H i C N Households in Conflict Network

Trade, employment and conflict: Evidence from the Second Intifada[1]

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Abstract: Do trade shocks affect conflict? The evidence on this question has so far focused mainly on commodity price shocks. This paper moves beyond this focus and use data from the entire trade sector to examine whether changes in Palestinian trade in the second half of the 1990s affected the subsequent Palestinian uprising ('second Intifada'). The findings support the opportunity cost hypothesis. An increase of USD 10 million in Palestinian exports of a sector employing 10 percent of the locality's private employment reduces conflict intensity in that locality by 2.1-2.8 percent . On the other hand changes in Palestinian and Israeli imports have no significant impact on conflict. We provide evidence that these trade shocks were determined by factors exogenous to Palestinian localities, including the emergence of new global suppliers and the unilateral trade opening of Israel, i.e. the main Palestinian export destination.

Keywords: Conflict, trade, exports, employment, Palestinian territory, Israel

JEL Codes: D74, F13, F14, J23

1. Introduction

Trade is one of the main channels through which income shocks affect conflict in fragile countries. Increases in exports may raise the incomes for certain sections of the population, thereby raising their opportunity cost of engaging in political violence. Some recent evidence provides indirect support for this mechanism, finding that a rise in international prices of a commodity reduces the probability and intensity of civil conflicts in countries that export that commodity (Bruckner and Ciccone, 2010; Berman and Couttenier, 2014; Dube and Vargas, 2013). However, the robustness of the evidence in support of this mechanism is disputed (Bazzi and Blattman, 2014). This may be due to a number of issues impairing the empirical analysis. First the cross-country heterogeneity of the effects of income shocks on conflict is likely to be large. Second, it is difficult to properly isolate the opportunity cost from other channels that may be concomitantly at play as a result of trade shocks, especially when focusing on commodity exports. Indeed increases in the price of exported commodities may also raise the incentive to fight over the control of the exportables, especially if they are easily appropriable as in the case of extractive commodities (Dal Bó and Dal Bó, 2011).

This paper moves beyond the commodity prices analysis and considers how exogenous changes in the entire exports and imports baskets affect conflict. It does so by employing an empirical approach linking trade to local employment, which is novel in the conflict literature, and by implementing it using a rich set of data from the Israeli-Palestinian conflict. We consider to what extent changes in Palestinian trade – particularly exports – in the second half of the 1990s affected the intensity of the second Palestinian uprising (Second Intifada) between September 2000 and December 2004. In order to capture the local-level impact, for each Palestinian locality we weigh the pre-Infitada changes in Palestinian sectoral exports (and imports) by the sector's share in the locality's private employment in 1997. This weighting scheme allows us to construct measures of exposure to the trade changes via the employment channel. The focus on the latter provides a clean test of the opportunity cost hypothesis of conflict, i.e. that better employment opportunities linked to trade reduce the population's incentives to engage in political violence.

We argue that these trade changes are largely exogenous to local Palestinian conditions for two main reasons. First, we consider a large number of small localities

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(569), each of which should exert little influence on the overall Palestinian sectoral trade. Second, we argue that these changes in trade, and exports in particular, are mainly driven by two factors exogenous to the Palestinian economy. The first is the emergence of new global suppliers, chiefly China, competing in similar sectors (and markets) where Palestinian exports are concentrated. The second factor is the opening of Israel to imports from the rest of the world with a reduction of import tariffs consistent with the wave of global trade liberalization of the 1990s. This opening eroded the preferential access of Palestinian exports to the most important external market for Palestinian goods.

In line with the hypothesis of exogeneity of changes in exports we show that the results of the analysis are robust to instrumenting our measures of exposure to export changes with measures based on these external factors. The latter measures are constructed using the growth of Chinese sectoral exports to the world or the reduction in Israeli sectoral tariffs instead of the actual changes in Palestinian sectoral exports (and imports).

Our results indicate that an increase in Palestinian exports during the late 1990s is negatively associated with the intensity of the conflict during the Second Intifada, as measured by the total number of Palestinian fatalities caused by Israel in each locality. The results from our preferred specifications suggest that a $10 million reduction in Palestinian exports in a sector employing 10% of private employees in a locality increases the subsequent number of fatalities in that locality by between 2.1 and 2.8 percent. This result is robust to the inclusion of a wide range of local-level socio-demographic and economic characteristics as well as measures of past conflict and labor market conditions. It is also robust to the inclusion of changes in Israeli imports from the rest of the world (excluding from Palestine) as well as changes in Palestinian imports. This finding appears to be particularly robust for the Palestinian exports to Israel while it is less robust for Palestinian exports to the rest of the world. That is not surprising given the dominance of Israel as a destination market for Palestinian exports. This conflict reducing effect of export surges is particularly significant in localities with a large share of refugees and with a high unemployment rate.

These results support the opportunity cost hypothesis: increases in Palestinian exports reduce the intensity and even the probability of the subsequent conflict by

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increasing employment opportunities. On the other hand, our results also suggest that Palestinian imports (from anywhere) do not affect conflict intensity nor its probability.[3] This finding suggests that the eventual displacement effect of increased imports is not substantial and/or is compensated by the increased domestic demand which determined also the increase in imports. Similarly changes in Israeli imports from the rest of the world do not affect conflict intensity either once we control for the changes in Palestinian exports.

The paper is organized as follows: the next section places the study in the context of the literature; section 3 describes the evolution of the Palestinian trade and employment patterns before the second Intifada; sections 4 and 5 detail the data and the methodology; section 6 presents the results; and section 7 concludes.

2. Related Literature

The paper is linked to the growing body of evidence on the impact of economic shocks, and trade in particular, on civil conflict. One of the main mechanisms that this literature has been testing comes from Beckers's (1968) seminal work on the economics of crime, according to which increases in citizens' incomes raise their opportunity cost of engaging in rebellion.[4] Earlier cross-country studies provided indirect support for this mechanism by showing a negative relation between income levels and shocks on one side and violence and war on the other (Miguel et al., 2004, Collier and Hoeffler, 2004). In a recent study, Dube and Vargas (2013) found that a large decrease in international coffee prices lowered wages in Colombian municipalities that specialize in the cultivation of coffee and increased the violence in them. However, the evidence from other studies using international commodity prices as a source of exogenous trade shock is more mixed.[5]

Moreover, changes in the prices of other commodities may have a different effect. For example, an increase in income due to an increase in the price of minerals

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[3] This result is robust also to excluding Palestinian imports from Israel (as much of Palestinian imports from the rest of the world is registered as Israeli imports).
[4] When incomes and employment are higher, so is the expected income foregone due to allocating time to violence rather than to an economically productive activity.
[5] For example Bruckner and Ciccone (2010) and Berman and Couttenier (2012) find that positive price shocks reduce the probability and intensity of conflict; Bazzi and Blattman (2013) find that these shocks have no robust effect on conflict onset.

or fuel can be appropriated by a group obtaining control of the source of income at the local or national level. In such instances, a positive trade shock could increase the 'prize' of the conflict, thus raising the incentive for fighting.[6] In fact, Dube and Vargas (2013) found that an increase in international oil prices increases the violence in Colombia's oil region. Finally, positive income shocks are also likely to increase the revenues for the state and thus its capacity to confront armed groups (i.e. the state capacity channel), leading to an eventual reduction in conflict (Besley and Persson, 2008). This is the same prediction of the opportunity cost channel, so the two are difficult to distinguish.[7]

Our focus on the Israeli-Palestinian conflict allows us to isolate the importance of the opportunity cost mechanism. Palestinian exports do not include goods that would raise the gains from appropriation, such as oil or minerals. Moreover, the Palestinian Authority's limited ability to tax private earnings should minimize its possibility to use increased exports to curb violence against Israel, or alternatively to use the funds to increase violence against Israel. An additional contribution of our analysis is that it focuses on the entire export basket of the country, not just on specific commodities. These exports also include agro-processing and manufactured goods, which account for a significant share of the exports of many conflict-prone countries (especially above the low income status). In this sense the paper is closer to the thin literature on the effects of trade policy shocks on conflict, whose findings support the idea that a positive trade shock reduces the probability of conflict (Bhavnani and Jha, 2011; Berman and Couttenier, 2014).[8] Relative to this literature, we argue that this paper is better suited to explicitly capture the opportunity cost mechanism of economic shocks by a carefully specified set of trade variables.

This paper is also related to the literature on the role of economic factors on violence in the Israeli-Palestinian conflict. The results from previous studies are

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[6] This type of 'prize' (called also 'rapacity') mechanism is part of the explanation for the eruption and/or the escalation of violence in many modern conflicts, such as in the Democratic Republic of Congo (Maystadt et al., 2014), in Colombia (Dube and Vargas, 2013; Angrist and Kugler, 2008) and in Africa (Buhaug and Rod, 2006).

[7] In fact Bazzi and Blattman (2014) argue that their results are more consistent with the idea that increased commodity revenues augment state capacity, rather than with the opportunity cost argument.

