Effect of parental job loss on child school dropout: Evidence from the Palestinian Occupied Territories*

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Abstract

We investigate the effect of parental job loss on child school dropout using data from the Palestinian Labour Force Survey. To identify the effect, we exploit conflict-induced job separations of Palestinian workers employed in Israel during the Second Intifada. Our results show that parental job loss increases child's school dropout probability by 9 percentage points. The effect varies with the gender, grade, and academic ability of the child, with parental education and the number of children in the household. The effect appears to be driven by a drop in household income. We do not find evidence of alternative mechanisms such as parental divorce or relocation.

Keywords: Job loss, school dropout, conflict, Occupied Palestinian Territories, Israel
JEL classifications: H56, I20, J63

*We are grateful to Antonio Acconcia, Abhijit Vinayak Banerjee, Lorenzo Casaburi, Dimitris Christelis, Emanuele Ciani, Francesco Drago, Leandro Elia, Esther Duflo, Paola Giuliano, Andrea Ichino, Thomas Le Barbanchon, Vincenzo Lombardo, Marco Pagano, Giovanni Pica, Tommaso Oliviero, Annalisa Scognamiglio, Vincenzo Scoppa, Tiziana Venittelli and Alberto Zazzaro for their helpful suggestions. We thank seminar participants at the 31st AIEL Annual Conference of Labour Economics and at the 12th CSEF-IGIER Symposium on Economics and Institutions for valuable comments. The usual disclaimer applies.

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1 Introduction

Do negative economic shocks affect household schooling decisions? We focus on one of the most traumatic economic shocks a household can experience, namely parental job loss, and explore its impact on child school dropout. This is a particularly relevant issue in developing countries. Where markets are not perfect, negative income shocks may influence household education choices even in the short-run. Moreover, in these contexts, the household decision to withdraw the child from school is more difficult to revert, potentially causing a permanent loss in human capital, with dramatic consequences on the child's future welfare.

There is extensive evidence that job loss has negative consequences on adults in terms of health, earnings and marriage stability (Schaller and Stevens, 2015; Schaller 2013; Sullivan and von Wachter, 2009). Yet, these effects can be particularly dramatic for children. The existing evidence indicates that parental job loss has long-run adverse effects on children's future income and human capital (Hilger, 2016; Gregg et al., 2012; Oreopoulos et al., 2008; Bratberg et al., 2008). Furthermore, it affects children's education outcomes also in the short-run. Recent research shows that children exposed to parental job loss have higher probability of grade repetition (Stevens and Shaller, 2011; Kalil and Ziol-Guest, 2008), lower grade-point average (Rege et al., 2011), and lower likelihood of enrolling at the university (Ost and Pan, 2014; Coelli, 2011).

All these studies focus on advanced countries, but there is a lack of evidence on the effects of parental job loss on children outcomes in the case of developing countries. The reason for this lack of evidence is twofold. First, the panel data needed to analyze how parental job loss affects children outcomes are rarely available. Second, finding a credible source of exogenous variation for job loss - a central concern in this literature - is more difficult. Studies focusing on developed countries use plant closures and mass layoff. However, this identification strategy is unlikely to work in the case of developing countries where the manufacturing sector is small and firm closure episodes rare.

To the best of our knowledge, this the first paper addressing the causal effect of parental job loss on child school dropout in the context of a developing country, namely in the Occupied Palestinian Territories (hereafter OPT). The OPT offers a unique setting to this purpose. On the one hand, the rotating panel structure of the Palestinian Labour Force Survey (PLFS) makes it possible to look at the employment and education status change for both the household head

and the child in the short-run, i.e. between two consecutive quarters. On the other hand, the peculiar situation of Palestinian workers employed in Israel during the Second Intifada[1] allows us to minimize the possibility that job loss is a consequence of the worker's decision, potentially confounding the effect of parental job loss on child school dropout.

There are three pieces of evidence supporting the idea that job loss of Palestinian workers employed in Israel is largely involuntary and in fact related to the conflict. First, Palestinian workers employed in Israel have - *ceteris paribus* - a higher wage than those employed in the OPT. Second, there is evidence of ethnicity-based firing behaviour by Israeli employers. Third, the dynamic of Palestinian employment in Israel during the Second Intifada closely follows conflict intensity.

Based on this, we focus our analysis on a representative sample of 10-17 year-old children whose household head is employed in Israel, and use the worker's exposure to conflict as a source of plausibly exogenous variation in job loss. In particular, we implement an instrumental variable approach and use conflict intensity in the worker's district of residence - measured by the number of Palestinians killed by the Israeli Defence Force (IDF) - as an instrument for job loss. A higher conflict intensity may increase worker's probability of losing the job in Israel for at least three different reasons. First, it makes it more difficult to reach the workplace in Israel, increasing absenteeism (Abrahams, 2015; Cali and Miaari, 2013; World Bank, 2004). Second, it may increase the level of psychological distress, possibly causing reduced productivity (Ayer at al., 2015). Finally, if interpreted as a signal of the worker's opposition to Israel, it may increase the likehood of job separation decided by the Israeli employer as retaliation (Miaari et al., 2014).

Our first-stage regression results indicate that the exposure to conflict is a strong predictor of job loss for Palestinian workers employed in Israel. The validity of conflict intensity as an instrument for job loss relies on the assumption that it has no direct effects on child school dropout other than through the household head's job loss (i.e. exclusion restriction assumption). We provide empirical support to this assumption by showing that while conflict intensity increases the probability of school dropout for Palestinian children whose household head is employed in Israel, it does not affect school dropout probability for those whose household head is employed in the OPT. This indicates that we can plausibly exclude direct effects of fatalities

[1]The Second Intifada is a period of intensified violence between the Israeli Defence Forces (IDF) and the Palestinians which took place between 2000 and 2006. Section 2 provides background information on the Israeli-Palestinian conflict and the Second Intifada in particular.

on child school dropout. Intuitively, if conflict intensity has direct effects on school dropout of Palestinian children, then it should affect - *ceteris paribus* - all children regardless of whether their household head is employed in Israel or in the OPT. Yet, we find evidence that conflict intensity increases job loss probability only for Palestinian workers employed in Israel and not for those employed in the OPT, thus lending further support to our identifying assumption.

Our main results, obtained from the 2SLS regression analysis, document a positive and significant effect of household head's job loss on child school dropout. More specifically, we find that household head's job loss increases a child's probability of dropping out from school by 9 percentage points. The effect varies with the gender, the school grade, and the academic ability of the child, and with parental education and the number of children in the household. Finally, we explore the possible mechanisms behind our main results. We provide evidence that effect on child school dropout is likely driven by the drop in household income associated with parental job loss. Moreover, we do not find evidence of alternative mechanisms such as household psychological distress (i.e. parental divorce) or residential relocation.

Our paper contributes to two strands of literature. First, the literature on the effects of parental job loss on children education outcomes. Most of these studies focus on the long-run effects of job loss in developed countries and look at outcomes such as grade repetition, graduation point average (GPA), and likelihood of attending college (Kalil and Ziol-Guest 2008; Stevens and Shaller, 2011; Rege et al. 2011; Coelli, 2009). Only two papers look at the effects of job loss on children schooling in developing countries. Skoufias and Parker (2006) finds no effect of parental job loss on child schooling during the Mexico peso crisis. Duryea et al. (2007) show that during economic crises in Brazil father job loss is correlated with a higher child's probability of dropping out from school. Differently from these studies, our analysis explicitly addresses the endogeneity issue by adopting an instrumental variable approach. Second, our paper is related to the literature on the economic determinants of child schooling. Previous research has shown the importance of child characteristics (age, gender, health), parental characteristics, and school quality (Alderman et al. 2001; Bommier and Lambert, 2000; Handa, 2002). In particular, household income has been shown to be a key determinant of different schooling outcomes, including enrolment, test score and attainment (Behrman and Knowles, 1999; Dostie and Jayaraman, 2006; King and Lillard, 1987; Glick and Sahn, 2000). Our study contributes to this line of research by investigating how schooling investment decision responds to negative (even if short term) economic shocks affecting households in a developing country.

The paper proceeds as follows. Section 2, provides some background on the Israeli-Palestinian conflict and in particular on the Second Intifada. Section 3 describes the data used in the econometric analysis. In section 4, we present some descriptive evidence. In section 5, we discuss the econometric model and the identification strategy. In section 6 we present our main results, the robustness checks, and some additional results. Moreover, we explore the possible mechanisms explaining our main results. Section 7 concludes.

2 Background

2.1 Palestinian workers in Israel and the Second Intifada

Employment of Palestinians in Israel dates back at least to 1967, when - after the Six-day war - Israel occupied the West Bank and the Gaza Strip. Since then, a large proportion of Palestinian workers (in some periods up to 25% of the population) have been employed in Israel, mainly to supply labor services in the construction, manufacturing, and agriculture sectors (Shaban, 1993; Angrist, 1996). As a consequence of the dependence on the Israeli economy, the dynamic of the Palestinian labor market has always been influenced by the amount of job opportunities in Israel (Kadri and MacMillen, 1998; Farsakh, 2002). During the years, the number of Palestinian workers employed in Israel has responded to major political events, such as the first Palestinian uprising (1987-1993), but also to changes in Israeli regulations of work permits and security policies. By the late 1990s, even if the possibility to be employed in Israel was subject to holding a work permit[2] and Palestinian workers had to commute daily because regulations prohibit them from staying overnight in Israel, more than one-fifth of the Palestinian labour force was employed in Israel, accounting for one sixth of Palestinian national income (PCBS, 2003; Ruppert Bulmer, 2003).[3] The main reason for this is that, *ceteris paribus*, wages in Israel are significantly higher, between 10% and 25% (International Monetary Fund, 2003; World Bank, 2004; Mansour, 2010). In September 2000, after some years of relative stability, the security situation rapidly deteriorated and the Second Intifada (the so-called al-Aqsa Intifada) started.[4] In the following months, there was a rapid increase in violent events from both side of

[2]To obtain work permits for Palestinian workers, Israeli employers submit petitions to the Israeli Ministry of Industry, Trade and Labor. Work permits are issued subject to security screening of each Palestinian employee (Berda, 2012).

[3]Before the beginning of the Second Intifada, Palestinian employed in Israel with a permit are about 5 % of the total working age male population in Israel and roughly 10 % of all employed males (Miaari et al., 2012).

