The effect of parental job loss on child school dropout: evidence from the Occupied Palestinian Territories

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Motivation

- Do negative economic shocks affect HH education choices in developing countries?
- HH's ability to fully insure against income shocks
- Parental job loss has negative consequences on children education
- Existing evidence mostly focuses on advanced countries

This paper

- Does parental job loss affect child school dropout in the context of a developing country?
  - Does the effect vary with child and HH characteristics?
  - What are the mechanisms behind this effect?
- First evidence from the Occupied Palestinian Territories (OPT)
- Exploit conflict-induced job loss during the Second Intifada

Preview of results

- Parental job loss $\uparrow$ child's school dropout probability by 9 p.p.
- Effect varying with child's gender and academic ability...
- ...and with parental education and number of children in the HH
- Effect seems to be driven by a reduction in HH income

Related literature

- Short-run effects of parental job loss on child education
  - Evidence from developed countries
    - Ost & Pan 2014 (EcoEduRev); Coelli 2011 (LE) $\downarrow$ college enrollment
    - Stevens & Shaller 2011 (EcoEduRev) $\uparrow$ grade repetition
    - Rege et al., 2011 (REStud) $\downarrow$ graduate point average (GPA)
  - Evidence from developing countries
    - Skoufias & Parker 2006 (JPopE) no effects on school attendance
    - Duryea et al. 2007 (JDE) $\uparrow$ school dropout, $\downarrow$ school progress

Data sources

- Palestinian Labour Force Survey, 2000:Q3-2006:Q4 (Second Intifada)
  - HHs surveyed 4 times over 6 quarters (rotating panel)
- B'Tselem data on Palestinian fatalities in the OPT
  - see Jager & Paserman 2008 (AER); Mansour & Rees 2012 (JDE)

Palestinian employment in Israel and the Second Intifada

- Since 1967, up to 25% of Palestinian workers employed in Israel, typically in construction and agriculture
- Palestinian workers commute daily (not allowed to stay overnight in Israel)
- Conflict period: September 2000 to 2006
- Palestinians killed 234 Israeli civilians and 226 IDF personnel in the OPT
- IDF caused more than 4,000 Palestinian fatalities, the large majority non-combatants (B'Tselem, 2007)
- IDF adopted a number of security measures, including movement limitations of Palestinians within and outside the OPT
- Conflict reduced Palestinian employment in Israel and wages in the OPT

The Palestinian school system

- Managed by the Palestinian Ministry of Education
- Compulsory education up to the 10th grade (from age 6 to 15)
- Grades 11th-12th required to get high school qualification and access uni
- Female participation equals that for male, even higher in high school
- School fee required, $\uparrow$ indirect costs due to conflict
- Conflict has disrupted but not destroyed the school system
- Enrollment rate above 95% during the Second Intifada
- 1% dropout due to Separation Wall, 25% due to poverty (PCBS 2004)

Our sample

- Palestinian children aged 10-17 with HH heads employed in Israel Attrition
- Goal: minimize the possibility of voluntary job loss
  - Wage premium for jobs in Israel
    (10% to 25% higher wages, IMF 2003)
  - Palestinians employment in Israel closely followed conflict intensity
    (25% pre-intifada, 10% post-intifada)

Empirical analysis

- Estimate the following regression model:

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

  - X'_{ihjt}: child characteristics
  - W'_{hjt}: HH head and HH characteristics
  - θ_j, λ_t: district and quarter fixed-effects, respectively

Descriptives

OLS results

	Child school dropout		
	(1)	(2)	(3)
HH head job loss	0.009**	0.008**	0.007*
	(0.003)	(0.004)	(0.004)
HH head and HH controls	No	No	Yes
Child controls	No	Yes	Yes
Quarter FEs	Yes	Yes	Yes
District FEs	Yes	Yes	Yes
Observations	9539	9539	9539
Mean of dep var		0.013	