[8] Bhavnani and Jha (2011) find that residents of districts in British India that were negatively affected by Britain's trade policy favoring British manufactures over Indian producers were more likely to engage in violent insurrection in the Quit India rebellion of 1942. Berman and Couttenier (2014) show that enhanced preferential access to the US market through the Africa Growth and Opportunity Act (AGOA) reduced conflict, especially in those countries with a high share of exports in products eligible under AGOA.

mixed. Berrebi (2007) shows that an individual with higher education and standard of living is more likely to become a suicide bomber, while Sayre (2009) and Saleh (2009) using district-level data find the opposite relationship. In addition, Calì et al. (2013) find no support for the opportunity cost mechanism by relating districts' public sector employment and Palestinian fatalities in the Palestinian Territory (PT) during and after the second Intifada. One interpretation of the findings is that the opportunity cost of engaging in political violence does not apply to public sector employees, as they do not face a high cost from shirking.

In a related study, Miaari et al. (2014) find a positive association between adverse employment shocks and Palestinian fatalities during the second Intifada. Their results suggest that a large unemployment shock - i.e. Israel's abrupt imposition of severe restrictions on the employment of Palestinians within its borders at the outbreak of the second Intifada - increased violence in the West Bank.[9] The identification strategy hinges on the assumption that the large variation in the pre-Intifada employment rates in Israel across West Bank localities was unrelated to prior levels of involvement in the conflict. These results may provide some prima facie support for the opportunity cost mechanism for private employees. Our analysis will take this channel into account by including the localities' share of employment in Israel.

From a methodological perspective, the paper is related to the strand of literature identifying the impact of trade shocks on welfare and labour outcomes at the sub-national level. A few studies have used the geographic location of regions within developing countries to study the impact of trade liberalization on local labour markets (e.g. Chiquiar, 2008 and Calì, 2014). In-line with our strategy, others have linked the employment composition of sub-national units to trade changes at the industry level. That is the case in Topalova (2010), who looks at the impact of trade liberalization on poverty across Indian districts. Autor et al. (2012) explore a similar shock to the one we consider here, i.e. the rising import competition from China on local US labour markets. To the best of our knowledge this is the first study that uses this type of approach to look at the relation between trade shocks and conflict.

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[9] The authors find that localities which were relatively more dependent on employment in Israel experienced relatively more fatalities after the restrictions were imposed.

3. Trade patterns prior to the second Intifada

Palestinian tradable production is heavily dependent on Israel, as almost 90% of Palestinian merchandise exports is destined for Israel.[10] Palestinian external trade is de facto regulated by Israel. Following the Oslo accords in 1993, the PT and Israel have become part of a de facto custom union with a common external tariff decided by Israel, which during the 1990s controlled all the borders of the custom union, with no tariffs or quotas imposed between Israel and the PT.[11] While the PT can de jure have its own trade policy, e.g. it can sign trade agreements with third parties, de facto this is not the case. Any imports bounded to the PT have to enter the union via an international border controlled by Israel, which automatically charges the Israeli import tariff for goods from the specific country of origin.

Israeli control of the international borders implies that Palestinian exporters and importers have an incentive to use Israeli intermediaries to clear imports and exports. Israeli intermediaries reduce the cost and time of trading relative to those faced by Palestinian traders. According to a report by the World Bank (2010), Palestinian imports and exports are subject to twice the costs of Israeli imports and exports using the same port facilities in Israel. Importing procedures take on average as much as four times longer for Palestinians than for Israelis (40 days vs. 10 days). The incentive for Palestinians to use Israeli traders is reflected in the data. The Bank of Israel (2010) estimated that 58% of the Palestinian imports from Israel in 2008 were through trading companies (most of which was re-export).

The custom union generated preferential access of Palestinian and Israeli goods in the respective markets. As Israel controls the international borders, de facto it establishes unilaterally the trading rules of the union. The opening up of the Israeli import regime in the 1990s eroded the preferential access of Palestinian goods in their dominant export market and imports from the rest of the world have progressively replaced those from the PT, especially in the main labor-intensive sectors.

Partly as a consequence of this shift, manufacturing production in the PT

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[10] Part of this export in the 1990s was due to Israeli firms using Palestinian firms as subcontractors in a number of sectors, such as textile, garments and furniture.

[11] Since the withdrawal of Israel from Gaza in 2005, the border between Gaza and Egypt is no more controlled by Israel although the blockade of Gaza effectively implies no formal trade between Gaza and Egypt.

declined in real terms by almost 20% between 1994 and 2009.[12]   Palestinian
merchandise exports slowed in nominal terms prior to the second Intifada (figure 1).
These exports follow closely exports to Israel, which account for more than 90% of
total Palestinian exports, confirming the key importance of the Israeli market for
Palestinian tradable production. This dominance is partly due to the fact that much of
the Palestinian exports to the world transit through Israel, as mentioned above. The
small increase in nominal exports translated into a decline in exports as a share of
GDP from over 10% in 1996 to less than 9% in 1999.[13]   Palestinian exports also
declined slightly in constant prices during the same period. To put these changes in
perspective, figure A1 in the Appendix compares the distribution of percentage
changes in Palestinian exports with those in Israeli imports (from the rest of the
world) over the same period. This comparison confirms that Palestinian exports
generally performed worse than Israeli imports.

Figure1: Palestinian Export to the World and Palestinian Export to Israel, 1996-2000
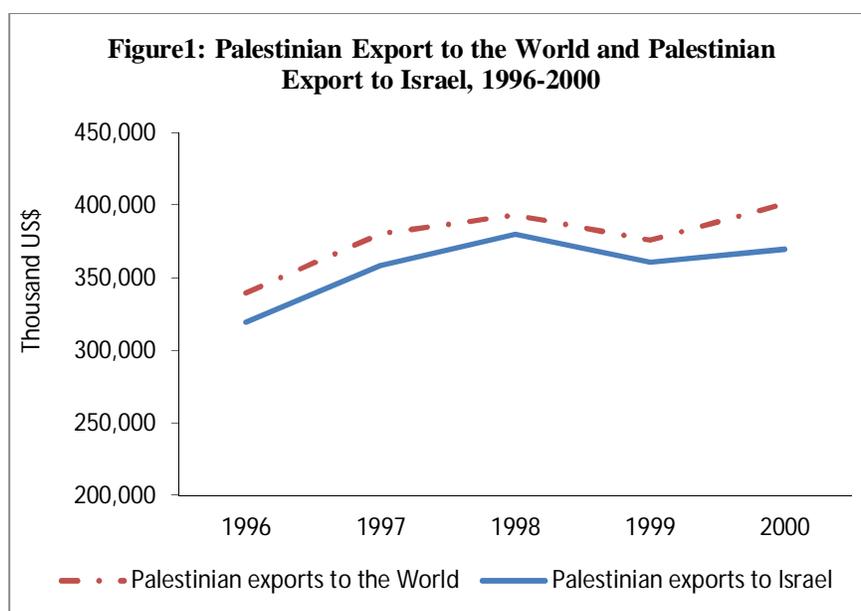
Source: Authors' elaboration on data from the Palestinian Central Bureau of Statistics

These changes in Palestinian trade mask a large variation across sectors.
Figure 2 shows the distribution of changes in Palestinian exports across SITC 5-digit
sectors.[14] While the shape of the distribution suggests more sectors with negative than
positive changes, the variation is large. This is confirmed by looking at the six best

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[12] Authors' calculations based on PCBS' National Accounts.
[13] Authors' calculations based on PCBS' trade data and National Accounts.
[14] The distribution is obtained through a kernel density function (with 1.5 bandwidth).

and worst performing export sectors during the period (Figure 3). The former include, among others, cucumber and marble and alabaster, exports of which increased by more than $6 million each. At the same time, the building stone sector exhibited a drop of $8 million. These patterns should translate into employment effects at the local level, depending on where these goods are produced and their degree of labor intensity. In the empirical section, we propose measures to capture the impact of this large variation in performance across sectors on the intensity and incidence of the second Intifada at the local level.