[4]There is no established ending date for the Second Intifada. However, violence between IDF and Palestinians decreased substantially after 2006. Jaeger and Paserman (2008) provide detailed description of the different periods of violence during the Second Intifada.

the conflict. The Israeli Government adopted a number of security measures to severely limit the movement of Palestinians within and outside the OPT.[5] As a result, the number of workers commuting to Israel dropped sharply. Moreover, the conflict reduced Palestinian wages and employment in the OPT, Palestinian employment in Israel, and increased job separation for Arab-Israeli in Israel (Di Maio and Nandi, 2013; Miaari and Sauer, 2011; Miaari et al. 2012; Miaari et al. 2014; Cali and Miaari, 2013; Abrahams, 2015; Adnan, 2015).

2.2 The Palestinian school system

Since the 1994 Oslo Accord, the education system in the OPT is managed by the Palestinian Ministry of Education and Higher Education (MoEHE). The academic year begins in September and ends in June. The education system is divided into three levels: elementary school from 1st to 6th grade; middle school from 7th to 10th grade; high school from 11th to 12th grade. Compulsory education lasts 10 years from age 6 to age 15.[6] At the age of 16, or at the end of the 10th grade if the student repeated any grade, the student can choose to attend the two additional years of high school (11th and 12th grades). These last two years are not mandatory but are required to get the high-school qualification, and to access the university (UNESCO, 2007)

The Palestinian society places a high value on education. This is reflected in enrolment, and attendance rates which are high by regional and global standards, and by the average number of years of schooling for adolescents (10 years), which is equivalent to the mandatory school cycle (PCBS, 2006; Sharek Youth Foundation, 2009). During the period of the Second Intifada, enrolment rate remained above 95% for primary and above 80% for secondary education (Altinok, 2010). The high value placed on schooling extends also to girl education. Gender participation rates show perfect equality in education access for both primary and middle school level in both West Bank and Gaza Strip (50.4% and 51.7%, respectively). In high-school, female participation is even higher: 53.5 percent of students are female and 46.4 are male. Gender-based participation levels are broadly equivalent in the West Bank and the Gaza Strip, where 54.5 percent and 52.3 percent respectively of the students are female.

[5]These measures include: a reduction in the number of work permits issued to Palestinians, a change of rules to get work permits (from a system based on age and marital status to individual permits), curfews imposed on Palestinian cities, external and internal closures, and the building (started in 2002) of a separation wall between Israel and the West Bank. The measures implemented by the IDF to serve security purposes turned out to be much more pervasive, affecting the whole Palestinian economy and in particular the labor market (PCBS, 2001; United Nations, 2002; World Bank, 2004; OCHA, 2007).

[6]Parents are responsible for ensuring continuing attendance (Arafat, 2003).

Differently from what usually happens in conflict-affected countries, the education system in the OPT has continued to functioning during the Second Intifada (PCBS, 2005; Nicolai, 2007). However, as any other aspect of the Palestinian economy, it has faced severe and numerous difficulties. Teachers and students have been victim of violent events (World Bank 2004; UN, 2005; MoEHE and UNESCO, 2005). School have been damaged and occupied by the IDF. Military-imposed mobility restrictions such as checkpoints and physical barriers made very difficult to reach the schools. School days have been lost or shortened because of security reasons (Brueck et al. 2016). The access to education has been affected also by the conflict-induced worsening in the economic conditions. For instance, a survey conducted by PCBS in 2005 on the effect of the Separation Wall [7] indicate that more than 25% of those living in affected localities dropped out due to poverty (PCBS, 2005). In fact, although education is officially free in the OPT, students traditionally contribute with a donation - effectively a school fee. These fees form some 50 per cent of schools' budgets and are needed to make the school continue to operate. While fees are not prohibitive, these costs do present hardship for an increasing number of families (Nicolai, 2007). Moreover, the indirect cost of attending school - such as food, books, transportation, - have increased due to the conflict (IMF, 2003; WFP and FAO, 2007). Taken together this evidence suggests that explicit and implicit costs of schooling are in fact important obstacles for education in the OPT.

3 Data

Labour Force Survey Our main source of data is the Palestinian Labour Force Survey (PLFS) administered by the Palestinian Central Bureau of Statistics (PCBS). The PLFS is a quarterly representative household survey of Palestinians living in the OPT (West Bank and Gaza Strip). The PLFS is a rotating quarterly panel where households are surveyed four times over six quarters: they are surveyed for two consecutive quarters, dropped in the next two quarters, and then surveyed again for two consecutive quarters. Although the survey is not designed for longitudinal analysis, the rotating design makes it possible to match individuals across waves. To construct our dataset, we combine all the PLFS data for the Second Intifada period (2000-2006) with additional confidential information on children aged 10-15 for the same

[7] The Separation Wall is a 700 kilometres-long security barrier that separates the West Bank from Israel.

period.[8] The resulting repeated cross-section dataset includes all Palestinian children aged 10-17 who at the time of the first interview are attending school and whose household head is working in Israel.[9] The rotating panel structure of the PLFS allows us to follow the household head and the child across time. We are thus able to define our two main variables of interest (job loss and school dropout) as the status change for the household head and the child between two adjacent quarters.

Conflict event dataset Data on conflict-related Palestinian fatalities during the Second Intifada are collected and distributed by the Israeli NGO B'TSELEM (B'TSELEM, 2007). These data are based on a number of sources and validated by several cross-checks. The B'TSELEM dataset provides a rich set of information, such as age, gender and place of residence of the killed, the date, place, and a description of the circumstances of the event. These data are considered to be accurate and reliable by both the Israelis and the Palestinians and have been previously used by other scholars studying the Israeli-Palestinian conflict (see for instance Jaeger and Paserman, 2008; Mansour and Reis, 2012). In our analysis, we measure conflict intensity using the quarterly number of Palestinians fatalities caused by the IDF at the district level.

Other data To complement our analysis, we also use information from the Child Labour Survey administered by the PCBS in 2004. The survey reports the answers to a large number of questions related to the working conditions of children in the OPT, and on parental and household characteristics (including income and expenditure). We take advantage of this complementary source of information to provide additional evidence on the possible mechanisms explaining why job loss may have an impact on child's school dropout. Finally, in our empirical analysis, we use the yearly number of comprehensive closure days. During closure days movements of labor and goods between the OPT and Israel as well as between the West Bank and Gaza Strip are completely banned since all permits previously issued to residents of the OPT for purposes of work, trade, or medical treatment are invalid. Data on closure days of the border between Israel and the OPT are provided by B'TSELEM.

Table 1 reports the descriptive statistics for all the variables included in the analysis. *Household head job loss* is a dummy taking value 1 if the individual is employed in Israel

[8] These children are not included in the publicly available PLFS because the minimum age for work in the OPT is 16.

[9] All Palestinian workers employed in Israel have at least one child. In fact, to be married and have children are among the conditions to get the work permit.

in quarter 1 but not in quarter 2. The data show that job loss has been a quite frequent event during the Second Intifada for Palestinian employed in Israel: 34% of workers lose the job between two quarters. More than 85% of Palestinian workers in Israel are employed in the private sector, 11% are self-employed and 2% employed in the public sector. *Child school dropout* is a dummy taking value 1 if the child attends school in quarter 1 but not in quarter 2. Dropout students are 1.3% of our sample (4% if we consider those in secondary school). This is not surprising since - as discussed in Section 2, the education system in the OPT is characterized by an extremely high education attendance rate (as high as 95% for primary education). *Fatalities* - our proxy for conflict intensity - is the average quarterly number of Palestinian fatalities per 10,000 inhabitants at the district level: the mean is 0.36 and the variance 0.58. Conflict intensity is characterized by large variation across district and time as shown in the maps in Figure A.1 where districts are classified according to the quintile they belong to in the distribution of the quarterly level in Palestinian fatalities. As for the children characteristics, the sample is balanced with respect to the gender of the child. The average age of child is 12 and the mean years of schooling 6.3. As for parental education, 62% of household heads have completed at least primary education, 20% secondary education, and 7% tertiary education. The average household size is of 8 members and the average number of children in the household is 3.

———— [Table 1 in here] ————

4 Descriptive evidence: child dropout and parental job loss

As a first step in our empirical analysis, we investigate the correlation between child school dropout and parental job loss using the following regression model:

$$Dropout_{ihjt} = \beta_0 + \beta_1 JobLoss_{ihjt} + X'_{ihjt}\delta + W'_{hjt}\gamma + \theta_j + \lambda_t + \epsilon_{ihjt} \quad (1)$$

where $Dropout_{ihjt}$ is a dummy variable which takes value 1 if child i in household h from district j attends school in quarter t (at the time of the first interview) and does not attend school in quarter $t+1$ (at the time of the second interview). $JobLoss_{ihjt}$ is a dummy variable which takes value 1 if the child's household head is employed in Israel in the first quarter of interview and is not employed in Israel in the subsequent quarter. The set of controls includes: (i) child

characteristics (gender, age and years of schooling) grouped in matrix X'_{ihjt}; (ii) household head characteristics (age, age squared, a set of dummy variables for the education level and the employment status) and household characteristics (size, number of children, and number of people employed other than the household head) grouped in matrix W'_{hjt}; (iii) district dummy variables grouped in vector θ_j; (iv) quarter dummy variables grouped in vector λ_t. Finally, ϵ_{ihjt} is the error term.

Results are reported in Table 2. The baseline specification in column 1 shows that household head's job loss is significantly positively correlated with child's school dropout. From column 2 to 4, we progressively add to the baselines specification the set of controls for child's characteristics, household head characteristics, and household characteristics. The magnitude of the coefficient remains stable across specifications and significant at least at the 10% level.

———— [Table 2 in here] ————

These results highlight a positive relationship between parental job loss and child's school dropout. However, they are uninformative about the causality of this relationship. On the one hand, parents of children who drop out from school may have different (observable and unobservable) characteristics with respect to parents of children who do not drop out. These characteristics may also be correlated with the household head's probability of losing the job. On the other hand, parents who lose the job may have a different preference for having the children staying in school than those who remain employed, possibly explaining why job loss is correlated with the household decision to withdraw the child from school. For example, parents with low ability and frequent labour force changes may have *per se* higher probability to have children with difficulties at school leading to dropout, thus confounding the effect of parental job loss on child school dropout.