Identification strategy - I

- Use conflict intensity in district of residence as IV for job loss
- $\uparrow$ conflict intensity $\Rightarrow$ $\uparrow$ job loss probability
  - more difficult to reach the workplace in Israel
    $\Rightarrow$ delays and unpredicted absences from work
    Abrahams 2015; Calì & Miaari 2013
  - more likely to be exposed to violent events
    $\Rightarrow$ psychological distress and reduced productivity
    Ayer *et al.* 2015 (Trauma, Violence and Abuse)
  - potential for higher worker's opposition towards Israel
    $\Rightarrow$ discriminatory firing behaviour by Israeli employers
    Miaari *et al.* 2012 (JPopE)

Identification strategy - II

- Estimate the following first-stage regression:

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

  - $Fatalities_{jt}$: conflict intensity in the worker's district of residence $\rightarrow$ measured by the number of Palestinians killed by the IDF per 10,000 inhabitants

Maps

Main identification results

	Sample	
	HH head employed in Israel	HH head employed in the OPT
	(1)	(2)
	HH head job loss	
Fatalities	0.021**	-0.001
	(0.009)	(0.004)
	Child school dropout	
Fatalities	0.005**	0.001
	(0.002)	(0.001)
All controls	Yes	Yes
Quarter FEs	Yes	Yes
District FEs	Yes	Yes
Observations	9539	42691

First-stage and reduced-form results

	HH head job loss (1)	Child school dropout (2)
Fatalities	0.053***	0.005**
	(0.015)	(0.002)
All controls	Yes	Yes
Quarter FEs	Yes	Yes
District FEs	Yes	Yes
Observations	9539	9539
Mean of dep var	0.341	0.013

Second-stage results

	Child school dropout		
	(1)	(2)	(3)
HH head job loss	0.103**	0.094**	0.092**
	(0.048)	(0.047)	(0.046)
HH head and HH controls	No	No	Yes
Child controls	No	Yes	Yes
Quarter FEs	Yes	Yes	Yes
District FEs	Yes	Yes	Yes
Cragg-Donald Wald F statistic	25.79	25.12	24.39
Kleibergen-Paap Wald F statistic	13.09	13.17	12.45
Anderson-Rubin Wald test p-val	0.018	0.032	0.027
Observations	9539	9539	9539
Mean of dep var		0.013	

Robustness - Identification results

- The effect of fatalities in first-stage regression:
  - remains when including the lag or the lead of fatalities Table 1
  - vanishes when using randomly generated values of fatalities Placebo test
- No evidence of compositional effects of fatalities Table 2
- No evidence of feedback mechanisms Table 3

Robustness - Second-stage results

- Main results robust to including:
  - another measure of conflict intensity (closures of Israeli border)
  - additional control variables
    - HH head occupation dummies
    - HH head industry of employment dummies
    - number of siblings attending school
  - district-specific time trends Table 4
  - non-linearities in control variables and in the instrument Table 5

Heterogeneity

- Explore heterogeneous effect of parental job loss by:
  - child characteristics (gender, academic ability)
  - HH characteristics (education of the head, no. of children in HH)

Results by child characteristics

	Child school dropout			
	Gender		Grade repeated	
	Boys	Girls	Yes	No
	(1)	(2)	(3)	(4)
Fatalities	0.010**	-0.001	0.016**	0.001
	(0.004)	(0.002)	(0.006)	(0.002)
All controls	Yes	Yes	Yes	Yes
Quarter FEs	Yes	Yes	Yes	Yes
District FEs	Yes	Yes	Yes	Yes
Observations	4909	4630	2751	6788

Results by HH characteristics

	Child school dropout			
	HH head education		No. children in the HH	
	Primary	Secondary or higher	$<= 3$	> 3
	(1)	(2)	(3)	(4)
Fatalities	0.008**	-0.001	0.000	0.010**
	(0.003)	(0.003)	(0.003)	(0.004)
All controls	Yes	Yes	Yes	Yes
Quarter FEs	Yes	Yes	Yes	Yes
District FEs	Yes	Yes	Yes	Yes
Observations	6874	2665	5350	4189

Mechanisms

- Investigate the following potential mechanisms:
  - drop in HH income
  - parental divorce
  - residential relocation

