The Impact of the Mexican Drug War on Trade*

Jesús Gorrín [†] Warwick Business School

José Morales [‡] Harvard University

Bernardo Ricca [§] London School of Economics

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Abstract

This paper studies the unintended economic consequences of increases in violence following the Mexican Drug War. We study the effects on exports in municipalities with different levels of exposure to violence after the policy. A focus on exports allows us to control for demand shocks by comparing exports of the same product to the same country of destination. Building on the close elections identification strategy proposed by Dell (2015), we show that municipalities that are exogenously exposed to the Drug War experience a 40% decrease in export growth on the intensive margin. Large exporters suffer larger effects, along with exports of more complex, capital intensive, and skill intensive products. Finally, using firm level data, we provide evidence consistent with violence increasing marginal exporting costs.

Keywords: Exports, Violence, Mexico, Regression Discontinuity.
JEL Classification: H56, D72, F16, N76

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[†]Address: Office 2.010, Warwick Business School, Gibbet Hill Road, University of Warwick, Coventry, CV4 7AL, UK. Phone: +44 7584 028586. Email: Jesus.Gorrin@wbs.ac.uk.

[‡]Address: Harvard Kennedy School, 79 JFK Street, Cambridge, MA, 02138. Phone: +1 617 6209896. Email: jrm488@g.harvard.edu.

[§]Address: FMG, Department of Finance, London School of Economics, Houghton Street, London, WC2A 2AE, UK. Phone: +44 7549 364477. Email: B.De-Oliveira-Guerra-Ricca@lse.ac.uk.

1 Introduction

Violence can affect firms in multiple ways, increasing fixed and variable production costs by disrupting input and labor markets, changing the consumption behavior of customers, among others. We study how crime and violence affect trade. A growing literature has documented the economic consequences of violence.[1] Yet little evidence exists on the specific mechanisms through which crime and violence affect economic outcomes. There is also lack of evidence about which sectors of the economy are more vulnerable. It is relevant for researchers to explain how crime and violence affect exports and, potentially, hamper growth opportunities. Understanding the relationship between violence and exporting activity is also important for the design of policies aimed at attenuating the effects of crime. In particular, does violence increase variable or fixed costs of exporting? The answer to this question would provide intuition on the nature of how violence affects the business environment and the importance of this effect for future economic outcomes.

A challenge to the existing literature is the endogeneity problem. Crime is correlated with local non-observable economic variables that affect firms' prospects. There is also a reverse causality concern. For instance, researchers have shown that crime reacts to trade-induced shocks.[2] Another issue is measurement error due to underreporting. Since underreporting is correlated with regional characteristics, it can cause biases.[3]

For several reasons, the Mexican Drug War is an appealing setting for the study of the economic consequences of crime. First, the anti-drug policy, launched in 2006 by president Felipe Calderón, is associated with a dramatic increase in violence. From 2006 to 2011, the homicide rate almost tripled, increasing from 7.9 per 100,000 people in 2007 to 22.9 in 2011. Second, data from surveys indicate that firms were negatively affected. For instance, according to the World Bank Enterprise Survey, between 2006 and 2009 the percentage of establishments paying for security increased from 41.5% to 59%, and the percentage of establishments experiencing losses as a result of theft, robbery, or vandalism doubled from 15 to 30%. Third, the war was mainly led by one political party: the National Action Party (*Partido Acción Nacional, PAN*). The deployment of law enforcement tends to be correlated with trends in violence. However, as proposed by Dell (2015), the fact that PAN led the war allows us to employ an empirical strategy that uses close municipal elections as a source of exogenous variation in the intensity of the fight against drugs. Dell (2015) shows that homicides increase sharply after close elections of PAN mayors.

We focus our analysis on trade. Exports are an important part of the Mexican econ-

[1] Most papers focus on violence triggered by political conflicts or terrorism. Fewer papers study the consequences of violence triggered by property and drug-related crimes.

[2] See Dell, Feigenberg and Teshima (2018); and Dix-Carneiro, Soares, and Ulyssea (2018).