Figure 2: Distribution of changes in Palestinian exports (1996-99), USD '000
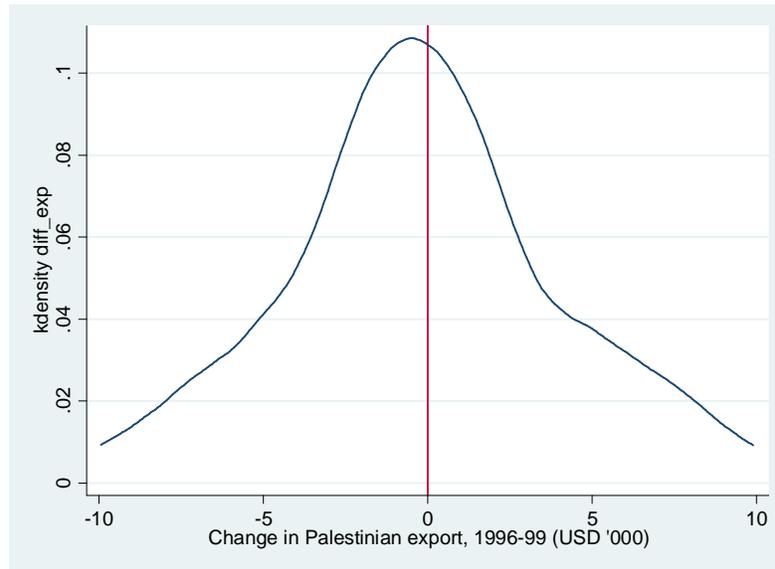
*Note: Sectors are recorded at the 5-digit SITC level; Source: PCBS.*

Figure 3: Best and worst performing Palestinian export sectors, (1996-99), USD '000
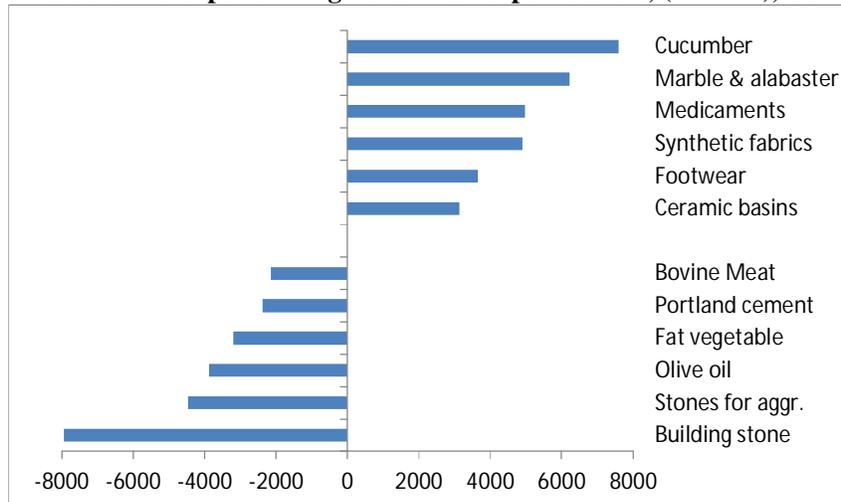
Note: Sectors are recorded at the 5-digit SITC level; Source: PCBS

4. Data

The data in this study are taken from various Palestinian and Israeli sources that include information on the Palestinian labour market, on economic and socio-demographic characteristics of Palestinian localities, on Palestinians fatalities from the conflict, and on Palestinian and Israeli trade. These data were aggregated to the level of the locality, which serves as the unit of analysis and represents the smallest spatial unit for which economic data is available in the West Bank and Gaza. Our sample consists of 532 localities in the West Bank, and 37 localities in the Gaza Strip (see Table 1).

Table 1: Summary Statistics for key variables

		Obs.	Mean	SD	Min	Max
Palestinian fatalities		569	4.33	21.84	0	331
Localities with at least one fatality		569	0.35	0.48	0	1
Δ Palestinian exports$_{96\text{-}99}$		569	3.53	4.36	-6.21	13.48
Δ Palestinian exports to Israel$_{96\text{-}99}$		569	4.53	5.48	-5.2	17.16
Δ Israeli imports from RoW$_{96\text{-}99}$		569	-11.73	32.78	-144	120.12
Δ Palestinian imports$_{96\text{-}99}$		569	25.33	17.61	-4.87	95.18
Δ Palestinian exports to RoW$_{96\text{-}99}$		569	-1.00	1.31	-5.29	2.42
Socioeconomic Characteristics in 1997 in locality	Total Population	569	4542	18499	4	353113
	Share of males in the population	569	0.51	0.03	0.385	1
	Share of population between the ages 15-40	569	0.39	0.04	0.273	0.727
	Share of population with up to elementary education	569	0.61	0.12	0.25	0.973
	Share of refugees in the population	569	0.28	0.32	0	1
	Share of households with more than 8 persons	569	0.34	0.11	0	1
	Share of married in the population	569	0.33	0.03	0.174	0.438
Localities in Gaza Strip		569	0.07	0.25	0	1
Pre-Intifada Fatalities		569	0.25	1.44	0	20
Localities in Jerusalem		569	0.05	0.22	0	1
Availability of public utilities in 1997 in locality	Water	569	0.69	0.46	0	1
	Electricity	569	0.84	0.37	0	1
	Sewage	569	0.11	0.31	0	1
	Telephone (landline)	569	0.63	0.48	0	1
Share of employment in Israel in 1999		222	10.63	6.91	0	36.186
Locality type	Urban	222	0.23	0.42	0	1
	Refugee Camp	222	0.10	0.30	0	1
Average wage of employees in Israel in 1999		212	100.96	16.08	52.03	150.160
Share of public sector employment in 1999		222	5.65	3.87	0	18.947
Average wage of public sector employees in 1999		209	59.57	35.03	30.66	538.280
Share of private sector employment in 1999		222	9.75	6.81	0.53	41.523
Average wage of private sector employees in 1999		221	61.92	17.35	16.62	150.135

Notes: See Table 1A for variables' description; source: Authors' elaboration using different data set; see text for details.

Data on the number of Palestinians fatalities from politically-motivated violence (Palestinians killed by Israelis) during the Second Intifada (September 2000-December 2004) in each locality are taken from B'Tselem - the Israeli Information Center for Human Rights in the Occupied Territories.[15] B'Tselem publishes detailed data records which include every Israeli and Palestinian fatality during the Second Intifada. As in previous studies (Miaari et al., 2014; Cali and Miaari, 2013), the number of Palestinian fatalities killed by Israeli forces is the main measure of conflict intensity across the Occupied Palestinian Territories. This is a suitable measure as most of these fatalities were the result of political demonstrations suppressed by the Israeli army or direct confrontation between the Israeli army and Palestinian armed factions. The evolution of Palestinian fatalities, depicted in figure 4, shows that violence in the West Bank peaked in 2002 and declined through 2003 and 2004, when the second Intifada finally drew to a close. This period was followed by periods of relatively low intensity conflict. In Gaza, after the drop in 2003, violence picked up again in 2004 and lasted until the first half of 2005. During the respective sample periods, 1,278 Palestinian fatalities were recorded in the West Bank. In Gaza, 1,702 Palestinian fatalities were recorded (see Figure 4).

Figure 4: Palestinians killed by Israeli forces in the West Bank and Gaza, 2000-2004
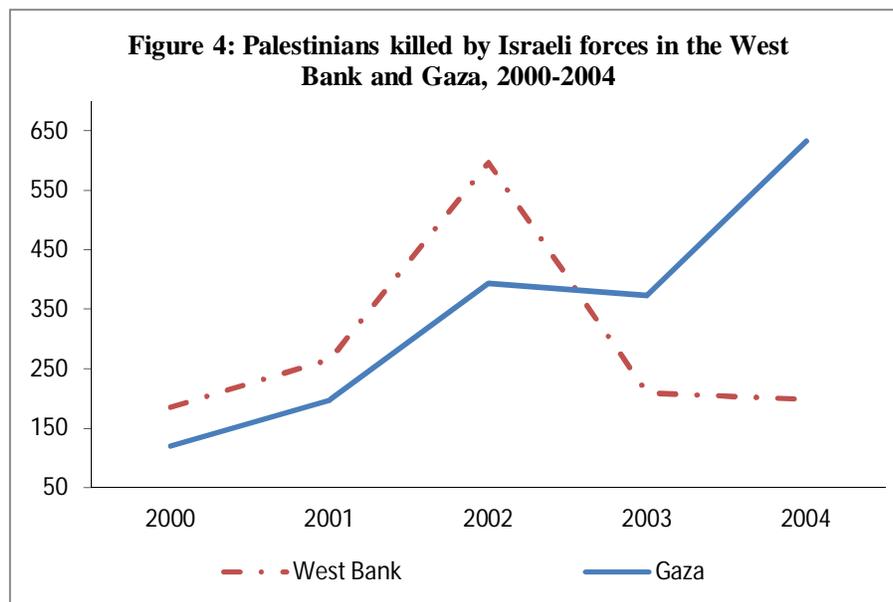
Source: B'tselem

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[15] Available at: http://www.btselem.org.

We are also able to identify those Palestinian fatalities which occurred as a result of political demonstrations or confrontation with the Israeli army by examining the description of each fatality provided by B'tselem. As this description is not available for all fatalities, this sub-set of fatalities is incomplete so in the subsequent analysis we use it only for robustness purposes.

Locality-level data on Palestinian sectoral employment as well as on socio-demographic characteristics come from the 1997 Palestinian population census carried out by the Palestinian Central Bureau of Statistics (PCBS). The Palestinian census data includes information about various localities' characteristics, such as total population, share of males in the population, share of population between the ages 15-40, share of population with up to elementary education, share of refugees in the population, share of households with more than 8 persons, share of people married in the population, as well as availability of public utilities. Importantly for our purposes the Census also records data on the employment of the population for all private establishments in the PT at the 2-digit ISIC level.