5 Econometric model and identification strategy

5.1 Construction of the instrument

The OLS estimate of β_1 in regression 1 is likely to be biased because parental job loss is endogenous to child's school dropout. To overcome the endogeneity problem, previous studies have focused on events such as mass layoffs or plant closures. Job separations observed at the moment of such events are assumed to be the result of an exogenous shock and, therefore, in-

dependent of worker's preferences and characteristics.[10] Unfortunately, this strategy is difficult to implement when studying developing countries because large plants are usually very few and episodes of mass layoffs are very rare in these contexts.

As an alternative strategy to identify a source of plausibly exogenous variation in job loss, we look at the individual exposure to conflict during the Second Intifada. In particular, we use the cross-district variation in the number of Palestinian fatalities occurred in each quarter over the period 2000 to 2006 as an instrumental variable for job loss of Palestinian workers employed in Israel. We therefore estimate the following first-stage regression:

$$JobLoss_{ihjt} = \alpha_0 + \alpha_1 Fatalities_{jt} + X'_{ihjt}\zeta + W'_{hjt}\eta + \theta_j + \lambda_t + \mu_{idjt} \quad (2)$$

where $Fatalities_{jt}$ is defined by the average number of Palestinians killed by the Israeli Defence Forces (IDF) per 10,000 inhabitants in the household head's district of residence at the time of the first interview. The coefficient of α_1 thus measures the conflict-induced increase in the likelihood that a worker who is employed in Israel in quarter $t-1$ is no longer employed in Israel in quarter t. As in model 1, X'_{ihjt} and W'_{hjt} are matrices including a set of controls for child, and household head and household characteristics, respectively. Vector θ_j includes the set of district dummy variables, and λ_t the set of quarter dummy variables that serve as time fixed effects. Lastly, μ_{idjt} is the error term. In our robustness checks, we also include district-specific time trends to account for any district-level time varying characteristics. Since the effect of fatalities is likely to be correlated within a district, we cluster all regression estimates at the district level. This allows the errors to be correlated for all children in the same district at a given time; yet it allows the errors to be serially correlated.

5.2 Discussion of the instrument

Our estimation strategy is based on the hypothesis that a higher conflict intensity in the district of residence increases a Palestinian worker's probability of losing the job in Israel. We expect this to happen for at least three reasons. First, a higher conflict intensity in the district of residence of the worker makes it more difficult to reach the workplace in Israel. The higher the conflict intensity the more likely is that the IDF put in place security measures to control the territory.

[10] However, Schwerdt (2011) notes that as plant closures typically do not happen as a complete surprise to either management or workers, it is possible that both workers and management have time to react strategically, inducing a selection bias in the sample of affected workers.

The latter are likely to increase - for given distance - the time needed to reach the workplace and the episodes of unpredicted absences from work (Abrahams, 2015; Cali and Miaari, 2013; World Bank, 2004). Second, the higher the conflict intensity the higher the probability for the worker to be exposed to violent events, and thus the higher the insecurity and fear feelings. Experiencing this continuous tension may lead to psychological distress and reduced productivity - possibly leading to the worker's layoff (Ayer at al., 2015).[11] Finally, a higher conflict intensity in the worker's district of residence may be interpreted by the Israeli employer as a signal of the worker's opposition to Israel. Under this scenario, higher conflict intensity may increases the likehood of job separation decided by the Israeli employer as retaliation (Miaari et al, 2014).

Our choice of focusing on Palestinian workers employed in Israel is a strategy to minimize the possibility that job loss is a consequence of the worker's decision. In fact, there are at least three pieces of evidence supporting the idea that Palestinian job loss in Israel is largely involuntary and in fact related to the conflict. First, there is a wage premium for Palestinian employed in Israel. Our data indicate that, before and during the Second Intifada, wages of Palestinian workers employed in Israel are on average 15% higher than wages of Palestinian workers employed in the OPT, keeping constant employment sector and type of occupation. The earning premium in the Israeli labor market holds for both the residents of the West Bank and the Gaza Strip. Moreover, our data indicate that during the Second Intifada the real wage of Palestinians workers employed in Israel for two consecutive quarters increases by 3% on average, while Palestinians moving from a job in Israel to one in the OPT suffer a 34% real wage drop in the second quarter. Second, the dynamic of Palestinian workers employment in Israel closely follows conflict intensity. Data from the PLFS show that in 1999 (before the Second Intifada started), almost 25% of Palestinian working population is employed in Israel. In 2006, at the end of the conflict, the percentage is around 10%. Third, there is some evidence of ethnicity-based firing behaviour by Israeli employer. Miaari et al. (2014) show that the conflict negatively affects Arab-Israeli (who are Israeli citizen) employed in Israel increasing their probability of job separation. They argue that there is no evidence that job separation is voluntary nor that it can be explained by the reduced work effort hypothesis (i.e. the conflict leads to reduced work effort among Arab employees, which in turn leads to them being laid off).

[11] Ayer at al. (2015) presents an extensive review of the literature on the psychological aspects of the Israeli-Palestinian conflict. The conclusions indicate that increased exposure to the latter may have detrimental effects on a broad range of psychological outcomes. In particular, nearly all studies looking at *functional impairment* (i.e. the inability to carry out functions related to work, education, or relationships) found that the latter was more severe for individuals more exposed to political conflict and violence.

A fortiori, we expect this type of discriminatory firing to affect Palestinian workers employed in Israeli firms.[12] Taken together, this evidence suggests that job loss for Palestinian workers employed in Israel is not voluntary (e.g. motivated by the search for better working conditions or higher wages in the OPT) but it is instead a consequence of higher conflict intensity.

6 Results

6.1 First stage

Table 3 column 1 reports the results for the first-stage regression (equation 2). The estimated effect of $Fatalities_{jt}$ on $JobLoss_{ihjt}$ is positive and strongly significant. This result indicates that the higher is the exposure to conflict for a Palestinian worker employed in Israel - as captured by the number of fatalities occurred in the district of residence - the higher is the probability of job separation. As for the magnitude, we find that one additional fatality in 10,000 inhabitants leads to an increase in the probability of a worker's job separation by 5.3 percentage points.[13] The corresponding reduced-form results presented in column 2 confirm that the exposure to conflict does increase the child's probability of dropping out from school. In particular, the magnitude of the estimated coefficient indicates that one additional fatality in 10,000 inhabitants is associated to a 0.5 percentage point increase in the child's probability of dropping out from school.

———— [Table 3 in here] ————

As a robustness check, we include as additional control in the first-stage regression (eq.2) the district-level number of fatalities occurred in the next quarter and in the past quarter, separately. Results are reported in Table 4 where column 1 shows the first stage result for ease of comparison (see Table 3 column 1). Results in column 2 indicate that the effect of next quarter fatalities is small and not significant while the effect of current quarter fatalities (our main proxy for conflict intensity measured at the time of the first interview) is only slightly reduced and remains significant at 5%. This result is reassuring as for our main result since including next

[12] Miaari et al. (2012) show that the difference between Arab-Israeli and Jewish-Israeli employees in the accumulated risk of being separated from their original Israeli employer increases after the outbreak of the Intifada. Interestingly, prior to the Second Intifada, the risk is lower for Arabs than for Jewish, possibly reflecting the relatively weak outside labor market options for Arabs which makes them more attached to their Isreaeli employers.

[13] Given that the mean of our dependent variable is 0.341, our result indicate that one additional fatality in 10,000 inhabitants leads to an average increase in the probability of job separation by 15.5 percent [(0.053/0.341)=0.155].

quarter fatalities (i.e. the number of fatalities at the time of the second interview) makes this specification a sort of placebo test. Column 3 shows that the effect of current quarter fatalities is also robust to including past quarter fatalities. Interestingly, this latter result and the fact that errors are clustered at the district level suggest that the possibility of serial correlation is not a concern for our analysis.

——————— [Table 4 in here] ———————

The validity of $Fatalities_{jt}$ as an instrument for $Jobloss_{ihjt}$ relies on the assumption that it has no direct effects on child school dropout other than through the household head's job loss (i.e., exclusion restriction assumption). It is worth noting that any unobserved factors affecting all children in the same way is captured by the time fixed effects. However, unobserved factors changing at the same time as fatalities and affecting only children who are exposed to parental job loss (or only those who are not exposed to parental job loss, i.e., our control group) could potentially undermine our identification strategy.

To provide empirical support to the exclusion restriction assumption, we run two tests. First, we test whether the impact of fatalities on child school dropout differs depending on whether the household head is employed in Israel or in the OPT in the first period. In the presence of omitted variables potentially correlated with both conflict intensity and school dropout for children that experience parental job loss, we should observe no differences in the impact of fatalities across the two samples.[14] Results are reported in the upper panel of Table 5. Fatalities increase the probability of dropout only for children whose parent is employed in Israel. Second, we test whether fatalities have a different effect on the probability of job loss for Palestinian workers employed in Israel or in the OPT. Results reported in the lower panel of Table 5 show that conflict intensity plays a role only for workers employed in Israel.[15]

Taken together, these results suggest that we can plausibly exclude the existence of omitted variables potentially correlated with both conflict intensity and school dropout for children exposed to parental job loss. Also, these results rule out direct effects of fatalities on child school dropout, thus providing empirical support to our identifying assumption that fatalities

[14]Intuitively, if there are unobservables correlated with both fatalities and children whose household head experienced job loss, they should affect all children regardless of whether the household head is employed in Israel or in the OPT.

[15]Note that the coefficient of the effect of fatalities for those employed in Israel is smaller than in Table 3. The reason is the more restrictive definition of the job loss outcome used here: to allow for the comparison between the two groups, job loss does not include those who loose the job in Israel but are re-employed in the OPT the next period. In other words, here job loss is defined as becoming unemployed.

are uncorrelated with school dropout other than through the effect on parental job loss.

——————— [Table 5 in here] ———————

Finally, a possible concern with our identification strategy is that some workers may decide to relocate in districts less exposed to the conflict. This geographical sorting might lead to biased estimates of the effect of parental job loss. If, for instance, high-skilled workers move towards districts with lower fatalities, then our IV estimates would be biased upward. To check for this possibility, we test whether fatalities are associated with compositional effects at the district level. In particular, we regress the household head's level of education, averaged by district, on the district-level number of fatalities, using a panel regression with district and time fixed effects. Results (reported in Appendix Table A.1) indicate that there are no compositional effects associated with conflict intensity, thus strengthening our confidence on the validity of conflict intensity as an instrumental variable for job loss.