[3] See Soares (2004).

omy and a good measure of economic activity at the local level.[4] Moreover, exports are less likely to be driven by local demand, which could be an additional challenge to the validity of our estimates.[5] We combine a regression discontinuity design using close elections of PAN mayors with controls for foreign demand shocks. By comparing exports of the same product to the same country of destination in regions with different levels of exposure to violence, we are able to estimate an effect of violence on the supply of exports that is unrelated to external demand factors.[6]

We find that export growth in municipalities governed by a PAN mayor decreases by 40%. Firm-level data confirms this negative effect. We explore the heterogeneity of the effect across product characteristics using the complexity classification defined by Hausmann et al. (2014). We find that exports of more complex products – the ones that require more knowledge and complementary capacities to be produced – are more affected, suffering a 65% export growth decrease. The effect is not significant for less complex products. The fact that the effect is concentrated in knowledge and coordination intensive products is relevant because complexity is associated with future economic growth (Hausmann et al., 2014). Therefore, temporary shocks on exports caused by increases in crime could have permanent consequences on local productivity. Looking at firm-level data, we also find larger negative effects of PAN wins on larger exporting firms, and on exports of products that rely more on long-term capital, skill intensity, and external sources of capital. We also find suggestive evidence of a decrease in foreign direct investment on municipalities where PAN won close elections.

Changes in trade patterns can emerge in two dimensions: the intensive margin which consists in pre-existing firms changing their exported amounts, and the extensive margin which consists in entry or exit of firms into different markets. If increases in violence manifest in the form of marginal cost increases, we should observe decreases in the intensive margin. If the effect comes from an increase in fixed costs of exporting, this would change exporting decisions at the extensive margin. At the firm level, our results show significant effects only in the intensive margin. Hence, an important lesson from our findings is that violence seems to only increase marginal costs of exporting. Moreover, the patterns we find are consistent with the stylized facts about exporting firms[7].

As a criticism to our identification strategy, it can be argued that the negative effects

[4]The ratio exports/GDP in Mexico was 30.4% in 2005 (World Bank national accounts data). In the same year, this ratio was 15.2% in Brazil, 23.2% in Argentina, 16.8% in Colombia, 40.2% in Chile, and 26.8% in Peru.

[5]Local demand shocks can affect firms through the internal capital markets channel, that is, firms that sell to the domestic market and are financially constrained might be less able to export. On the other hand, Almunia, Antràs, Lopez-Rodriguez, and Morales (2018) argue that negative local demand shocks can cause an increase in exports because short-term marginal costs decrease.

[6]See Paravisini, Rappoport, Schnabl, and Wolfenzon (2014), who implement a similar strategy to assess the impact of bank credit shocks on trade.

[7]See Mayer and Ottaviano, 2008.

in exports are caused by the PAN win itself, rather than violence. This is unlikely to be the case. In the absence of the Drug War, municipalities governed by the PAN are likely to receive an economic benefit. PAN is deemed a more market-friendly party. The federal administration is likely to benefit PAN municipalities, since they belong to the same party.[8] Potential spillovers to the control group attenuate the effects. All these biases underestimate the hypothesized negative effects of crime and violence on the economy.

We also provide empirical evidence that the effect is not driven by the PAN by performing the following tests. Because, at the time of the war, most of the violence increases concentrated in the northern regions of the country, we split the sample into two parts: north and south. We find that the effect is only present in the northern regions. In the southern regions, where violence was *ex-ante* low, a close PAN win is associated with an increase in exports. Furthermore, we use data collected by Coscia and Rios (2012) to define municipalities with *ex-ante* cartel activity presence. The drug war explicitly targeted these illegal organizations, and, therefore, it was implemented mostly in places with pre-existing high cartel activity. The results are similar to the North vs South split: municipalities with pre-existing cartel presence experience a significant decrease in export growth after a close PAN win. In the absence of pre-existing cartel activity, close PAN wins are correlated with an increase in export growth. Finally, we also run placebo tests using previous local elections. We find that, in the absence of the war on drugs, the effect of a PAN win on export growth is much lower and not statistically significant.