As explained below, we match this distribution of employment at the locality level with Palestinian and Israeli trade data at the 5-digit SITC level (revision 3) in order to compute the measure of exposure to the trade shocks. Palestinian annual import and export data are taken from the Palestinian Central Bureau of Statistics. Israeli import and export data (at the 5-digit SITC level) come from the COMTRADE dataset in WITS.[16] We also use world and Chinese exports data from the same source.

Other labor market variables were constructed from two sources. Administrative data on all Palestinians employed in Israel with a permit in 1999 come from the Israeli Ministry of Industry Trade and Labor, which is in charge of issuing the permits. In addition we gathered further labor data, including information on Palestinian private, public and employment in Israel from the Palestinian Labor Force Survey (PLFS). This survey has been administered every quarter since 1995 to a nationally representative sample of households. We restrict the sample from the PLFS to individuals in the labor force between the ages of 15 and above and surveyed during at least one of the four quarters in 1999. As the survey is not stratified at the locality level, we exclude localities in which less than 30 individuals were

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[16] This is available at http://wits.worldbank.org/wits/

interviewed in each round in 1999.[17]

Summary statistics for the key variables at the district level are provided in Table 1.

5. Empirical strategy

The identification strategy relies on the variation in the economic conditions of Palestinian localities associated with changes in trading patterns of the PT in the second half of the 1990s. There are three elements in the empirical analysis which ensure a clean identification of the trade shocks on conflict. First, there was a substantial variation across Palestinian localities in the pre-Intifada employment's dependence on tradable sectors. Second, this variation is arguably exogenous to the propensity of the locality's residents to be involved in the conflict with Israel. Third, the factors responsible for the changes in Palestinian trade, including the competition from emerging suppliers and Israeli trade policy, are largely exogenous to the locality-level conflict.

Specifically, we estimate the following equation using a Negative Binomial regression, which is an appropriate method for analyzing count data characterized by many zeros and by over-dispersion (Long and Frees, 2006):

$$(1) \qquad F_{lr} = \gamma_r + \beta_1 \Delta EXP_l + \mathrm{B} X_l + \varepsilon_l,$$

where F is the number of fatalities in each locality l in region r during the period of September 2000 and December 2004. The change in Palestinian exports in each locality, Δexp_l, is calculated as the sum of the change in exports in each sector s during the 1996-1999 period weighted by the share of employment in that sector in the locality's total private employment in 1997:[18]

$$(2) \qquad \Delta EXP_l = \sum_{s=1}^{N} \left(\Delta exp_s \times \frac{emp_{ls}^{1997}}{emp_l^{1997}} \right)$$

This measure of exposure to the export changes is close in spirit to Topalova (2010)

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[17] Given this narrow geographical definition, many localities do not meet this criterion, leaving us with 241 localities. We drop 42 additional localities for which key variables in the analysis are missing.
[18] Note that all the results are robust to computing the changes over the 1997-1999 period or the 1996-2000 period (results available upon request).

and should capture the effect of exports on conflict via employment. Thus it should provide for a direct test of the opportunity cost hypothesis. An appealing feature of this measure for our identification is that it should be exogenous to changes in local conditions related to conflict. That is the case as the distribution of employment across sectors in each locality is measured at the beginning of the period thus it should not be affected by the eruption of the local-level conflict after three years. In addition, given the large number of localities, each of them should not exert an important influence over Δexp_s, which is the aggregation over all Palestinian localities. We provide below evidence in support of this exogeneity hypothesis by showing that the ΔEXP coefficient is not affected when instrumenting ΔEXP through measures using plausibly exogenous sources of export changes.

The specification (1) includes also region effects (where the regions are Gaza Strip, Jerusalem and the West Bank) as well as the vector X, which contains a host of socio-demographic variables at the locality level that might affect the distribution of employment across sectors and the level of conflict. These variables refer to 1997 and include the total population, share of males in the population, share of the population aged 15-40, share of population with elementary education or below, share of households with more than 8 members, and the share of married individuals. We also control for other factors that may foster Palestinian grievances. First we include controls for the availability of public utilities such as water, electricity, sewage, and landline telephones. Second, we control for the unemployment rate in 1997 (computed from the Census). Third, we also control for the number of permits to work in Israel in 1999, which Miaari et al. (2014) show to be associated with the subsequent violence. Finally, to control for the cyclicality of the conflict, the vector *X* includes also the number of Palestinian fatalities in each locality between January 1995 and August 2000. The error term is ε and standard errors are robust.

In some specifications, we also account for other local labor market characteristics that might be correlated with changes in exports as well as violence. These controls include the locality-wise distribution of Palestinian workers across the main types of employment (i.e. private and public sector and Israel), their relative wages in 1999 (i.e. the first year these data are available from the PLFS) and the distribution across location types, i.e. urban, rural or refugee camp.

In some specifications, we split the change in total Palestinian exports into

exports to Israel, the dominant export market, and exports to the rest of the world, both weighted according to equation (2). We also test for the effects of changes in Palestinian imports between 1996 and 1999, ΔIMP, weighted by the employment shares as described in equation (2):

$$(3) \quad F_{lr} = \gamma_r + \beta_1 \Delta EXP_l + \beta_2 \Delta IMP_l + \mathrm{B} X_l + \varepsilon_l$$

We also estimate an alternative model to investigate whether changes in Palestinian exports affected the probability of violence in different localities. In order to do this, instead of using the number of fatalities in each locality we construct an indicator variable that equals 1 if the locality experienced a positive number of fatalities during the Second Intifada and zero otherwise.[19] We estimate this specification using a probit model.

6. Results

Table 2 presents the results of the impact of changes in Palestinian exports on conflict intensity. Including only a socio-demographic and infrastructure controls along with region effects, the results in column 1 indicate a sizable effect. A pre-Intifada increase of USD 10 million in Palestinian exports of a sector employing 10% of the locality's private employment reduces subsequent conflict-related fatalities in that locality by 2.1 percent, significant at the 1 percent level.[20] Adding economic controls, including work permits to Israel and the unemployment rate, as well as the Palestinian fatalities prior to the second Intifada (1995-2000), slightly raises the absolute size of the export coefficient, which remains significant at 1 percent (column 2).

These results support the opportunity cost hypothesis: better economic conditions should raise the opportunity cost of involvement in the conflict thus lowering its intensity. This result is also in line with experts' opinion on the determinants of violence in the West Bank in the current phase (Xinhua, 2014).[21]

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[19] This variable is also identical to an indicator variable that equals 1 if the number of fatalities in the locality is above or equal to the median number of fatalities across localities and zero otherwise.

[20] Marginal effects are calculated as incidence rate rations and are equal to $1-e^\beta$.

[21] The agency reports that the chief of the Israel's Shin Bet security agency Yoram Cohen in a meeting of the Knesset Foreign and Security Affairs committee in February 2014 argued that "the uptick in

Table 2: The impact of Palestinian exports on conflict intensity

	(1)	(2)	(3)	(4)	(5)	(6)
Region	All	All	All	All	West Bank	Gaza
Sample	All	All	LFS	LFS	All	All
Δ Palestinian exports$_{96-99}$	-0.125***	-0.128***	-0.137***	-0.159***	-0.086***	-0.528*
	(0.029)	(0.030)	(0.051)	(0.050)	(0.028)	(0.283)
Population	0.000*	0.000	0.000	0.000	0.000*	0.000
Male share	-5.701	-5.959	-10.663	-4.296	-5.143	-84.722
Age 15-40	-0.739	-0.123	9.395	14.063*	-0.034	-85.317*
Education	-1.917*	-1.865*	-1.491	-3.292*	-2.047*	-16.864*
Share refugees	0.209	0.276	-0.215	0.501	0.110	2.173*
Large households (%)	-3.845***	-4.017***	-3.301*	-3.489*	-3.352***	7.556
Married (%)	-12.299***	-12.242***	-22.521***	-22.195***	-12.432***	-2.373
Gaza	0.272	0.100	-0.332	-0.059		
Jerusalem	0.165	0.140	-0.473	-0.956**	0.330	
Public water	0.167	0.162	-0.269	-0.183	-0.049	-0.603
Public electricity	0.113	0.095	-0.300	-0.215	0.428	-6.386***
Public sewage	1.329***	1.339***	0.326	1.049***	1.146***	0.836
Telephone lines	1.290***	1.285***	1.323***	1.501***	1.084***	4.026*
Work permits to Israel		0.001	0.002***	0.002***	0.002	0.001**
Past Pal. Fatalities		-0.021	0.076**	0.059	-0.198***	-0.001
Unemployment		0.275	-0.823	-1.356	0.694	-1.645
Empl. Israel (%)			-0.015			
Avg. wage emp. Israel			0.018**			
Empl. Public (%)			0.065			
Avg. wage emp. Public			-0.009			
Private empl. (%)			0.038			
Avg. wage emp. Private			-0.013**			
Urban (%)			1.179***			
Refugee camp (%)			1.535***			
Observations	569	569	199	199	532	37
Marginal effect ΔEXP	-0.091	-0.092	-0.312	-0.430	-0.049	-0.691

Notes: The dependent variable is the number of fatalities from politically motivated violence (Palestinians killed by Israelis) from the outbreak of the Second Intifada (28.9.2000) until Dec 2004 in locality. See Table A1 for the definitions of the independent variables. The regressions are estimated using a Negative Binomial model. Robust standard errors are reported in parentheses. The symbols *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

In column 3 we add other labor market indicators from the PFLS, including the locality-wise share of private and public employment, the share of employment in Israel as well as the average wages in 1999 (column 3). These are potentially important controls, as they capture the pre-Intifada reliance of the localities on the

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Palestinian militant attacks against Israelis in the past year can be traced back to the economic grievances Palestinians are suffering from in the West Bank." (Xinhua, 2014)

different types of employers. This addition, however, does not change the main result. In fact the coefficient becomes even more negative and its size (-0.137) implies that an increase of USD 10 million in Palestinian exports of a sector covering 10% of the locality's private employment reduces conflict-related fatalities in that locality by 2.8 percent. The result is again significant at the 1 percent level. This larger absolute value of the coefficient is entirely due to the reduction in sample size (to 199 localities) caused by the inclusion of the additional labor market controls. In fact this inclusion reduces the absolute size of the export coefficient (from -0.159 in column 4 to -0.137 in column 3).[22] This smaller sample size provides a robustness check in its own right as it restricts the analysis to comparatively larger localities.