6.2 Main results

Table 6 presents our main results. The coefficients reported in the first row are the second-stage estimates of the effect of household head's job loss on child's probability of school dropout. Column 1 reports the specification which includes only the fixed effects. In columns 2-4, we add a number of additional control variables for child, household head and household characteristics. These estimates document a positive and significant effect of household head's job loss on child's school dropout, which remains fairly stable across different model specifications. In particular, looking at the more demanding specification (column 4), we find that parental job loss increases the child probability of dropping out from school by 9 percentage points.[16]

The 2SLS estimates of the effect of job loss on child's school dropout are much larger than the OLS estimates reported in Table 2. In our analysis, the compliers are the children whose household heads got separated from their job in Israel because of the conflict. The always-

[16]It should be noted that, while the effect of job loss on school dropout is highly significant and the magnitude large, the absolute number of affected children is small due to the low dropout rate (1.3% for the whole sample, 4% for students in secondary school, see Table 1). This may suggest a limited economic relevance for our results. Yet, two elements suggest that this is not the case. First, our analysis employs the most restrictive definition of dropout, i.e. that occurring between two adjacent quarters. In fact, this is a choice imposed by the nature of our main dataset. While the semi-panel structure of our data allows us to precisely identify short-term effects, it limits the possibility to look for - probably larger - retarded and longer-run ones. Second, as discussed in Section 2, education attendance in the OPT is extremely high. In this sense, the OPT is a tough test for studying the effect of job loss on school dropout and our results should thus be interpreted as indicating the potentially important role of job loss even in the case where dropout is a rare event and preference for education is very strong.

takers are those children that would have been exposed to parental job loss even in the absence of conflict (some household head may have decided to voluntarily leave the job, some others may have incurred in job separation for reasons other than the conflict). The estimated coefficient of β_1 is higher for the compliers: this is the group for which job loss can be particularly traumatic as it comes as unanticipated and involuntary, and it is more likely to be permanent. It follows that the coefficient we identify with our instrument can be interpreted as Local Average Treatment Effect (LATE).

——————— [Table 6 in here] ———————

6.3 Robustness checks

As a first check, we look at the possible role of the number of closure days as a confounding factor for our analysis. As discussed in Section 2, the Second Intifada has been characterised by the use of different security measure by the IDF. One of the most important of such measures is the closure of borders between Israel and the OPT. Closure days affect the possibility for workers employed in Israel to reach their workplace and thus potentially increase the probability of school dropout.[17] Since the number of closure days varies only at the country level (IDF's decision to close the borders affect all the OPT at the same time) its effect is already controlled for in our main regression by the time fixed effects. Yet, it is possible that the effect of closures depend on how far the place of residence of the worker is from the border. For this reason, we augment our main regression by including the number of closure days interacted with the distance between the capital of the worker's district of residence and the closer entry point in Israel. The coefficient for this variable is negative - suggesting that the effect of closure days on the probability of job loss is smaller for workers living farer from the borders - but it is never significant. As shown in Table 7 column 2 (column 1 reports our baseline result), the magnitude of our main proxy for conflict intensity is instead reassuringly unchanged when this additional control is included in the model.

Second, we check that our results are robust to the inclusion of additional covariates. These are: 1) full set of household head's occupation dummies; 2) full set of household head's industry of employment dummies; and 3) number of other children in the household attending school at

[17] Di Maio and Nandi (2013) show that the effect of closures on school attendance for children age 10-14 in the West Bank is negative even if not statistically significant. They suggest that the mechanism behind this effect is the conflict-induced changes occurred in the Palestinian domestic labour market, including lower wages and higher unemployment.

the time of the first interview. In Table 7 column 3-5, we add each of these variables to the main specification. Finally, in column 6 we include also district-specific time trends. Results show that the coefficient of our variable of interest is remarkably robust and always significant at 5%.

[Table 7 in here]

Third, we check that our results are robust to non-linearities in both the control variables and in the instrument. Non-linearities in the controls are addressed by including the two-way interactions between all control dummies and the quadratic terms of all continuous control variables. Results reported in Table A.2 column 1 indicate that the effect of parental job loss slightly increases with respect to the baseline. We also consider the possibility of non-linearities in the instrument used in the first-stage regression. To test for this, we include the quadratic term of $Fatalities_{jt}$ as additional instrument in equation 2. Also in this case, the results for the coefficient of our variable of interest are virtually unchanged (see column (2) Table A.2).

Next, we redo all our analysis using an alternative instrument, namely the predicted probability of household head's job loss obtained from a *probit* - rather than a linear - model. This is expected to increase the precision of the estimated coefficient of interest, given that the variable to be instrumented (household head's job loss) is a dummy (see Wooldridge 2002). All our results are confirmed also when using this alternative instrumental variable (detailed results are reported in the Appendix, Table A.3).

As a final check of our results, we implement a falsification test in the spirit of Chetty et al. (2009) and Belloc et al. (2016). The purpose of such a test is to check if 'randomly generated' values for fatalities produce point-estimates close to the 'true' one. If this was the case, the null hypothesis that the coefficient of $Fatalities_{jt}$ is equal to zero would be erroneously rejected. In our case, this would imply that we were attributing to fatalities an effect on job loss which in fact does not exist. Figure A.2 depicts the probability density function of the coefficients of $Fatalities_{jt}$ obtained by estimating the first-stage regression with the 'random' fatalities as independent variable, and iterating 10,000 times.[18] The vertical line indicates our 'true' point-estimate (0.053), which is reported in column (1) of Table 3. As it can be seen from Figure A.2, the point-estimates generated in the falsification test are normally distributed with mean

[18] 'Random' fatalities are generated in the following way. For each iteration, we take the 'true' quarterly fatalities occurred during the whole period of the analysis (i.e. the Second Intifada) and we randomly re-assign them to the district-quarter pairs. This implies that in each artificially (randomly) generated Second Intifada, the total number of fatalities is equal to the real one but its district-quarter distribution is instead random.

zero: this means that there is no correlation between fatalities and job loss when the former are randomly assigned. These results thus provide suggestive evidence against the possibility that our first-stage results suffer from an omitted variable bias.

6.4 Heterogeneity

6.4.1 Child characteristics

In Table 8, we explore the heterogeneous effects of parental job loss for different child characteristics such as gender, grade, and academic performance. Column 1 and 2 report the estimates when we look separately at boys and girl: the effect of job loss is significant for the former group but not for the latter and the difference between the two is significantly different from zero. This result confirms the theory that gender plays an important role in investments in human capital (Becker, 1975). Interestingly, our results show that - differently from what happens in other developing countries[19] - households in the OPT have a preference for girl education.[20] This result would be consistent with a situation in which - following job loss - the household sends the child to work, a possibility that in the case of the OPT is less likely for girls. We elaborate more on this point in Section 6.5 where we discuss the possible mechanisms behind our main result. In column 3 and 4, we split the sample between children in compulsory grades and those who have completed mandatory education.[21] The results show that the effect of parental job loss increases school dropout probability for children in both samples but it is much larger and significant only for those enrolled in the education stages which are voluntary (i.e. secondary education).[22] Finally, we explore whether the effect of parental job loss on child school dropout changes with the previous academic performance of the child. Results show that the effect is significantly higher for children who repeated at least one grade while the effect for the children who never repeated a grade is not significant at conventional levels - the difference between the two coefficients is significantly different from zero. This indicates that parental job loss is more likely to induce the household to withdraw the child from school if his/her academic performance is low, i.e. the expected future gain from staying at school is lower.

[19] For instance, see Lincove (2009) and references cited therein.

[20] Recall that, as we discussed in Section 2, enrolment rate are higher for girls in any type of school for both West Bank and the Gaza Strip.

[21] In Palestinian, education is mandatory until the 10^{th} grade (at age 16) (see Section 2). After that, there is the possibility to enrol to a two-year secondary school which ends with the Tawjihi General Examination, the school-leaving exam required to access the University (Brueck et al., 2016).

[22] The difference between the two estimated coefficients is statistically significant at conventional levels.

[Table 8 in here]

6.4.2 Household characteristics

In Table 9, we explore the heterogeneous effects of job loss with respect to household characteristics such as the level of parental education and the number of children in the household. Column 1 and 2 show the results of our baseline regression when we split the sample according to the level of parental education. Previous studies show that parental schooling directly and indirectly affects children's schooling decision. In particular, parental schooling is positively associated with better education outcomes for the child (Orazem and King, 2008). Our results indicate that the effect of parental job loss is significant for children whose household head has at most primary education while there is no effect for children whose household head has secondary or higher education and that the difference between the two is significantly different from zero. This suggests that the household's response to negative economic shocks may depend on how parents value education. Our results also show that the effect of parenatl job loss may also vary depending on the composition of the household and, in particular, on the number of children. Using as threshold the average household number of children in the OPT (namely 3 children), we find that the effect of parental job loss is significant only for households with a higher number of children while it is not significant for smaller households and that the difference between the two is significantly different from zero.

[Table 9 in here]

6.5 Mechanisms

In this section we look at possible mechanisms linking household head's job loss and child school dropout. We focus on three main mechanisms: 1) reduction in household income; 2) family distress, e.g. parental divorce; and 3) residential relocation.

6.5.1 Household income

Household income is a key determinant of household decision concerning investment in education. Previous research has shown that higher household income is associated with better schooling outcomes, including enrollment, test score, and attainment. By the same token, parental downward mobility can also dampen children's attitudes about the value of education

and work (Behrman and Knowles, 1999; Dostie and Jayaraman, 2006; King and Lillard, 1987; Glick and Sahn, 2000).