Mechanisms results - Drop in HH income

	HH income loss indicator	HH income loss indicator (imputed wages)	HH (log) income loss (imputed wages)
	(1)	(2)	(3)
Fatalities	0.035	0.053***	0.158***
	(0.045)	(0.017)	(0.045)
All controls	Yes	Yes	Yes
Quarter FEs	Yes	Yes	Yes
District FEs	Yes	Yes	Yes
Observations	3198	8353	8353
Mean of dep var	0.578	0.520	1.793

Mechanisms results - Drop in HH income - cont'd

	HH income loss indicator	HH income loss indicator (imputed wages)	HH (log) income loss (imputed wages)
	(1)	(2)	(3)
Fatalities	0.014	0.008	0.030
	(0.010)	(0.009)	(0.024)
All controls	Yes	Yes	Yes
Quarter FEs	Yes	Yes	Yes
District FEs	Yes	Yes	Yes
Observations	18863	19691	19691
Mean of dep var	0.523	0.520	1.148

Drop in HH income - Additional evidence

	Child school dropout	
	No. employed members other than HH head $<= 2$	No. employed members other than HH head > 2
	(1)	(2)
Fatalities	0.006**	-0.009
	(0.002)	(0.010)
All controls	Yes	Yes
Quarter FEs	Yes	Yes
District FEs	Yes	Yes
Observations	8195	1344

Mechanisms results - Parental divorce

	Parental divorce
	(1)
Fatalities	-0.001
	(0.002)
All controls	Yes
Quarter FEs	Yes
District FEs	Yes
Observations	9502
Mean of dep var	0.003

Mechanisms results - Residential relocation

- Very low internal and external mobility during the Second Intifada
  - Mobility across cities in Palestine severely limited through checkpoints and internal closures
  - Israel restricted international mobility of Palestinians
- While residential relocation may be an important mechanism in other contexts, this is not the case in the OPT during the Second Intifada.

Conclusions

- Parental job loss does negatively affect children education in the short-run
- Estimated effect is sizeable
- Effect likely to be driven by a drop in HH income
- Policies aimed at helping HH to cope with negative income shocks can be important for human capital accumulation process

Descriptive statistics

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Variable	Obs	Mean	Std. Dev.	Min	Max
Child school dropout	9539	0.013	0.115	0	1
HH head job loss	9539	0.341	0.474	0	1
Fatalities	9539	0.358	0.579	0	5.4
Child gender (boy)	9539	0.515	0.500	0	1
Child age	9539	12.718	2.231	10	17
Child years of schooling	9539	6.392	2.211	0	12
HH head age	9539	42.029	6.247	23	75
HH head education: primary	9539	0.623	0.485	0	1
HH head education: secondary	9539	0.208	0.406	0	1
HH head education: tertiary	9539	0.071	0.257	0	1
HH head employment status: self-employed	9539	0.117	0.322	0	1
HH head employment status: employee (govt)	9539	0.022	0.147	0	1
HH head employment status: reg employee (priv)	9539	0.753	0.431	0	1
HH head 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 employed other than the HH head	9539	1.583	0.947	1	8

Sample attrition and selection bias

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Sample	Number of obs	% of sample A	Mean child years of schooling in t	% of children attending school in t	Mean HH head years of schooling in t	% of HH head employed in t	% of HH head employed in Israel in t
A. Child present in quarter t	73,899	100	6.49	94.37			
B. Child and HH head present in t	73,813	99.88	6.49	93.36	9.28	73.62	11.78
C. Child present in t and $t+1$	66,524	90.02	6.76	94.09			
D. Child and HH head present in t and $t+1$	66,336	89.77	6.76	94.1	9.27	75.24	11.71
E. D plus HH head employed in t	52,588	71.16	6.51	95.01	9.77	1	18.14
F. D plus HH head employed in Israel in t	9,539	12.91	6.39	93.89	8.35	1	1

Maps

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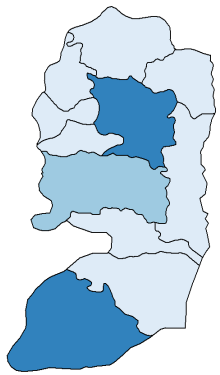
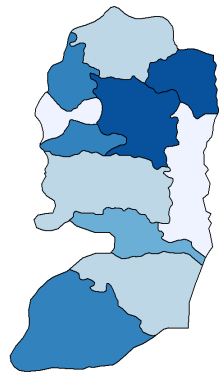