Thus far, we have constrained the effect of exports to be similar across localities in the West Bank and localities in the Gaza Strip. In columns 5-6 we explore different specifications using only localities in the West Bank and in Gaza respectively. The results for Gaza should be interpreted with caution since they only rely on a population of 37 localities. These specifications include the same controls that we use in our preferred specification in column 2. The results confirm the previous findings that an increase in Palestinian exports are negatively associated with the number of fatalities during the Second Intifada. The coefficient is more precisely estimated in the West Bank than in Gaza probably due to the small sample size in the latter. However it is larger in magnitude in Gaza.

It is worth discussing briefly the rest of the coefficients in Table 2. More populated localities have a higher number of fatalities, although this association is not robust across specifications. A higher level of education is associated with lower conflict intensity, and so are higher shares of large households and of married individuals. Interestingly the availability of a public sewage system and of landline telephone lines are both associated with a higher conflict intensity. However the former seems to be explained by the positive correlations between public sewage systems and urban areas and between urban areas and conflict intensity (column 3). The positive coefficient of telephone lines instead may proxy for other omitted variables, such as the connection to the ruling Fatah party. That may be positively related both to conflict intensity and to the availability of telephone lines. More permits to work in Israel in 1999 (and higher wages to Palestinian employees in

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[22] Column 4 uses the same specification as in column 2 but run over this restricted sample.

Israel) are associated with a higher number of fatalities during the second Intifada probably due to the employment restrictions imposed by Israel at the outset of the Intifada (Miaari et al., 2014). In contrast, higher private sector wages are associated with lower conflict intensity, again supporting the opportunity cost mechanism. Interestingly, in the West Bank Palestinian fatalities in prior to the Intifada are negatively associated with conflict intensity in the second Intifada, although the result is not robust for the whole PT and is reversed for the more restricted sample (column 3).

6.1. Additional trade variables

In Table 3, we explore if other trade changes hitting the Palestinian economy matter in determining the subsequent conflict intensity. The first such change is the change in import ΔIMP defined in the same way as ΔEXP (i.e. weighted according to equation (2)). Interestingly, the coefficient on changes in imports is small, negative, and highly insignificant (column 1). This suggests that the eventual displacement effect of increased imports on domestic producers is not substantial and/or is compensated by the increased domestic demand which determined also the increase in imports in the first place. This addition does not affect the coefficient on change in Palestinian exports, which remains significant and of similar magnitude to that in Table 2, column 2.

If Israel had changed its trade policies in response to the forthcoming second Intifada, that could bias our estimate of the effects of Palestinian exports on conflict. In order to control for this possibility, we construct a locality-wise measure of changes in Israeli imports from the rest of the world between 1996 and 1999, $\Delta IsrImp$, again weighted by the employment shares as described in equation (2).[23] The coefficient on changes in Israeli imports from the rest of the world is small, positive and again not significant (column 2). Once again the export coefficient is unaffected by this inclusion. This result is consistent with the fact that Israel may not have used its trade policy in connection to expected surge in violence during the 1990s. It also suggests that once we control for changes in Palestinian exports any residual effect of

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[23] We subtract Palestinian imports from Israel from the Israeli imports from the rest of the world as a large part of Palestinian imports are processed through Israeli firms and are recorded as part of Israel's total imports. The result is also robust to including Palestinian imports from Israel (results available from the authors upon request.

Israeli imports on Palestinian employment is marginal.

When we include both import variables in the same specification, they continue to be not significant while the export coefficient is again unaffected (column 3). And that is also the case when we run the specification over the smaller LFS sample of larger localities (column 4).

In columns 5-7, we examine to what extent Palestinian exports to the main market Israel are the main channel through which changes in trade affect violence. In order to do so we split the export variable into changes in exports to Israel and changes in exports to the rest of the world (always weighted by the employment shares). While both variables negative across specifications, only exports to Israel are statistically significant (although only at the 15% level over the LFS sample with import variables, see column 7). This may not be surprising as Israel accounted for over 90% of Palestinian exports in the 1990s. However the large absolute magnitude of the export to the rest of the world coefficient suggests potentially relevant effect on conflict from those exports as well.

Table 3: The impact of Palestinian trade on conflict intensity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sample	All	All	All	LFS	All	All	LFS
Δ Palestinian exports$_{96-99}$	-0.121***	-0.127***	-0.122***	-0.146***			
	(0.029)	(0.030)	(0.029)	(0.052)			
Δ Palestinian exports to Israel$_{96-99}$					-0.147***	-0.133***	-0.120
					(0.041)	(0.042)	(0.075)
Δ Palestinian exports to RoW$_{96-99}$					-0.231	-0.179	-0.028
					(0.162)	(0.175)	(0.302)
Δ Palestinian imports$_{96-99}$	-0.006		-0.004	-0.016		-0.004	-0.017
	(0.005)		(0.008)	(0.012)		(0.008)	(0.012)
Δ Israeli imports from RoW$_{96-99}$		0.003	0.001	-0.005		0.001	-0.005
		(0.003)	(0.004)	(0.004)		(0.005)	(0.004)
Other controls	YES	YES	YES	YES	YES	YES	YES
Observations	569	569	569	199	569	569	199

Notes: The dependent variable is the number of fatalities from politically motivated violence (Palestinians killed by Israelis) from the outbreak of the Second Intifada (28.9.2000) until Dec 2004 in locality. See Table A1 for the definitions of the independent variables. Other controls include all the controls in Table 2, column 2. The regressions are estimated using a Negative Binomial model. Robust standard errors are reported in parentheses. The symbols *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

6.2. Alternative conflict measures

So far we have used the total number of Palestinians killed by Israeli forces as the measure of conflict intensity. However not all fatalities occurred necessarily as a

result of Palestinians participating into the political violence. In fact B'tselem identifies various instances of Palestinians killed while not taking part into the hostilities. Those fatalities should not be considered when testing for the opportunity cost motive to engage in violence. To address this issue we use as dependent variable only the number of Palestinian fatalities as a result of participation into the hostilities or political demonstrations. As the data do not allow the classification of every recorded fatality, we use this variable only as a robustness check for our results. This check in Table 4 suggests that the export coefficient is highly robust to the use of this alternative measure of conflict intensity. In fact its absolute magnitude is larger for the overall exports as well as for the exports to Israel and to the rest of the world. And the coefficient of the latter becomes significant at the 10 percent level (column 3), confirming the importance of all changes in exports in affecting the opportunity cost of engaging into violence. Conversely, the import variables continue to be irrelevant in explaining conflict intensity in this case as well.

Table 4: The impact of Palestinian trade on a different measure of conflict intensity

Dep. variable	(1)	(2)	(3)	(4)
	Palestinian fatalities during hostilities & demonstrations			
Δ Palestinian exports$_{96\text{-}99}$	-0.150***	-0.137***		
	(0.041)	(0.042)		
Δ Palestinian exports to Israel$_{96\text{-}99}$			-0.187***	-0.175***
			(0.050)	(0.051)
Δ Palestinian exports to RoW$_{96\text{-}99}$			-0.355*	-0.340
			(0.213)	(0.218)
Δ Palestinian imports$_{96\text{-}99}$		-0.012		-0.011
		(0.009)		(0.009)
Δ Israeli imports from RoW$_{96\text{-}99}$		-0.003		-0.004
		(0.005)		(0.005)
Other controls	YES	YES	YES	YES
Observations	569	569	569	569

Notes: The dependent variable is the number of fatalities from politically motivated violence during demonstration (Palestinians killed by Israelis) from the outbreak of the Second Intifada (28.9.2000) until Dec 2004 in locality. See Table A1 for the definitions of the independent variables. Other controls include all the controls in Table 2, column 2. The regressions are estimated using a Negative Binomial model. Robust standard errors are reported in parentheses. The symbols *, **, *** represent statistical significance at the 10, 5, and 1 percent levels

In Table 5 we investigate whether changes in exports also affect the probability of conflict. To that end we estimate alternative models where instead of using the number of fatalities as our dependent variable, we use an indicator variable that takes the value of 1 if a locality experiences any fatalities throughout the Second

Intifada and zero otherwise. The results, based on a probit model, suggest that changes in exports do affect the probability of conflict as well. The coefficients indicate that an increase in Palestinian exports by USD 10 million in a sector employing 10% of private employees in a locality reduces the probability of conflict in that locality by between 5.3 and 5.5 percent (columns 1-2). This effect goes up to between 6.3 and 6.9 percent in the case of exports to Israel, while is it not significant for the exports to the rest of the world (columns 3-4). Again, the effect of changes in imports is not significant (columns 2 and 4).