In the case of the West Bank, providing a precise measure of household income is very challenging. The PLFS does not include the household income variable and thus we need to construct it from reported wages. This implies that we have missing values for all households with individuals that are self-employed. Moreover, less than one-third of the employed individuals report the wage in both periods, significantly reducing the sample and making the estimation very imprecise. To minimize the noise in this measure, we proxy household income loss using a dummy taking value 1 if household income decreases between the first and the second quarter of interview, and zero otherwise. Table 10 column 1 shows that conflict intensity increases the probability of household income loss, though the effect is not significant at conventional levels. To provide additional evidence on this channel, we perform the same analysis by using a household income loss variable in which we impute the missing values.[23] The estimate is reported in column 2, and is now significant at 5%. The magnitude of the coefficient indicates that one additional fatality in 10,000 inhabitants is associated with a 5.3 percentage point increase in the household's probability of suffering an income loss between the first and the second quarter of interview. Finally, in column 3 we proxy household income loss using the (log) value of the reduction in the (actual and imputed) wages of the household members. Results indicate that one additional fatality in 10,000 inhabitants reduces household income by 16%. We interpret this as evidence suggesting that the drop in household income is one potential mechanisms explaining why parental job loss increases child school dropout.

———— [Table 10 in here] ————

To provide additional support to this result, we split the sample according to the household head's post-job loss employment status, that is according to whether he/she is re-employed in the OPT or unemployed. Results reported in Table 11 show that the impact of fatalities is significant for those children whose household head becomes unemployed while it is not significant for those whose household head is immediately re-employed in the OPT. While both samples are small

[23]The methodology to input missing wages for Palestinian workers employed in Israel in the first quarter of interview is the following. As for the wage level at the time of the first interview, we assign the worker the average wage level of Palestinian workers employed in Israel in the same industry, in the same quarter, and with the same level of education. As for the wage level at the time of the second interview, the imputation depends on the employment status. If he/she is employed in Israel, we impute the same wage level as in previous quarter. If he/she is re-employed in the OPT, we impute the average wage level of Palestinian workers employed in the OPT in the same industry, in the same quarter, and with the same level of education. Finally, if he/she is unemployed, we impute a zero wage.

and their composition is endogenous, these results contribute to suggest a role of household income reduction in explaning the effect of parental job loss on child school dropout.

——————— [Table 11 in here] ———————

The reduction in household income caused by the household head's job loss also provides a possible explanation for the heterogeneous effect of job loss between boys and girls discussed in Section 6.4 and reported in Table 8. Households affected by a negative economic shock may be forced to withdraw from school those children that may help the household to cope with the difficult economic situation, namely boys. Descriptive evidence shows that more than 40% of boys who drop out from school start working, and the percentage increases to 47% for those aged 15 or above (i.e. after mandatory school is completed). Instead, less than 1% of girls who drop out from school start working. This evidence is also in line with the survey results reported in Sharek Youth Foundation (2009). According to this survey, behind the dropout decision for male students, the economic motivations are the most important ones: 24% of males report they dropped out from school because they could no longer afford it, and 38% to support their families. Instead, only 18% of females mention economic/cost related reasons for dropout. For female students, instead, the most significant factor is marriage (46%). This is consistent with cultural norms rather than cost being the main cause for leaving school in the case of girls. This suggests that part of the explanation for the gender-effect of parental job loss is related to the possibility of child labour, the best alternative option. Since girls do not work in any case, school dropout is *ceteris paribus* less likely.

6.5.2 Other possible mechanisms

There are other possible mechanisms through which parental job loss might affect the probablity that a child drops out from school. The most important ones are related to the family environment: parental divorce and residential relocation of the household (Stevens and Shaller, 2011). To investigate these mechanisms, we make use of a series of variables from the PLFS for the period 2000-2006 and from the Child Labour Force Survey 2004 (CLFS 2004). In particular, the CLFS 2004 contains information on the parents' marital status and district of residence.

Parental divorce One possible mechanism explaining the effect of parental job loss on child school dropout is the change that the former may induce in the family structure. Charles and

Stephens (2004) find an increase in the probability of divorce following layoffs, and numerous studies document the detrimental effect of divorce on children's academic achievement and other outcomes (Stevens and Shaller, 2011). Results reported in Table A.4 show that conflict intensity does not increase the probability of divorce for Palestinians employed in Israel. At the same time, the data from the CLFS for 2004 indicate that the probability of dropout is not correlated with the rate of parental divorce.[24] While we cannot control for other possible intra-household effects, such as increase in stress and violence that may be associated with job loss, the available evidence induce us to exclude family disruption as potential mechanism explaining the effect of parental job loss on child school dropout.

Residential relocation As a consequence of the household head's job loss, family may decide to relocate. While this may be the optimal response from the point of view of the adults, this may create difficulties to the child's learning process, increasing the probability of grade repetition and ultimately inducing the student to dropout from school. Relocation can be a very exhausting experience and is often associated with increased psychological distress (McLanahan, 1983; Stevens and Shaller, 2011). While this may be an important mechanisms in other contexts, this is not the case in the OPT during the Second Intifada. In fact, the whole period of the Second Intifada has been characterised by extremely low internal and external mobility rates. Mobility between cities in Palestine was severely limited through different measures such as checkpoints and internal closures (Mansour, 2010; Cali and Miaari, 2013). Moreover, the conflict situation induced Israel to severely limit the international mobility of Palestinian families. These indirect evidence thus suggests that residential relocation is not a likely mechanisms through which parental job loss induced child school dropout.

7 Conclusions

In this paper, we have studied the effect of a negative household-level economic shock, namely parental job loss, on child school dropout in the context of the OPT. To identify the effect of job loss, we have focused on Palestinian workers employed in Israel during the Second Intifada (2000-2006) and used their exposure to conflict as a source of exogenous variation in job loss. The size of the effect is large: parental job loss increases children's probability of dropping out from school by 9 percentage points. The effect varies with the gender, grade and academic

[24] Results are not shown for sake of brevity but are available upon request from the Authors.

ability of the student, with the education level of the household head, and the number of children in the household. We have also explored different possible mechanisms to explain the effect of job loss on school dropout decision. Our results suggest that the drop in household income associated with the household head's job loss may be the main motivation behind the household decision to withdraw the child from school. We also find that both parental divorce and residential relocation do not to play any role.

Our paper contributes to a better understanding of the long-run effects of negative economic shocks at the household level. Our results indeed suggest that, in the context of a developing country, negative economic shocks may have dramatic long-run effects by reducing the accumulation process of human capital.

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Table 1: SUMMARY STATISTICS

Variable	Obs	Mean	Std. Dev.	Min	Max
Child's school dropout	9539	0.013	0.115	0	1
HH head's job loss	9539	0.341	0.474	0	1
Fatalities	9539	0.358	0.579	0	5.4
Male	9539	0.515	0.500	0	1
Age	9539	12.718	2.231	10	17
Years of schooling	9539	6.392	2.211	0	12
HH head's age	9539	42.029	6.247	23	75
HH head's education: primary	9539	0.623	0.485	0	1
HH head's education: secondary	9539	0.208	0.406	0	1
HH head's education: tertiary	9539	0.071	0.257	0	1
HH head's employment status: self-employed	9539	0.117	0.322	0	1
HH head's employment status: employee (govt)	9539	0.022	0.147	0	1
HH head's employment status: reg employee (priv)	9539	0.753	0.431	0	1
HH head's employment status: irreg employee (priv)	9539	0.108	0.310	0	1
HH size	9539	6.650	2.380	3	20
Number of children in the HH	9539	3.310	1.282	1	9
Number of people employed other than the HH head	9539	1.583	0.947	1	8

Table 2: OLS RESULTS

	Child's school dropout			
	(1)	(2)	(3)	(4)
HH head's job loss	0.009**	0.008**	0.008**	0.007*
	(0.003)	(0.003)	(0.004)	(0.004)
Male		0.003	0.003	0.003
		(0.002)	(0.002)	(0.002)
Age		0.009***	0.009***	0.009***
		(0.001)	(0.001)	(0.001)
Years of schooling		-0.005***	-0.004**	-0.004**
		(0.002)	(0.002)	(0.002)
HH-specific controls	-	-	-	✓
HH head-specific controls	-	-	✓	✓
Quarter dummies	✓	✓	✓	✓
Location type dummies	✓	✓	✓	✓
District dummies	✓	✓	✓	✓
Clusters	16	16	16	16
Observations	9539	9539	9539	9539
R squared	0.007	0.019	0.020	0.021
Mean of dependent variable		0.013		

Note - All standard errors are clustered at the district level. The dependent variable, Child's school dropout, is a dummy variable which takes value 1 if a child who was attending school in quarter 1 is no longer attending school in quarter 2. The main explanatory variable, HH head's job loss, is a dummy variable which takes value 1 if the HH head who was employed in Israel in quarter 1 is no longer employed in Israel in quarter 2. HH head-specific controls include age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status. HH-specific controls include size, number of children, and number of members employed other than the HH head (as a proxy for HH income).

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table 3: FIRST-STAGE AND REDUCED-FORM RESULTS

	Dependent variable	
	HH head's job loss (1)	Child's school dropout (2)
Fatalities	0.053***	0.005**
	(0.015)	(0.002)
HH-specific controls	✓	✓
HH head-specific controls	✓	✓
Child-speficic controls	✓	✓
Quarter dummies	✓	✓
Location type dummies	✓	✓
District dummies	✓	✓
Clusters	16	16
Observations	9539	9539
R squared	0.139	0.021
Mean of dependent variable	0.341	0.013

Note - All standard errors are clustered at the district level. HH head's job loss is a dummy variable which takes value 1 if a child's HH head who was employed in Israel in quarter 1 is no longer employed in Israel in quarter 2. Child's school dropout, is a dummy variable which takes value 1 if a child who was attending school in quarter 1 is no longer attending school in quarter 2. The main explanatory variable, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population, and serves as instrumental variable. HH head-specific controls include age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status. HH-specific controls include size, number of children, and number of members employed other than the HH head (as a proxy for HH income). Child-specific controls include gender, age and years of schooling.