(a) 2000:Q3



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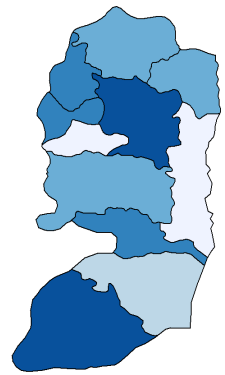
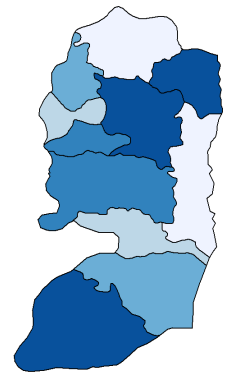
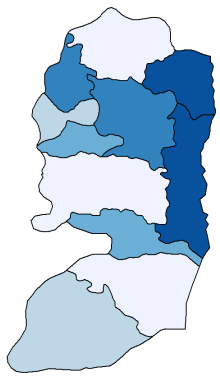


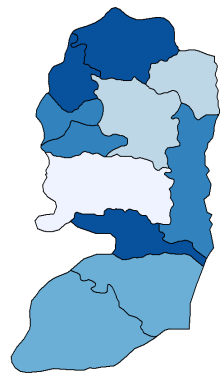
(c) 2002:Q3



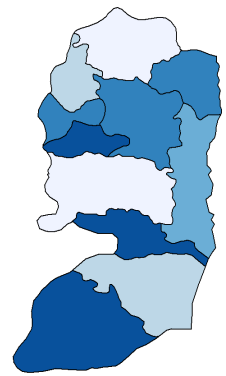
(d) 2003:Q3



(e) 2004:Q3



(f) 2005:Q3



(g) 2006:Q3

Robustness - Identification results

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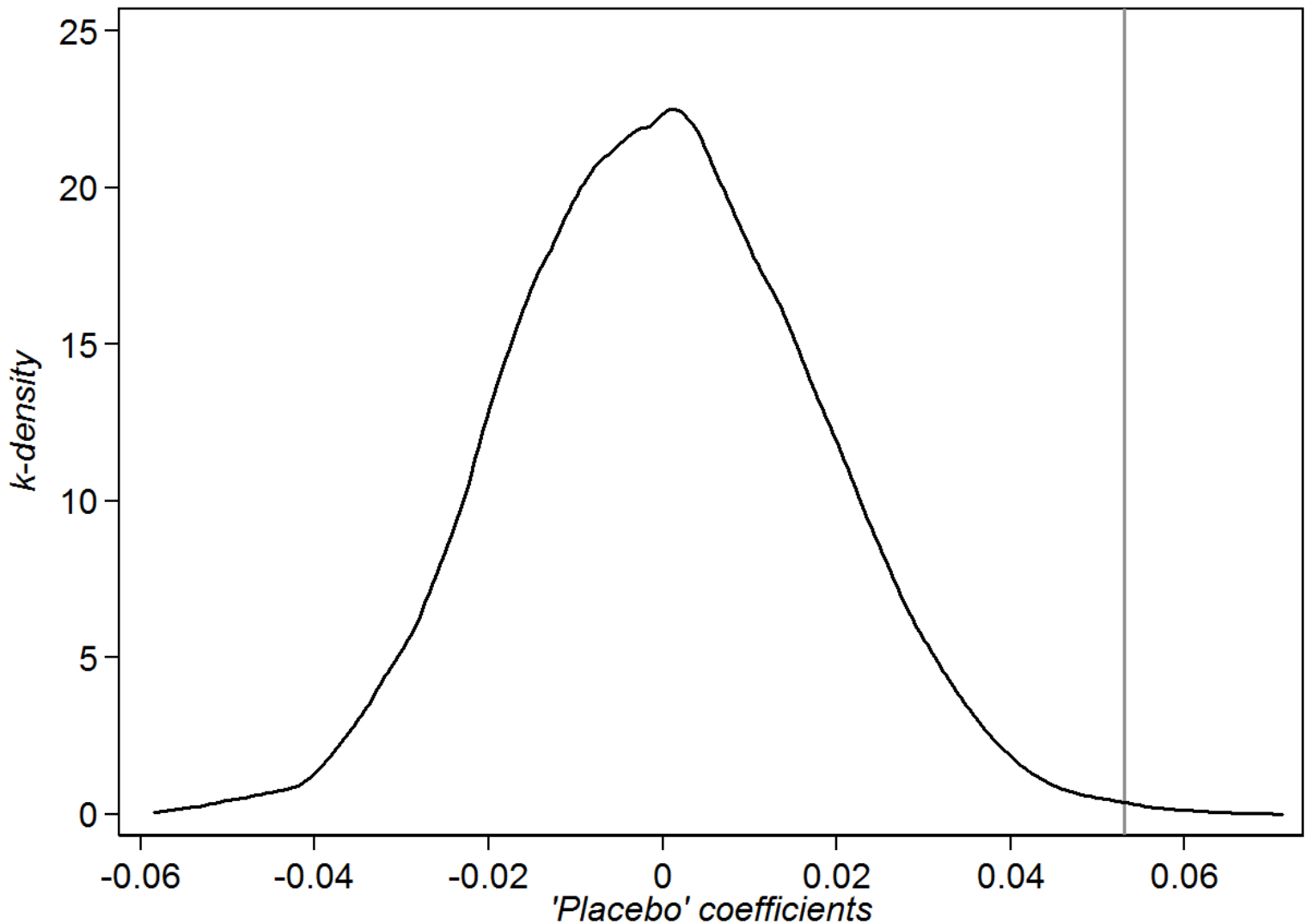
	HH head job loss		
	(1)	(2)	(3)
Fatalities: current quarter	0.053***	0.049**	0.047**
	(0.015)	(0.018)	(0.019)
Fatalities: next quarter		0.010	
		(0.018)	
Fatalities: past quarter			0.019
			(0.021)
All controls	Yes	Yes	Yes
Quarter FEs	Yes	Yes	Yes
District FEs	Yes	Yes	Yes
Observations	9539	9539	9539
Mean of dep var		0.341	