Table 5: The impact of Palestinian trade on conflict probability

	(1)	(2)	(3)	(4)
Dep. variable		Dummy at least 1 fatality		
Δ Palestinian exports$_{96-99}$	-0.053***	-0.055***		
	(0.017)	(0.018)		
Δ Palestinian exports to Israel$_{96-99}$			-0.063**	-0.069***
			(0.025)	(0.026)
Δ Palestinian exports to RoW$_{96-99}$			-0.107	-0.131
			(0.103)	(0.105)
Δ Palestinian imports$_{96-99}$		0.002		0.002
		(0.006)		(0.006)
Δ Israeli imports from RoW$_{96-99}$		-0.000		-0.001
		(0.003)		(0.003)
Other controls	YES	YES	YES	YES
Observations	569	569	569	569

*Notes: The dependent variable is a dummy for whether the locality experienced at least one fatality from politically motivated violence (Palestinians killed by Israelis) from the outbreak of the Second Intifada (28.9.2000) until Dec 2004. See Table A1 for the definitions of the independent variables. Other controls include all the controls in Table 2, column 2. The regressions are estimated using a probit model. Robust standard errors are reported in parentheses. The symbols *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.*

6.3. Endogeneity

We have argued that our trade measures are exogenous to local level conditions related to the conflict. In order to substantiate this argument and address any remaining concerns of endogeneity, we instrument the export (and other import) measures. In order to do so we use instruments based on two plausibly exogenous sources of Palestinian export changes.

The first is the changes in Chinese export supply over the same period (1996-1999). This is arguably an important source of competition of Palestinian exports

especially in Israel. Indeed unlike imports from PT, Israeli imports from China dramatically increased between 1995 and 2000 (figure A2). In order to ensure the exogeneity of Chinese exports changes to Israeli conditions (which may be related to the conflict prospects), we take the changes in Chinese sectoral exports to the world but Israel. We replace the Palestinian exports with this variable in equation (2) to generate the first instrument ($\Delta ChnExp$). A rise in Chinese sectoral exports may also be related to a general increase in the world demand in those sectors. To control for this effect we also add an instrument, which is constructed again as in equation (2) but using world sectoral exports instead of Palestinian exports ($\Delta WldExp$).

The second source of exogenous changes in Palestinian exports is Israeli trade policy. In particular Israel, as much of the rest of the world, undertook a substantial process of (unilateral) tariff liberalization during the 1990s, which reduced import duties in most sectors. The scale of this reduction can be gauged in figure A3, which reports the distribution of the non-zero Most Favoured Nation (MFN) tariff differences between 1993 and 2004 (the only years during that period for which data are available in WITS). This reduction in Israeli tariffs caused a reduction in the preferential access of Palestinian exports to their major destination market, thus effectively acting as a reduction in demand for Palestinian goods from Israel.[24] Again we use the change in Israeli tariffs to replace the changes in Palestinian exports in equation (2) to generate the instrument for ΔEXP (i.e. $\Delta IsrMFN$).[25] The main problem with this instrument is that it covers a larger period of time than do the changes in pre-Intifada trade that we are considering. Because of that we also check the robustness of the results to excluding this instrument from the first stage estimation.

We instrument the ΔEXP with this series of variables in the following first stage specification:

(4) $\Delta EXP_{lr} = \gamma_r + \alpha_1 \Delta ChnExp_l + \alpha_2 \Delta WldExp_l + \alpha_3 \Delta IsrMFN_l + BX_l + \mu_l$

The results of this specification, presented in table A2, suggest that these instruments are good predictors of changes in Palestinian exports over 1996-1999. In particular

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[24] As a de facto custom union, Palestinian and Israeli goods do not pay any duties to access the reciprocal markets.

[25] Unlike trade data, we cannot sum tariff rates over the sectors to match the 5-digit SITC level data of MFN tariff with the 2-digit ISIC employment data. Instead we take the average of tariff rates across 5-digit SITC sectors weighted by Palestinian total exports in each sector. In this way we ensure that the changes in Israeli tariffs are weighted by the importance they may have for Palestinian sectoral exports.

$\Delta ChnExp$ is negatively associated with Palestinian export changes in line with the idea that Chinese exports may displace Palestinian exports. Conversely the coefficient of $\Delta WldExp$ is positive and significant as world demand positively affects Palestinian exports as well. Similarly, $\Delta IsrMFN$ has a positive and significant coefficient consistent with the hypothesis that a reduction in Israeli import tariffs to the rest of the world induces also a reduction in Palestinian exports (as competition in the Israeli market increases). The results are robust to excluding $\Delta IsrMFN$, which increases the displacement effect of Chinese exports vis-a-vis Palestinian exports (column 2). These instruments appear to be relevant also in explaining Palestinian exports to Israel and to the rest of the world. It is noticeable that the effect of Israeli tariff is of opposite sign in the case of Palestinian exports to the rest of the world than in the case of Palestinian exports to Israel (column 5). This suggests a re-orientation of Palestinian exports away from the Israeli market as a result of a reduction in preferential access to Israel.

Following Cameron and Trivedi (2013), we use these instruments to extract the endogenous component of ΔEXP $\widehat{\mu_{lr}}$ computed from equation (4) and add that in equation (1), which becomes:

(5) $F_{lr} = \gamma_r + b_1 \Delta EXP_l + BX_l + \widehat{\mu_{lr}} + \varepsilon_l$

The coefficient of ΔEXP should not suffer from the endogeneity bias as the estimated residuals from the first stage should purge the eventual endogenous component of the export index. This formulation ensures the computation of consistent standard errors (Cameron and Trivedi, 2013).[26]

Table 6 presents the results of this equation, which confirm the robustness of the effects of changes in Palestinian exports on subsequent conflict intensity. The coefficient is slightly larger in absolute term than the comparable coefficient in table 2, column 2. That is especially when excluding $\Delta IsrMFN$ from the instrument set (column 2). However the magnitude of the ΔEXP coefficient is not statistically different from that in table 2, thus confirming that the endogeneity bias is limited in this context. The results also hold for Palestinian exports to Israel (columns 3-4), while they are weaker for Palestinian exports to the rest of the world, probably due to the relatively weak power of the instruments in predicting this variable.

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[26] The estimated residual in the first stage is almost invariably not significant in the second stage thus the standard errors do not have to be computed through bootstrapping (Cameron and Trivedi, 2013).

Table 6: The impact of Palestinian trade on conflict: tackling endogeneity

Dep. Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Palestinian fatalities during the 2nd Intifada						
Pred. Δ Palestinian exp.$_{96\text{-}99}$	-0.144*** (0.036)	-0.157*** (0.037)			-0.130*** (0.044)	-0.150*** (0.036)	-0.144*** (0.051)
Pred. Δ Palestinian exp. to Israel$_{96\text{-}99}$			-0.153*** (0.055)	-0.131** (0.057)			
Pred. Δ Palestinian exp. to RoW$_{96\text{-}99}$			-0.187 (0.215)	-0.009 (0.280)			
Pred. Δ Palestinian imports$_{96\text{-}99}$					0.023 (0.034)		0.008 (0.042)
Pred. Δ Israeli imp. from RoW$_{96\text{-}99}$						0.006 (0.007)	0.005 (0.009)
Instruments	All	ΔChnExp ΔWldExp	All	ΔChnExp ΔWldExp	All	All	All
Observations	569	569	569	569	569	569	569

	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Sample	LFS	All	All	All	All	All	All
Region	All	West Bank	West Bank	Gaza	Gaza	All	All
Dep. Variable	Palestinian fatalities during the 2nd Intifada					Fat demo	Dummy
Pred. Δ Palestinian exp.$_{96\text{-}99}$	-0.159** (0.074)	-0.113*** (0.033)		0.126 (0.346)		-0.092* (0.048)	-0.078*** (0.024)
Pred. Δ Palestinian exp. to Israel$_{96\text{-}99}$			-0.129*** (0.049)		1.147 (1.179)		
Pred. Δ Palestinian exp. to RoW$_{96\text{-}99}$			-0.184 (0.195)		4.069 (4.066)		
Instruments	All	All	All	All	All	All	All
Observations	199	532	532	37	37	569	569

Notes: The regressions are estimated using a Negative Binomial model except column 14 which is estimated through a probit model. See Table A1 for the definitions of the independent variables. Other controls include all the controls in Table 2, column 2. Robust standard errors are reported in parentheses. The symbols *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.