Our paper builds on the literature that investigates the negative economic effects of crime, violence and political conflicts. In an interesting contemporaneous paper, Utar (2018) shows that an increase in violence driven by the drug war in Mexico generates a decrease in production to local markets, but not a decrease in exports. Our main results conflict with this finding. An important difference between the papers is the identification strategy. While Utar (2018) controls for firm-level unobservable characteristics, her instrument for violence uses the interaction between cartel baseline presence, the choice of the governor to join the drug war, and the estimated price of cocaine. On the other hand, our paper exploits a different source of exogeneity that is unlikely to be related with unobserved local characteristics: close elections. Furthermore, her analysis excludes "maquiladoras", which are concentrated in the areas more likely to be affected by the drug violence (the North of Mexico), and are also an important source of Mexican exports. Furthermore, the survey sample in that paper over represents larger firms. We cover a larger sample of exporters using administrative export data that is more likely to represent smaller firms. On the positive side, because of the level of detail of her survey data, Utar (2018) is able to test for internal trade, and for internal characteristics of the workforce by plants of the same firm across different municipalities. Our paper does not

[8] Azulai (2017) shows, in the context of Brazil, that partisan connections distort the allocation of public goods towards localities with connected authorities.

test for heterogeneous effects on the workforce at the plant level.

Other relevant papers in this literature include Ksoll, Macchiavello and Morjaria (2016), who study the effects of electoral violence on exports. They focus their analysis on one product – flowers – and they explore a different shock to violence. They find that export volumes decrease and that worker absenteeism is one of the drivers of the result. Pshisva and Suarez (2010) use firm-level data in Colombia to analyze the impact of kidnappings on corporate investment. They show that firm investment is negatively correlated with kidnappings that target firm owners and managers. Abadie and Gardeazabal (2003) explore the unilateral truce declared by ETA in 1998 and find that stocks of firms with a significant part of their business in the Basque Country showed a positive relative performance. Besley and Mueller (2012) find a negative relationship between killings and house prices in Northern Ireland. Similarly, Frischtak and Mandel (2012) provide evidence that the pacification of favelas caused an increase in house prices in Rio de Janeiro, Brazil.

We also relate to the literature that explores the effects of the Mexican Drug War. Dell (2015) finds negative effects of the war on local violence levels, while Utar (2018) finds negative effects on production for the national market. Our study advances the literature and finds negative consequences of the Drug War on local exports controlling for external demand factors, hence identifying a shock on the local capacity to supply foreign markets. We also provide evidence on the mechanism through which the effects may operate: affecting more capital (human and physical) and finance dependent industries. We also provide suggestive evidence of negative effects of the Drug War on greenfield investments at the municipality level, complementing the work by Ashby and Ramos (2013), who document a relationship between crime and FDI at the state level in Mexico.

Our results suggest that policies that actively engage in violence against drug trafficking can have important unintended negative consequences for the economy. They seem to hamper local exports of large exporters focusing on complex, capital-intensive, skill-intensive and finance-dependent products. The effect concentrates on the intensive margin, suggesting violence increases marginal exporting costs and not fixed costs of sustaining trading relationships. Finally, the effects of these policies seem to hamper the capacity of localities to attract productive investments.

The paper continues as follows: Section 2 presents the empirical setting of the Mexican drug war and outlines our empirical strategy. Section 3 presents descriptive statistics. Section 4 outlines the effects of the Mexican drug war on violence. Section 5 presents results on exports at the municipality level. Section 6 presents results on exports at the firm level. Section 7 presents results on greenfield FDI at the municipality level. Section 8 concludes.

2 Empirical setting

2.1 The Mexican political landscape and the Drug War

Throughout most of the twentieth century, Mexico experienced a *de facto* dictatorship with single party domination. For 71 years, the Institutional Revolutionary Party (*Partido Revolucionario Institucional, PRI*) ruled the country. In the 1990s, politicians from different parties started winning local elections, and, in 2000, Mexico elected its first non-PRI president since 1929. Some analysts suggest that, during PRI rule, there was a tacit agreement between the government and the drug traffickers that allowed cartels to operate as long as they complied with some rules (O'Neil, 2009). For example, cartels could not cause major disruptions to civilian life. Importantly, violence was contained. When other parties started winning elections, this relationship was shaken, as cartels had to negotiate with new incumbents from other parties. The election of Vicente Fox (PAN) as president in 2000 triggered some institutional changes. However, these changes were limited because the PAN was outnumbered in congress. It was only on 2 July 2006, when Felipe Calderón (PAN) was elected president, that changes intensified. Calderón governed from 1 December 2006, to 30 November 2012. As soon as he took office, he declared the war on drugs, sending the army to several provinces. The policy had tragic consequences. The arrest or assassination of a kingpin can cause a violent dispute for power. Members from the same organization or from rival cartels can exploit the weakening of the leadership to try to gain the control of the organization. Once in charge, new leaders have to assert their authority, in many cases through the use of force. Cartels also retaliated against the state, killing politicians, police officers, and journalists.

