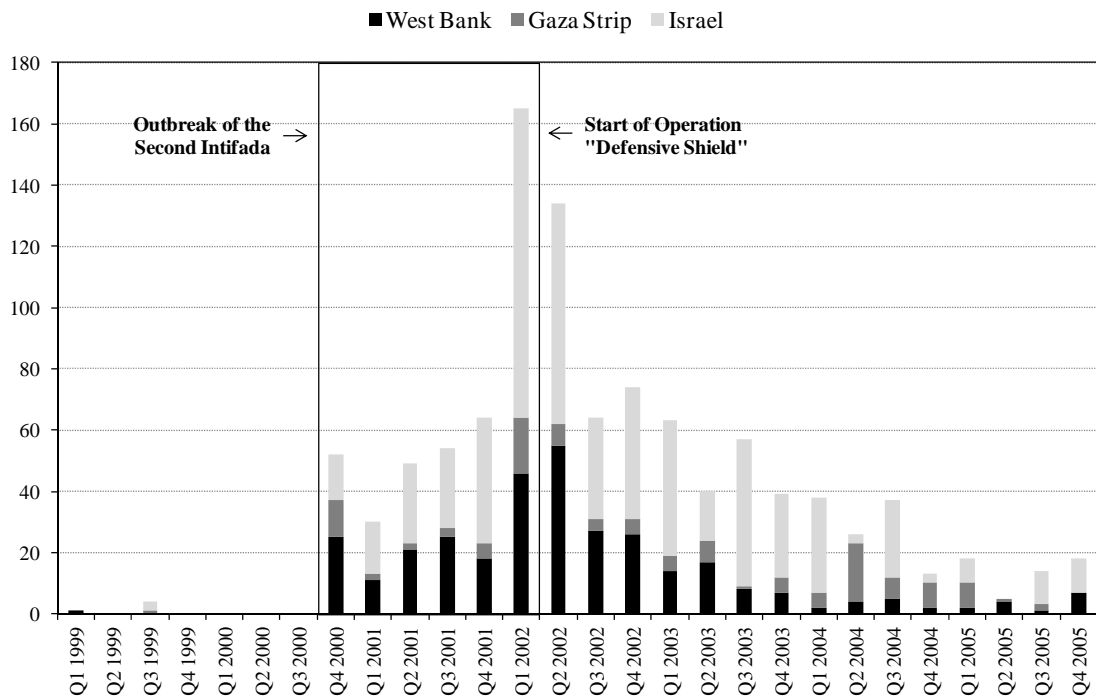
Notes: Employment rate refers to average monthly employment by permit in Israel of West Bank Palestinian males ages 20-49 out of total male population in that age group in each locality. Average employment is computed over the period October 1998-September 2000. Trendlines are logarithmic curves.

FIGURE 3: FATALITIES IN THE ISRAELI-PALESTINIAN CONFLICT

PANEL A: PALESTINIANS KILLED BY ISRAELIS

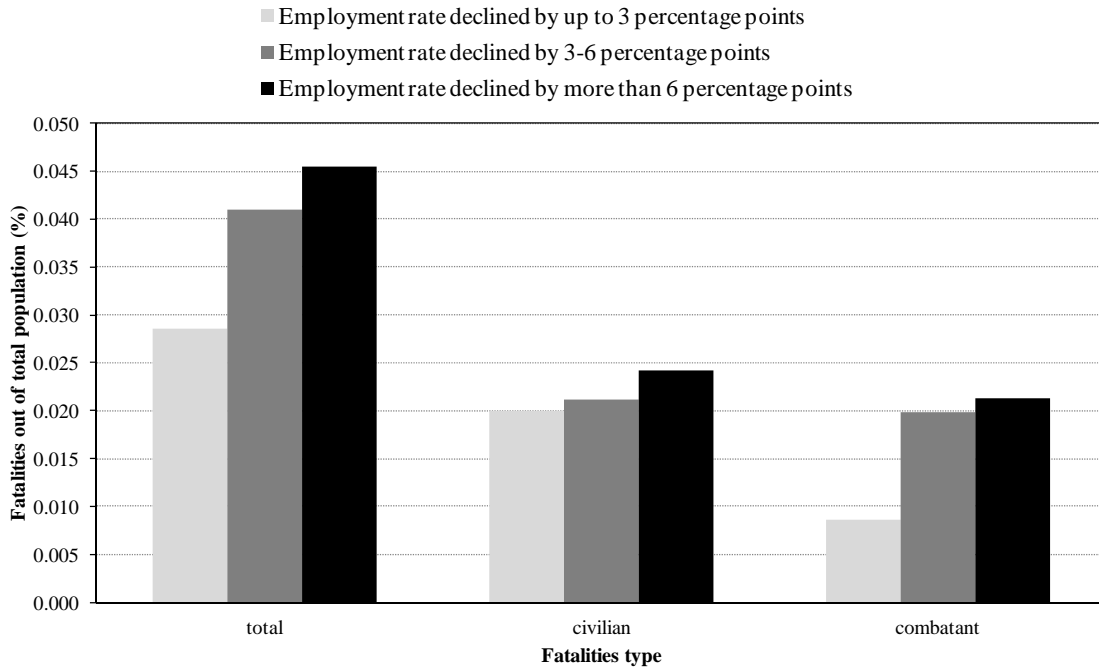


PANEL B: ISRAELIS KILLED BY PALESTINIANS



Notes: Figures for the fourth quarter of 2000 include the last 3 days of September 2000, when the Intifada broke out; figures for the second quarter of 2002 include the last 3 days of March 2002, when operation "defensive shield" started.

FIGURE 4: DECLINE IN EMPLOYMENT AND CONFLICT INTENSITY



Notes: Employment rate refers to average monthly employment by permit in Israel of West Bank Palestinian males ages 20-49 out of total male population in that age group in each locality. Decline in employment rate is measured from June-August 2000 to October-December 2000. Fatality figures are for the period from the outbreak of the Second Intifada until the start of operation "Defensive Shield".