The results are also robust to including the predicted import variables using the same instrument set (columns 5-7). These variables continue to be not significant even in these specifications.[27] The Δ*EXP* coefficient is also robust to using the restricted LFS sample (column 8) and it is also robust when considering the 532 localities in the West Bank (columns 9-10). On the other hand it is not robust for the 37 localities in Gaza (columns 11-12). Finally, the results also hold for fatalities as a result of hostilities or demonstrations (column 13) as well as for conflict probability

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[27] The results are also robust to including the non instrumented import variables (results available upon request).

(column 14). The instrumentation again slightly raises the effect of changes in exports on the latter: a USD 10 million increase in export in a sector which employs 10% of private employees in a locality is associated with a reduction in the probability of conflict in that locality by 7.8%.

6.4. Heterogeneity

These export changes exert a sizable effect on conflict across Palestinian localities on average. However these effects may well differ across localities according to various characteristics. We try to test for some of this heterogeneity by interacting our main export measure with a series of variables that could shape the importance of the opportunity cost channel of conflict.

Table 7: The heterogeneity of the impact of export changes on conflict intensity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. variable	Palestinian fatalities during the 2nd Intifada							
Pre-Intifada Fatal. x ΔPalExp	0.003							0.004
	(0.032)							(0.034)
Refugee (%) x ΔPalExp		-0.204**						-0.214**
		(0.087)						(0.094)
Male (%) x ΔPalExp			1.696***					1.681***
			(0.589)					(0.603)
Large HH (%) x ΔPalExp				-0.162				-0.166
				(0.192)				(0.222)
Unemployment (%) x ΔPalExp					-0.426*			-0.158
					(0.245)			(0.273)
Age 15-40 (%) x ΔPalExp						0.359		0.623
						(0.487)		(0.634)
Educated (%) x ΔPalExp							0.119	0.251
							(0.164)	(0.176)
Other controls	YES	YES	YES	YES	YES	YES	YES	YES
Observations	569	569	569	569	569	569	569	569

*Notes: The dependent variable is the number of fatalities from politically motivated violence during demonstration (Palestinians killed by Israelis) from the outbreak of the Second Intifada (28.9.2000) until Dec 2004 in locality. See Table A1 for the definitions of the independent variables. Other controls include ΔPalestinian exports$_{1996-99}$ and all the controls in Table 2, column 2. The regressions are estimated using a Negative Binomial model. Robust standard errors are reported in parentheses. The symbols *, **, *** represent statistical significance at the 10, 5, and 1 percent levels.*

The results are presented in Table 7, where we include one interaction term at a time along with all the usual controls (columns 1-7) and then all of them together (column 8). Export shocks appear to affect conflict more in localities with a higher share of refugees and with higher unemployment rate, while they have lower effect in localities with a higher share of males. The first two results point to the importance of grievances in determining the reaction to a trade shock. In particular the refugee status is connected with the displacement by Palestinians as a result of the creation of the state of Israel in 1948, which is often associated with Palestinian grievances vis-à-vis Israel. On the other hand the result for the proportion of males in the population is surprising and may be consistent with the hypothesis that a low share of males may be associated with a large share of males in Israeli jails, thus again with a relatively high level of grievances among the local population.

Perhaps surprisingly, neither past fatalities, nor the level of education or the share of young adult in the population are associated with significantly different effects of changes in export on conflict intensity.

6.5. Discussion

Overall, the results suggest that changes in Palestinian exports (to Israel and to a more limited extent to the rest of the world) during the pre-Intifada period reduce the intensity (and the probability) of the conflict during the second intifada. The way in which the trade variables are constructed allows us to interpret these results as the outcome of variation in employment opportunities induced by export (and import) changes.

The context of the analysis also enables us to exclude other mechanisms through which export shocks may affect conflict. For example, an increase in exports of certain goods, such as minerals and fuel, may increase conflict by redirecting workers towards using violence to appropriate resources. This channel is unlikely to operate in the Israeli-Palestinian context, as the Palestinian export basket does not include such goods. In addition, an increase in export revenues could fund the fighting of the rebel forces. This channel is also unlikely to operate in the Palestinian context because of the relative inability of the Palestinian authority to tax earnings/trade.

The support for the opportunity cost hypothesis in conflict situations is in line

with an increasingly large literature on the conflict-reducing impact of positive economic shocks (e.g. Miguel et al., 2004; Bruckner and Ciccone, 2010; Hull and Imai, 2013; Dube and Vargas, 2013). In terms of the specific evidence on the Israeli-Palestinian conflict, the findings are consistent with those of Calì et al. (2014), who find that increases in the private sector wage bill mildly reduced violence during the second Intifada. The finding is also related to Miaari et al. (2014), who show that adverse employment shocks (due to the closure of the Israeli labour market) increased the intensity of conflict during the second Intifada.

7. Conclusions and policy implications

This paper has exploited unique datasets from the Israeli-Palestinian conflict and a new empirical approach to provide a clean test of the opportunity cost mechanism linking trade shocks and conflict. It has examined the impact of the changes in Palestinian trade – and exports in particular - during the late 1990s on the intensity and probability of subsequent conflict across Palestinian localities. We argue that these trade changes are largely exogenous to local Palestinian conditions, as they are the result of the emergence of competing suppliers, chiefly China, and of the Israeli trade liberalization, which eroded the preferential access of Palestinian goods to their main export market. We also provide evidence in support of this exogeneity of the trade shocks.

Our findings suggest sizable effects of changes in exports on conflict intensity. An increase of USD 10 million in Palestinian exports of a sector employing 10% of the locality's private employment reduces subsequent conflict-related fatalities in that locality by between 2.1 and 2.8 percent. This increase also reduces the probability of the eruption of conflict in the locality by between 5.3 and 5.5 percent.

The results are robust to the inclusion of a wide range of locality-level socio-demographic and economic characteristics and to using different measures of conflict intensity. The effects are mainly driven by exports to Israel, although the evidence suggests that also exports to the rest of the world seem to matter in explaining conflict. On the other hand, neither Palestinian imports nor Israeli imports from the rest of the world appear to affect conflict.

Our findings point to several policy implications. They suggest that dealing with adverse employment shocks in conflict prone environment is a priority to avert

conflict and/or reduce its intensity. At the same time the promotion of labor intensive export sectors appear to be a useful strategy in this context. The evidence in the paper suggests that the trade policy of a country's trading partners may offer an effective way of doing so for example by increasing preferential market access.

In the specific Israeli-Palestinian context, the findings support the idea that facilitating Palestinian trade can be an important strategy to reduce the risk of conflict. This entails a better control by Palestinians of their own border, an improved system for tax collection, and renewed trade agreements with Israel on a more equal footing. Improving trade will also require the development of a strong Palestinian private sector. A large amount of evidence suggests that this development cannot be achieved without the removal of the many Israeli measures which restrict the activity of the Palestinian private sector, such as movement and access restrictions, the West Bank wall, the blockade in Gaza, and impediments to access to natural resources (World Bank, 2007; 2013; UNCTAD, 2011; Calì and Miaari, 2013).

In addition, our results point to the crucial importance of Palestinian sales to the Israeli market (rather than to any other market) as a way to reduce the probability of intense conflict. On the one hand, this suggests the importance of facilitating the purchase of Palestinian goods and services by Israelis. That is also in line with the finding by Miaari et al. (2014) on Palestinian workers in Israel. On the other hand, this dependence on Israel implies a high exposure of the Palestinian private sector to shocks to the Israeli market, such as the Israeli trade liberalization of the 1990s. As we have shown, these economic shocks can have important consequences for conflict. Therefore it is crucial to enable Palestinian exporters to diversify in terms of markets. Intensifying trade links with the Arab economies would be a natural starting point. That would require Palestinian sovereignty over its own trade policy, as well as the development of trade facilitation measures linking the PT with its neighboring Arab countries.

Finally, our findings support the hypothesis that economic opportunities affect the dynamics of the Israeli-Palestinian conflict. This is consistent with previous studies showing that improved private employment opportunities in Israel reduce the intensity of the conflict (Miaari et al. 2014). How to guarantee such opportunities and how changes in trade policies might interact with local political institutions operating within the Palestinian-Israeli conflict are fruitful avenues for future research.