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table 4: ROBUSTNESS FIRST-STAGE RESULTS: Timing of the effect of Fatalities

	HH head's job loss		
	(1)	(2)	(3)
Fatalities: current quarter	0.053***	0.049**	0.047**
	(0.015)	(0.018)	(0.019)
Fatalities: next quarter		0.010	
		(0.018)	
Fatalities: past quarter			0.019
			(0.021)
All baseline controls	✓	✓	✓
Quarter dummies	✓	✓	✓
Location type dummies	✓	✓	✓
District dummies	✓	✓	✓
Clusters	16	16	16
Observations	9539	9539	9539
R squared	0.139	0.139	0.139
Mean of dependent variable		0.341	

Note - All standard errors are clustered at the district level. The dependent variable, HH head's job loss, is a dummy variable which takes value 1 if a child's HH head who was employed in Israel in quarter 1 is no longer employed in Israel in quarter 2. The main explanatory variable, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population, and serves as instrumental variable. All baseline controls include: 1) child-specific controls, such as gender, age and years of schooling; 2) HH head-specific controls, such as age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status; 3) HH-specific controls, such as size, number of children, and number of members employed other than the HH head (as a proxy for HH income).

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table 5: MAIN IDENTIFICATION RESULTS

	Sample	
Dependent variable	HH head employed in Israel (1)	HH head employed in the OPT (2)
Child's school dropout		
Fatalities	0.005**	0.001
	(0.002)	(0.001)
HH head's job loss		
Fatalities	0.021**	-0.001
	(0.009)	(0.004)
All baseline controls	✓	✓
Quarter dummies	✓	✓
Location type dummies	✓	✓
District dummies	✓	✓
Clusters	16	16
Observations	9539	42691

Note - All standard errors are clustered at the district level. The dependent variable is Child's school dropout in the upper panel and HH head's job loss in the lower panel, respectively. Child's school dropout is a dummy variable which takes value 1 if a child who was attending school in quarter 1 is no longer attending school in quarter 2. HH head's job loss is a dummy variable which takes value 1 if a child's HH head who was employed in quarter 1 is no longer employed in quarter 2. The main explanatory variable, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population, and serves as instrumental variable. All baseline controls include: 1) child-specific controls, such as gender, age and years of schooling; 2) HH head-specific controls, such as age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status; 3) HH-specific controls, such as size, number of children, and number of members employed other than the HH head (as a proxy for HH income).

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table 6: 2SLS RESULTS

	Child's school dropout			
	(1)	(2)	(3)	(4)
HH head's job loss	0.103**	0.094**	0.093*	0.092**
	(0.048)	(0.047)	(0.048)	(0.046)
Male		0.003*	0.003*	0.003
		(0.002)	(0.002)	(0.002)
Age		0.008***	0.009***	0.008***
		(0.001)	(0.001)	(0.001)
Years of schooling		-0.004**	-0.004**	-0.004**
		(0.001)	(0.001)	(0.001)
HH-specific controls	-	-	-	✓
HH head-specific controls	-	-	✓	✓
Quarter dummies	✓	✓	✓	✓
Location type dummies	✓	✓	✓	✓
District dummies	✓	✓	✓	✓
Clusters	16	16	16	16
Observations	9539	9539	9539	9539
Cragg-Donald Wald F statistic	25.79	25.12	24.92	24.39
Kleibergen-Paap Wald rk F statistic	13.09	13.17	12.10	12.45
Anderson-Rubin Wald test p-val	0.018	0.032	0.026	0.027
Mean of dependent variable		0.013		

Note - All standard errors are clustered at the district level. The dependent variable, Child's school dropout, is a dummy variable which takes value 1 if a child who was attending school in quarter 1 is no longer attending school in quarter 2. The main explanatory variable, HH head's job loss, is a dummy variable which takes value 1 if the HH head who was employed in Israel in quarter 1 is no longer employed in Israel in quarter 2. The instrumental variable used in first-stage regression, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population. HH head-specific controls include age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status. HH-specific controls include size, number of children, and number of members employed other than the HH head (as a proxy for HH income).

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table 7: ROBUSTNESS 2SLS RESULTS: including additional controls

	Child's school dropout					
	(1)	(2)	(3)	(4)	(5)	(6)
HH head's job loss	0.092**	0.094**	0.094**	0.096**	0.101**	0.104**
	(0.046)	(0.045)	(0.044)	(0.047)	(0.052)	(0.052)
HH head's occupation dummies	-	-	-	✓	✓	✓
HH head's job industry dummies	-	-	✓	✓	✓	✓
No. children attending school other than i	-	✓	✓	✓	✓	✓
Closure days*District distance from Israel	-	✓	✓	✓	✓	✓
All baseline controls	✓	✓	✓	✓	✓	✓
Quarter dummies	✓	✓	✓	✓	✓	✓
Location type dummies	✓	✓	✓	✓	✓	✓
District dummies	✓	✓	✓	✓	✓	-
District-specific time trends	-	-	-	-	-	✓
Clusters	16	16	16	16	16	16
Observations	9539	9539	9539	9539	9539	9539
Cragg-Donald Wald F statistic	24.92	24.97	24.64	23.54	21.71	20.98
Kleibergen-Paap Wald rk F statistic	12.45	11.77	11.77	10.46	9.96	10.37
Anderson-Rubin Wald test p-val	0.026	0.023	0.021	0.022	0.025	0.025
Mean of dependent variable	0.013					

Note - All standard errors are clustered at the district level. The dependent variable, Child's school dropout, is a dummy variable which takes value 1 if a child who was attending school in quarter 1 is no longer attending school in quarter 2. The main explanatory variable, HH head's job loss, is a dummy variable which takes value 1 if a child's HH head who was employed in Israel in quarter 1 is no longer employed in Israel in quarter 2. The instrumental variable used in first-stage regression, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population. All baseline controls include: 1) child-specific controls, such as gender, age and years of schooling; 2) HH head-specific controls, such as age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status; 3) HH-specific controls, such as size, number of children, and number of members employed other than the HH head (as a proxy for HH income).

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table 8: HETEROGENEITY RESULTS: by child's characteristics

	Sample					
	Gender		Compulsory grade		Grade repeated	
	Boys	Girls	Yes	No	Yes	No
Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
Child's school dropout						
Fatalities	0.010**	-0.001	0.002	0.016*	0.016**	0.001
	(0.004)	(0.002)	(0.002)	(0.009)	(0.006)	(0.002)
All baseline controls	✓	✓	✓	✓	✓	✓
Quarter dummies	✓	✓	✓	✓	✓	✓
Location type dummies	✓	✓	✓	✓	✓	✓
District dummies	✓	✓	✓	✓	✓	✓
Clusters	16	16	16	16	16	16
Observations	4909	4630	7617	1922	2751	6788

Note - All standard errors are clustered at the district level. The dependent variable, Child's school dropout, is a dummy variable which takes value 1 if a child who was attending school in quarter 1 is no longer attending school in quarter 2. The main explanatory variable, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population, and serves as instrumental variable. All baseline controls include: 1) child-specific controls, such as gender, age and years of schooling; 2) HH head-specific controls, such as age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status; 3) HH-specific controls, such as size, number of children, and number of members employed other than the HH head (as a proxy for HH income). Since the information about which grade the student is enrolled into is not reported in the PLFS, we define the two samples according to the years of completed education: less than 10 years (student in compulsory grades) vs. 10 years or more (students in voluntary grades).

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table 9: HETEROGENEITY RESULTS: by HH's characteristics

	Sample			
	HH head's education		No. children in HH	
	Primary	Secondary or higher	<= 3	> 3
Dependent variable	(1)	(2)	(5)	(6)
Child's school dropout				
Fatalities	0.008**	-0.001	0.000	0.010**
	(0.003)	(0.003)	(0.003)	(0.004)
All baseline controls	✓	✓	✓	✓
Quarter dummies	✓	✓	✓	✓
Location type dummies	✓	✓	✓	✓
District dummies	✓	✓	✓	✓
Clusters	16	16	16	16
Observations	6874	2665	5350	4189

Note - All standard errors are clustered at the district level. The dependent variable, Child's school dropout, is a dummy variable which takes value 1 if a child who was attending school in quarter 1 is no longer attending school in quarter 2. The main explanatory variable, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population, and serves as instrumental variable. All baseline controls include: 1) child-specific controls, such as gender, age and years of schooling; 2) HH head-specific controls, such as age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status; 3) HH-specific controls, such as size, number of children, and number of members employed other than the HH head (as a proxy for HH income).

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table 10: MECHANISMS RESULTS

	Dependent variable		
	HH income loss indicator (1)	HH income loss indicator using imputed wages (2)	HH (log) income loss using imputed wages (3)
Fatalities	0.035	0.053***	0.158***
	(0.045)	(0.017)	(0.045)
All baseline controls	✓	✓	✓
Quarter dummies	✓	✓	✓
Location type dummies	✓	✓	✓
District dummies	✓	✓	✓
Clusters	16	16	16
Observations	3198	8353	8353
R squared	0.112	0.095	0.117
Mean of dependent variable	0.578	0.520	1.793

Note - All standard errors are clustered at the district level. Household income loss indicator is a dummy variable which takes value 1 if a child's household income declined from quarter 1 to quarter 2. Household (log) income loss measures the difference in the household income between quarter 2 and quarter 1; it is then multiplied by -1 so as higher values capture higher income loss, and expressed in log terms. The main explanatory variable, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population, and serves as instrumental variable. All baseline controls include: 1) child-specific controls, such as gender, age and years of schooling; 2) household head-specific controls, such as age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status; 3) household-specific controls, such as size, number of children, and number of members employed other than the household head (as a proxy for household income).

*, **, *** Significant at the 10%, 5%, 1% level, respectively.

Table 11: MECHANISMS RESULTS: additional evidence

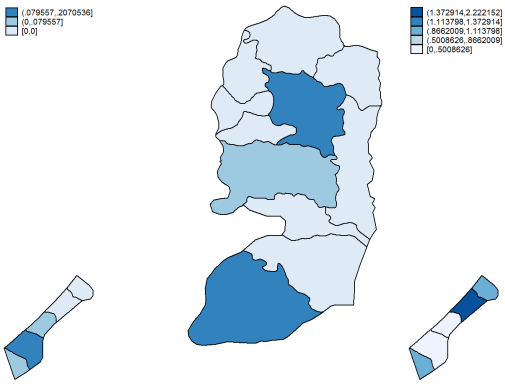
	Sample	
Dependent variable	HH head re-employed in OPT in Q2 (1)	HH head unemployed in Q2 (2)
Child's school dropout		
Fatalities	0.003	0.007**
	(0.004)	(0.003)
All baseline controls	✓	✓
Quarter dummies	✓	✓
Location type dummies	✓	✓
District dummies	✓	✓
Clusters	16	16
Observations	1912	1341

Note - All standard errors are clustered at the district level. The dependent variable, Child's school dropout, is a dummy variable which takes value 1 if a child who was attending school in quarter 1 is no longer attending school in quarter 2. The main explanatory variable, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population, and serves as instrumental variable. All baseline controls include: 1) child-specific controls, such as gender, age and years of schooling; 2) household head-specific controls, such as age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status; 3) household-specific controls, such as size, number of children, and number of members employed other than the household head (as a proxy for household income).