During Calderón's administration, the number of homicides increased by 160%, from 10,452 in 2006 to 27,213 in 2011 (Figure 1). Total homicides between 2006 and 2011 – as well as the absolute increase from the total between 2001 and 2005 – were concentrated in the northern regions of the country, closer to the US border (Figure 2). These are the regions where the main cartels operate the smuggling of drugs into the US. In reaction to the crackdown, there is evidence that cartels began to diversify their activities into other crimes, such as extortion, human trafficking, oil theft, kidnapping, and robbery.

The main strategy of the anti-drug policy targeted cartel leaders. We gathered information for all confirmed deaths and arrests of highly ranked members of nine different Mexican cartels.[9] During the Calderón's presidency, we confirm 13 killings and 54 arrests

[9]See "Mexico Drug War Fast Facts" (https://edition.cnn.com/2013/09/02/world/americas/mexico-drug-war-fast-facts/index.html) and "Timeline of the Mexican Drug War"

Figure 1: **Annual homicides**

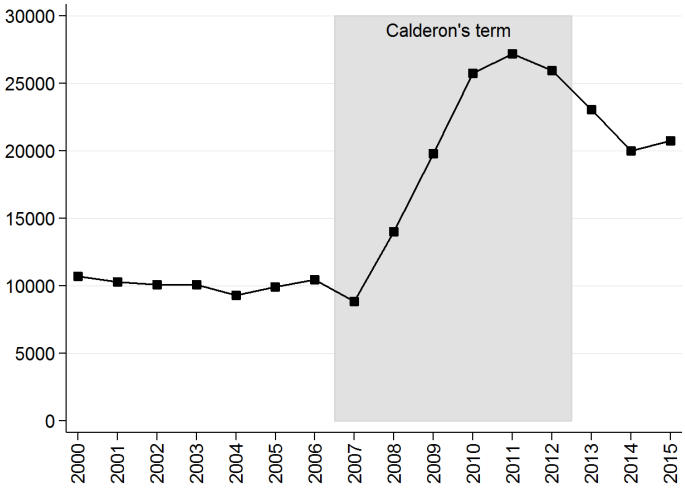
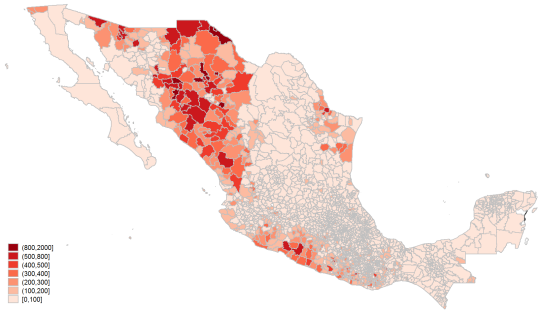
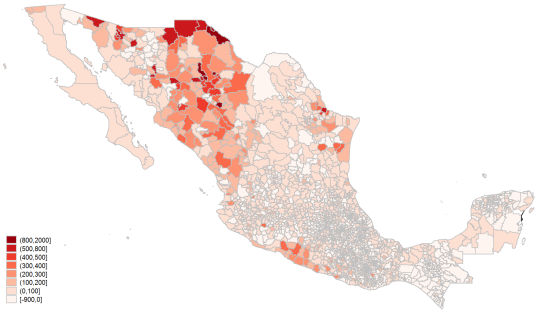


Figure 2: **Spatial distribution of homicides**

Panel A. Total homicides 2007-2011



Panel B. Change 2007-2011 and 2001-2006



Notes: Panel A depicts the geographical distribution of total homicides between 2007 and 20011 per 100,000 inhabitants. Panel B depicts total homicides between 2007 and 2011 minus total homicides between 2001 and 2006, per 100,000 inhabitants. It is not possible to compute growth rates or logs because many municipalities have zero homicides.

performed by governmental authorities over 49 Mexican municipalities. These operations were mainly organized at the federal level, but coordination with municipal police was important.