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Annex: Additional Figures and Tables

Figure A1: Distribution of relative changes in Israeli imports and Palestinian exports (1996-99)
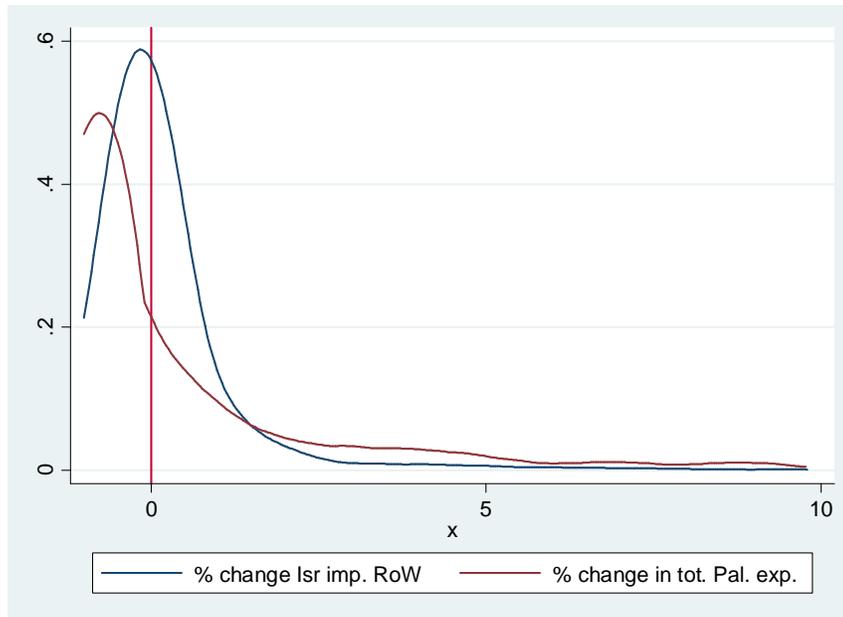

Note: Sectors are recorded at the 5-digit SITC level
Source: PCBS and COMTRADE

Figure A2: Israeli imports: China vs. Palestinian territory, 1995-2000 (USD mln)
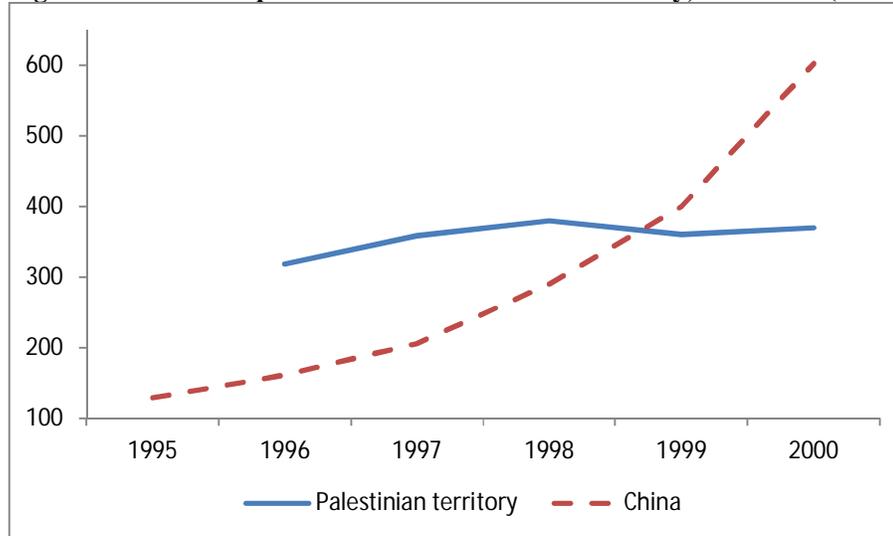
Source: COMTRADE and PCBS

Figure A3: Changes in Israeli MFN tariffs (5-digit SITC Rev. 3), 1993-2004
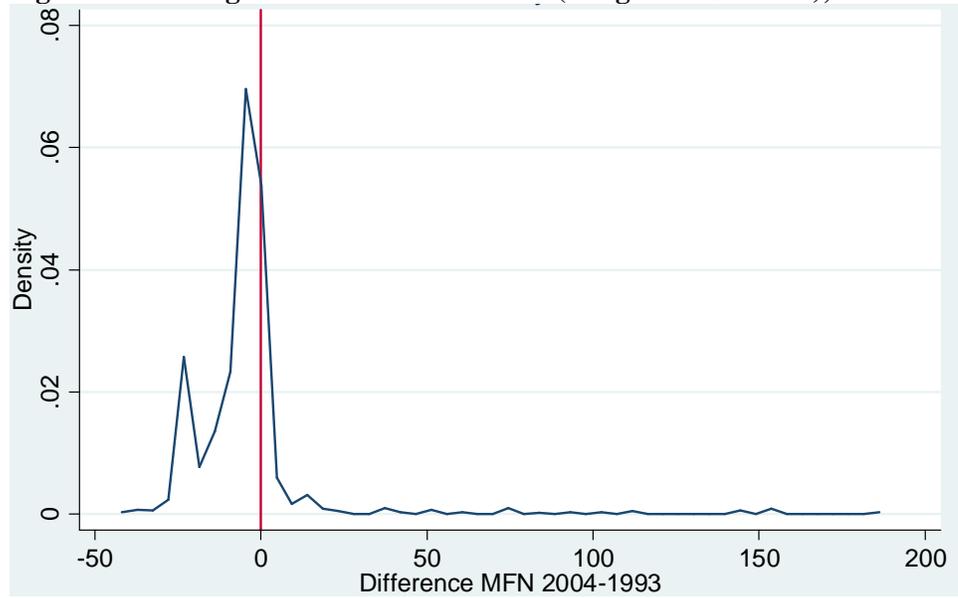
Source: WITS

Table A1: Variables' description

Variable	Description
Palestinian Fatalities	Average number of fatalities from politically-motivated violence (Palestinians killed by Israel) from the outbreak of the Second Intifada (28.9.2000) until December 2004 in locality. For Palestinian fatalities, the locality is the locality where the fatal wounding occurred. There are a handful of cases in which the fatal wounding occurred inside Israel. In those cases, we considered the locality of residence of the attacker, or the closest geographical locality.
Localities with at least one fatality	Dummy variable which takes 1 if the locality has more than zero fatalities and 0 if it has 0 fatalities.
Localities with number of fatalities greater than the median	Dummy variable which take 1 if the locality is above the median of share of fatalities out of population and 0 if below.
Change in the Palestinian exports to Israel between the years 1999 and 1996	Sum of the change in the Palestinian exports to Israel in each sector between the years 1999 and 1996, weighted by the 1997 employment share in that sector in each locality from the total employees in the same locality.
Change in the Israeli import from the rest of the World between the years 1999 and 1996	Sum of the change in the Israeli import from the rest of the world (except Palestine) in each sector between the years 1999 and 1996, weighted by the 1997 employment share in that sector in each locality from the total employees in the same locality.
Change in the total Palestinian exports between the years 1999 and 1996	Sum of the change in the total Palestinian export in each sector between the years 1999 and 1996, weighted by the 1997 employment share in that sector in each locality from the total employees in the same locality. population in the same locality.
Change in the total Palestinian Imports between the years 1999 and 1996	Sum of the change in the total Palestinian imports in each sector between the years 1999 and 1996, weighted by the 1997 employment share in that sector in each locality from the total employees in the same locality. population in the same locality.
Change in the total Palestinian exports to the rest of the World between the years 1999 and 1996	Sum of the change in the total Palestinian exports from the rest of the world (except Israel) in each sector between the years 1999 and 1996, weighted by the 1997 employment share in that sector in each locality from the total employees in the same locality.
Share of employment in Israel in 1999	Share of Palestinian workers employed in Israel out of total working age in 1999 in locality.
Average wage of employees in Israel in 1999	Average daily wage of employees in Israel in 1999 in locality.
Share of public sector employment in 1999	Share of public sector employees out of total working age in 1999 in Locality.
Average wage of public sector employees in 1999	Average daily wage of public sector employees in 1999 in locality.
Share of private sector employment in 1999	Share of private sector employees out of total working age in 1999 in Locality.
Average wage of private sector employees in 1999	Average daily wage of private sector employees in 1999 in locality.
Fatalities between January 1995 and August 2000	Average number of fatalities from politically motivated violence (Palestinians killed by Israelis) from 1995 until the outbreak of the Second Intifada (28.9.2000) in locality.

Table A2: Instrumenting Palestinian exports through exogenous shocks

Dep. variable	(1)	(2)	(3)	(4)	(5)	(6)
	Δ Palestinian exports$_{96\text{-}99}$		Δ Palestinian exports to Israel$_{96\text{-}99}$		Δ Palestinian exports to RoW$_{96\text{-}99}$	
Δ Chinese exports to the world but Israel	-0.002***	-0.006***	-0.002***	-0.007***	-0.000**	0.002***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
Δ World exports	0.001***	0.001***	0.001***	0.001***	-0.000***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Δ MFN tariff	0.801***		1.303***		-0.502***	
	(0.130)		(0.155)		(0.034)	
Other controls	YES	YES	YES	YES	YES	YES
Observations	569	569	569	569	569	569
R-squared	0.557	0.501	0.585	0.492	0.687	0.445

Notes: The regressions are estimated using an OLS model. Robust standard errors are reported in parentheses. The symbols *, **, *** represent statistical significance at the 10, 5, and 1 percent levels. Other controls include all the controls in Table 2, column 2.