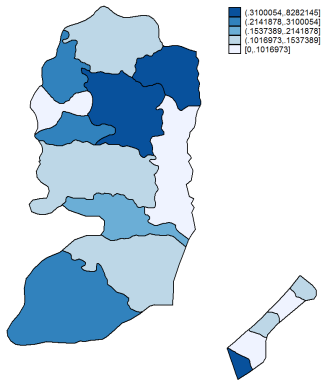
*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Appendix A: Figures and tables not shown in the main text

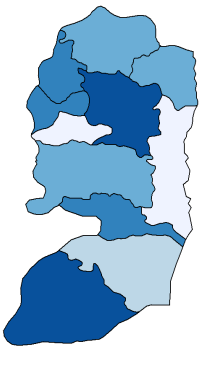
Figure A.1: Conflict intensity by district and quarter, 2000:Q3-2006:Q4



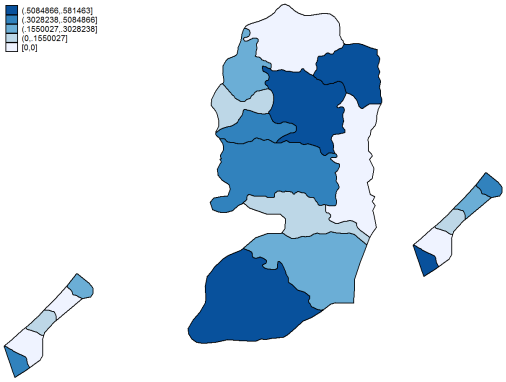
(a) 2000:Q3



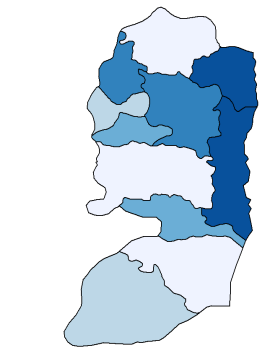
(b) 2000:Q4



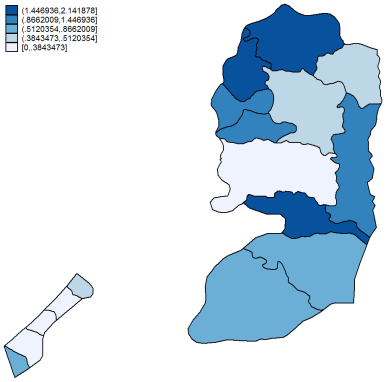
(c) 2001:Q1



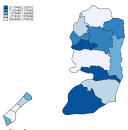
(d) 2001:Q2



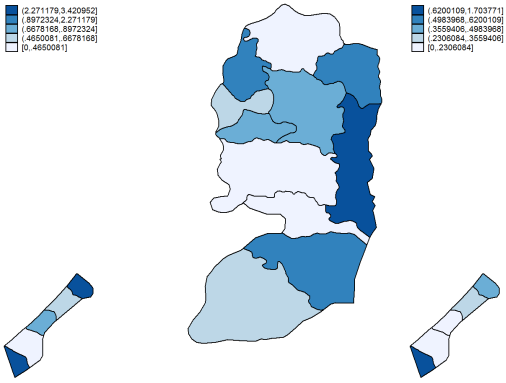
(e) 2001:Q3



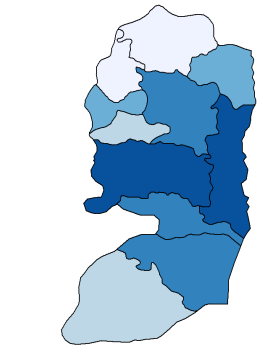
(g) 2001:Q4



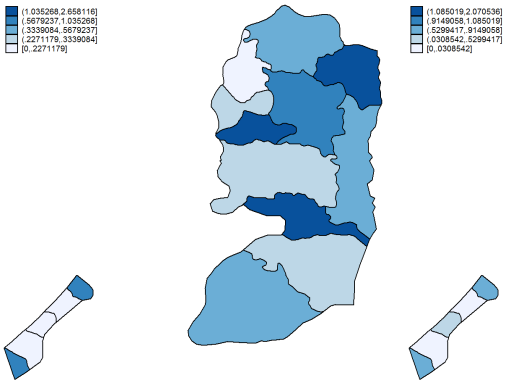
(f)
2002:Q1



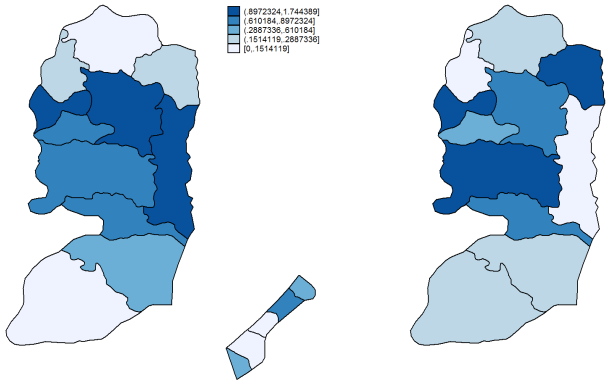
(h) 2002:Q2



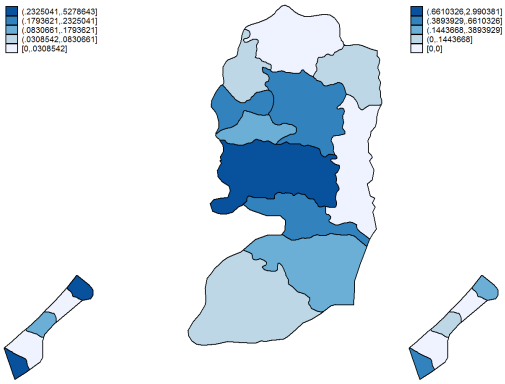
(i) 2002:Q3



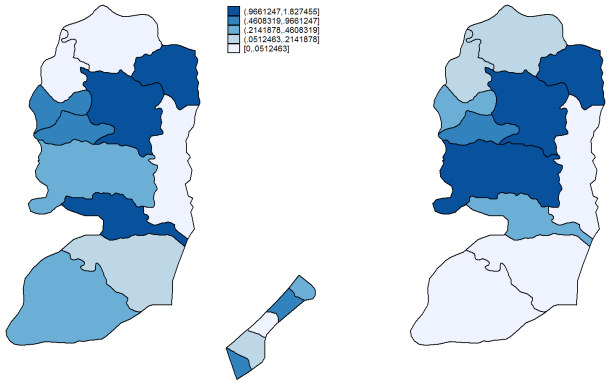
(j) 2002:Q4



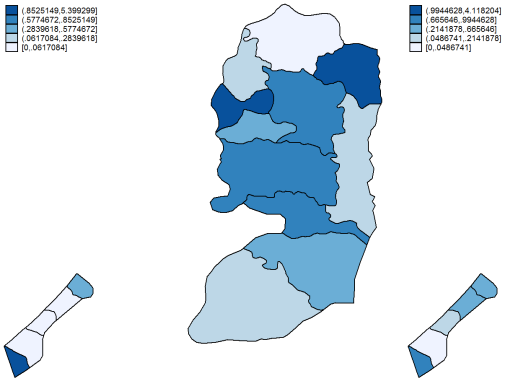
(k) 2003:Q1 (l) 2003:Q2



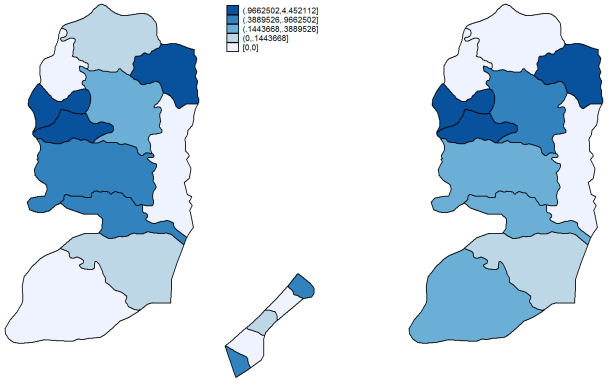
(m) 2003:Q3



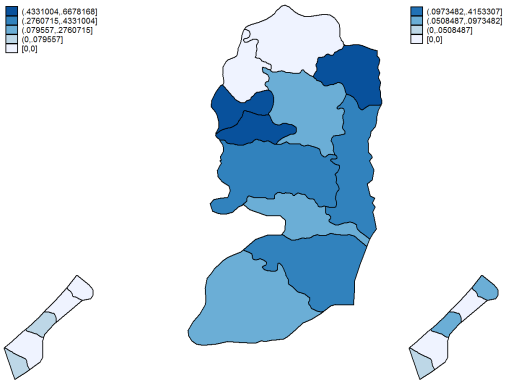
(n) 2003:Q4 (o) 2004:Q1



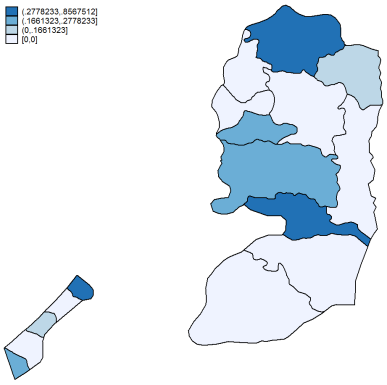
(p) 2004:Q2



(q) 2004:Q3 (r) 2004:Q4

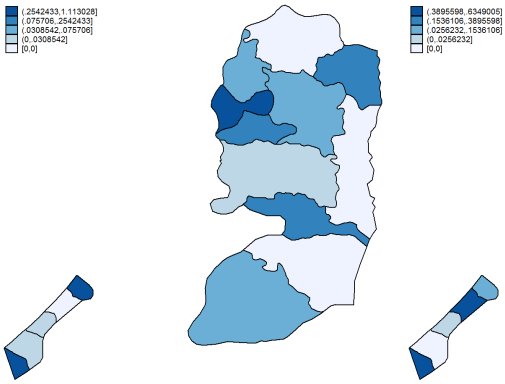


(s) 2005:Q1

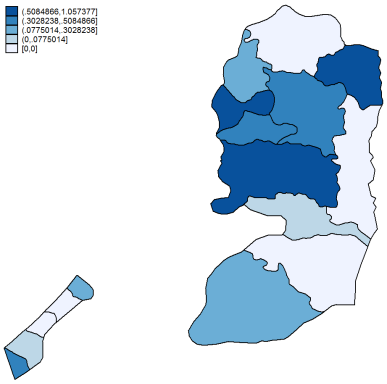


(t) 2005:Q2

(u) 2005:Q3

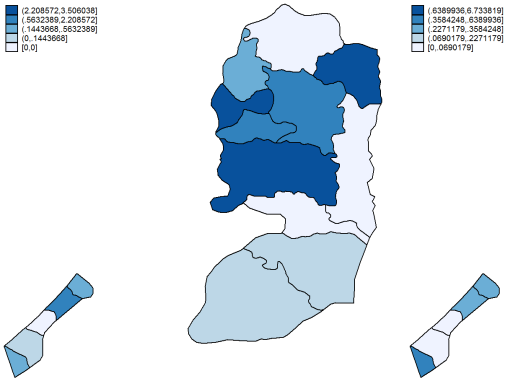


(v) 2005:Q4



(w) 2006:Q1

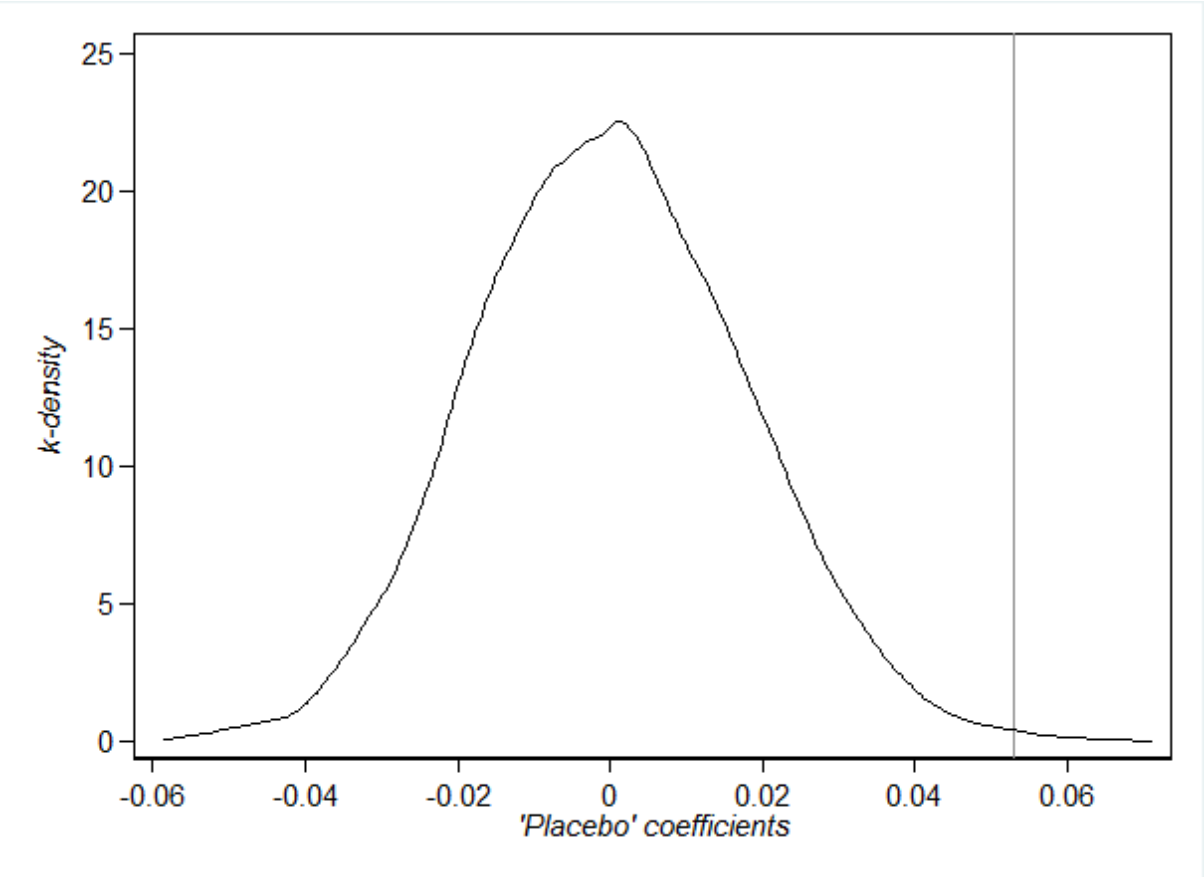
(x) 2006:Q2



(y) 2006:Q3

(z) 2006:Q4

Figure A.2: FALSIFICATION TEST



Note - Probability density function of the coefficients of Fatalities obtained by estimating the first-stage regression with the placebo Fatalities as independent variable, and iterating 10,000 times. The vertical line indicates our true point-estimate (0.053), which is reported in column (1) of Table 3.

Table A.1: PANEL FE RESULTS

	HH head's education	
	(1)	(2)
Fatalities	-0.034	-0.032
	(0.053)	(0.053)
Unemployment rate		-0.002
		(0.013)
Quarter fixed effects	✓	✓
District fixed effetcs	✓	✓
Clusters	16	16
Observations	400	400

Note - All standard errors are clustered at the district level. The dependent variable, HH head's education, captures the HH head's level of education (as measured by the years of schooling), averaged by district.

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table A.2: ROBUSTNESS 2SLS RESULTS: exploring non linearities

	Child's school dropout	
	(1)	(2)
HH head's job loss	0.099**	0.081**
	(0.050)	(0.041)
Nonlinearities in IV used in first-stage regression	-	✓
Nonlinearities in baseline controls	✓	-
All baseline controls	✓	✓
Quarter dummies	✓	✓
Location type dummies	✓	✓
District dummies	✓	✓
Clusters	16	16
Observations	9539	9539
Cragg-Donald Wald F statistic	23.27	13.96
Kleibergen-Paap Wald rk F statistic	12.70	6.09
Anderson-Rubin Wald test p-val	0.032	0.072
Mean of dependent variable	0.013	

Note - All standard errors are clustered at the district level. The dependent variable, Child's school dropout, is a dummy variable which takes value 1 if a child who was attending school in quarter 1 is no longer attending school in quarter 2. The main explanatory variable, HH head's job loss, is a dummy variable which takes value 1 if the HH head who was employed in Israel in quarter 1 is no longer employed in Israel in quarter 2. The instrumental variable used in first-stage regression, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population. All baseline controls include: 1) child-specific controls, such as gender, age and years of schooling; 2) HH head-specific controls, such as age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status; 3) HH-specific controls, such as size, number of children, and number of members employed other than the HH head (as a proxy for HH income). Nonlinearities in baseline controls are addressed by including the two-way interactions between all control dummies and the quadratic terms of all continuous control variables. Nonlinearities in IV used in first-stage regression are addressed by including the quadratic term of Fatalities as additional instrument in first-stage regression.