Robustness - Identification results

Back



Robustness - Identification results

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	District-level average HH head education	
	(1)	(2)
Fatalities	-0.034	-0.032
	(0.053)	(0.053)
Unemployment rate		-0.002
		(0.013)
Quarter FEs	Yes	Yes
District FEs	Yes	Yes
Observations	400	400

Robustness - Identification results

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	District-level number of fatalities	
	(1)	(2)
Dropout rate (if HH head employed in Israel)	2.754	
	(1.696)	
Dropout rate (if HH head employed in OPT)		1.123
		(1.317)
Quarter FE	Yes	Yes
District FE	Yes	Yes
Observations	357	357

Robustness - Second-stage results

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	Child school dropout					
	(1)	(2)	(3)	(4)	(5)	(6)
HH head 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)
District-specific time trends	No	No	No	No	No	Yes
HH head occupation dummies	No	No	No	No	Yes	Yes
HH head job industry dummies	No	No	No	Yes	Yes	Yes
Number of siblings attending school	No	No	Yes	Yes	Yes	Yes
Closure days*District distance from Israel	No	Yes	Yes	Yes	Yes	Yes
All controls	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FEs	Yes	Yes	Yes	Yes	Yes	Yes
District FEs	Yes	Yes	Yes	Yes	Yes	No
Cragg-Donald Wald F statistic	24.92	24.97	24.64	23.54	21.71	20.98
Kleibergen-Paap Wald 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
Observations	9539	9539	9539	9539	9539	9539
Mean of dep var			0.013			

Robustness - Second-stage results

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	Child school dropout	
	(1)	(2)
HH head job loss	0.099**	0.081**
	(0.050)	(0.041)
Non-linearities in the instrument	No	Yes
Non-linearities in the controls	Yes	No
All controls	Yes	Yes
Quarter FEs	Yes	Yes
District FEs	Yes	Yes
Cragg-Donald Wald F statistic	23.27	13.96
Kleibergen-Paap Wald F statistic	12.70	6.09
Anderson-Rubin Wald test p-val	0.032	0.072
Observations	9539	9539
Mean of dep var	0.013	