Municipal presidents, the Mexican equivalent of mayors, are elected by popular vote. All municipalities and states in Mexico control a police force. The municipality has the power to remove or appoint the municipal police chief. According to Article 115 of the Mexican Constitution, the municipal police has the responsibility to provide security and prevent crime. The important role of the mayor in the implementation of the Drug War can also be seen in practice. From 2006 until 2014, organized crime killed 63 current or former mayors.[10] Furthermore, municipal presidents have denounced extorsion from cartels.[11] Hence, it is reasonable to assume municipal elections are an important source of variation in the way the Drug War policy was implemented at the local level.

At the time of the war on drugs Mexico already had competitive elections. Among the major parties, PAN is more economically liberal and business oriented than its national opponents. As evidence of this, PAN was elected on an economic platform based on globalization and an increase in foreign investment (Krauze, 2006). Its main rival in the 2006 elections, the Party of the Democratic Revolution (*Partido de la Revolución Democrática, PRD*), is suspicious of free markets and globalization. Its other rival, the PRI, is more diverse.

2.2 Data

We collect data on local elections results from the Electoral Tribunals of each state. Local elections are held every three years, and usually elections in different states happen at different times. We focus on municipalities with elections in 2007 and 2008 because the terms of mayors elected in those years started and finished during Calderón's administration. Monthly data on homicides are from the National Institute of Geography and Statistics (*Instituto Nacional de Estadística y Geografía, INEGI*), available since 1990. Data on other types of crimes tends to be noisier due to underreporting. The issue of underreporting is severe in developing countries, where both the police and victims do not report all crimes. The most reliable source of crime data at the municipality level is The National Public Security System (*Sistema Nacional de Seguridad Pública, SNSP*), which started to publish data in 2011. Data on municipality characteristics is from the National System of Municipal Information (*Sistema Nacional de Información Municipal, SNIM*). Data on exports is from the Atlas of Economic Complexity, which was developed

(https://en.wikipedia.org/wiki/Timeline_of_the_Mexican_Drug_War).

[10] Webpage:http://www.24-horas.mx/impunes-63-asesinatos-de-alcaldes-en-mexico/.

[11] Webpage:http://archivo.eluniversal.com.mx/nacion/165947.html.

at Harvard's Center for International Development.[12]

2.3 Empirical strategy

Governments allocate their enforcement arms to regions where violence is increasing. Therefore a regression of homicides on some measurement of law enforcement provides biased results. To address this challenge, we identify the effect of the drug war on violence in two ways. First, we follow Dell (2015) and use the fact that one party, PAN, implemented stronger actions against the Mexican drug cartels. Thus, we use close elections of a PAN mayor as a source of exogenous variation in the intensity of the war on drugs. We focus the analysis on the 2007 and 2008 elections. The administration of mayors elected in those years started at the beginning of the war, and finished around its peak, in 2011. We estimate the following specification

$$y_m = \alpha + \beta PANwin_m + \delta f(Margin_m, PANwin_m) + \epsilon_m \tag{1}$$

where m denotes municipalities, $PANwin_m$ is a dummy variable that takes value 1 when PAN wins, and $f(Margin_m, PANwin_m)$ is a polynomial on the vote margin and the dummy of PAN victory. We restrict the sample to municipalities where PAN won or lost by a margin smaller than 5%. As in Dell (2015), we test the effect on homicides. Following anecdotal evidence that cartels diversified their activities during the war, we also test the effects on other crimes. Because it is likely that in smaller municipalities crime is under-reported, we weight for population size. As suggested by Solon et al. (2015), we always report robust standard errors when weighting.

We then estimate "reduced-form" regressions using trade variables as dependant variables. The trade data is at the municipality-product-country of destination level, which allows us to control for external demand shocks by including product-destination dummies. Regressions take the form:

$$y_{mcp} = \alpha + \beta PANwin_m + \delta f(Margin_m, PANwin_m) + \alpha_{cp} + \epsilon_{mcp} \tag{2}$$

where y_{mcp} is the growth in exports of product p to country c in municipality m. More specifically, y_{mcp} is the log of the amount exported in the third year of the new administration, divided by the amount exported in the third year of the previous administration, when elections took place. α_{cp} is a set of country of destination-product dummies, which allows us to control for foreign demand shocks, similar to the strategy implemented by Paravisini et al. (2014).