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table A.3: ROBUSTNESS 2SLS RESULTS: using alternative IV

	Child's school dropout			
	(1)	(2)	(3)	(4)
HH head's job loss	0.064**	0.054*	0.053**	0.051**
	(0.030)	(0.031)	(0.025)	(0.024)
Male		0.003*	0.003*	0.003
		(0.002)	(0.002)	(0.002)
Age		0.009***	0.009***	0.009***
		(0.001)	(0.001)	(0.001)
Years of schooling		-0.004***	-0.004***	-0.004***
		(0.001)	(0.001)	(0.002)
HH-specific controls	-	-	-	✓
HH head-specific controls	-	-	✓	✓
Quarter dummies	✓	✓	✓	✓
Location type dummies	✓	✓	✓	✓
District dummies	✓	✓	✓	✓
Clusters	16	16	16	16
Observations	9538	9538	9538	9538
Cragg-Donald Wald F statistic	41.97	40.3	53.2	49.44
Kleibergen-Paap Wald rk F statistic	13.56	14.13	19.31	17.77
Anderson-Rubin Wald test p-val	0.023	0.06	0.043	0.031
Mean of dependent variable			0.013	

Note - All standard errors are clustered at the district level. The dependent variable, Child's school dropout, is a dummy variable which takes value 1 if a child who was attending school in quarter 1 is no longer attending school in quarter 2. The main explanatory variable, HH head's job loss, is a dummy variable which takes value 1 if the HH head who was employed in Israel in quarter 1 is no longer employed in Israel in quarter 2. The instrumental variable used in first-stage regression is the predicted HH head's job loss obtained from a probit model of HH head's job loss on Fatalities and all baseline controls, where Fatalities measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population. All baseline controls include: 1) child-specific controls, such as gender, age and years of schooling; 2) HH head-specific controls, such as age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status; 3) HH-specific controls, such as size, number of children, and number of members employed other than the HH head (as a proxy for HH income).

*, **, *** Significant at the 10, 5 , 1 percent level, respectively.

Table A.4: MECHANISMS RESULTS: parental divorce

	Parental divorce (1)
Fatalities	-0.001
	(0.002)
All baseline controls	✓
Quarter dummies	✓
Location type dummies	✓
District dummies	✓
Clusters	16
Observations	9502
R squared	0.017
Mean of dependent variable	0.003

Note - All standard errors are clustered at the district level. The dependent variable, Parental divorce, is a dummy variable which takes value 1 if a child's household head faced a divorce from quarter 1 to quarter 2. The main explanatory variable, Fatalities, measures the total district-level number of Palestinians killed by the Israeli Defence Forces in each quarter divided by the district population, and serves as instrumental variable. All baseline controls include: 1) child-specific controls, such as gender, age and years of schooling; 2) household head-specific controls, such as age, age squared, a set of dummies for the level of education, and a set of dummies for the employment status; 3) household-specific controls, such as size, number of children, and number of members employed other than the household head (as a proxy for household income).

*, **, *** Significant at the 10%, 5%, 1% level, respectively.