[12]Webpage: http://complejidad.datos.gob.mx. The original data comes from the Tax Administration Service (*Servicio de Administración Tributaria, SAT)*, Mexican's customs authority.

3 Descriptive statistics

Table 1 reports summary statistics for municipalities that held elections in 2007 and 2008. Panel A shows socioeconomic characteristics of each Mexican municipality. In terms of population, municipalities are small. They have, on average, 35 thousand inhabitants compared to 100 thousand for the average county in the US. Furthermore, by 2006, compared to the US, Mexico was already a violent country. The American rate of 6 homicides per 100,000 pales in comparison to 11.7 in Mexico. However, compared to some Latin American countries, such as Brazil (26), Colombia (37), Venezuela (49), and El Salvador (58), Mexico's homicide rate was relatively small in 2006 (Berthet and Lopez, 2011). Although PAN was already an important party, only 27% of municipalities had an incumbent PAN mayor. Municipalities that elected PAN mayors (treatment group) are richer, less violent and have a higher share of the population aged between 16 and 29, in comparison to municipalities that did not elect PAN mayors (control group). However, once the sample is limited to municipalities where PAN won or lost by a small margin, the baseline characteristics are not statistically different in the treatment and control groups. This result provides evidence the close PAN victories are as good as randomly assigned. Moreover, the loss of power caused by the restriction of the sample does not drive the results. For all significantly different variables in the unrestricted sample, we see smaller differences when we restrict to the 5% spread.

Table 1 Panel B shows characteristics related to trade. Municipalities were PAN was elected tend to export more *ex-ante*. The differences are not statistically significant for both the unrestricted sample and when we restrict to municipalities facing close elections. In imports we observe a similar pattern.

Panel A of Figure 3 shows the geographical distribution of all municipalities in which elections took place in 2007 and 2008, while Panel B shows the geographical distribution of close elections in the same years. In the unconditional sample we can see that, even though PAN wins are not clustered, the losses are. We also see that PAN loses the majority of the municipal elections. However, when we restrict the sample to municipalities with close elections, the distribution of losses and wins are regionally dispersed. This is important for our identification for two reasons. First, this undermines the possibility that regional shocks, and not the treatment, drive our results. Second, it diminishes concerns of spillovers in control municipalities when restricting to the close elections sample.

4 Effects on violence

Panel A of Table 2 shows the results of estimation of Equation 1 when the outcome variable is the annual average of homicides over the new incumbent's term. Following Dell (2015), regressions are weighted by population size as of 2005. This is an intuitive

Table 1: **Baseline Characteristics**

Panel A: Characteristics Baseline

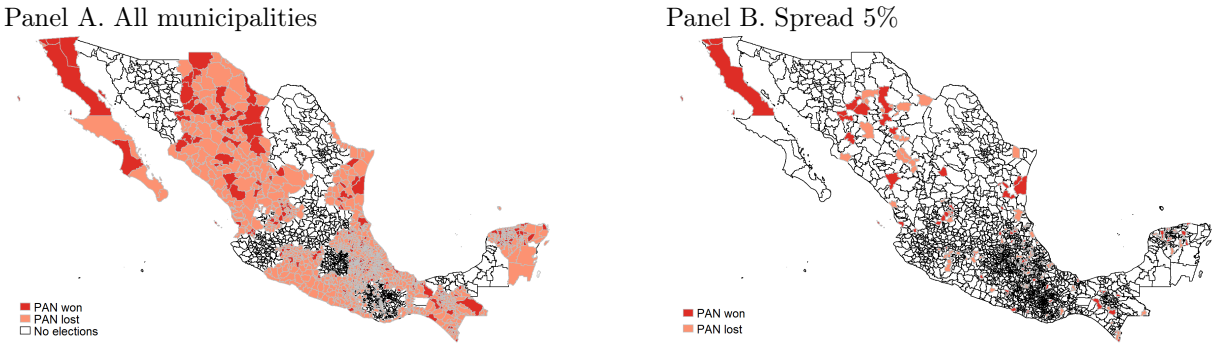
	Total sample				Spread 5%		
	All	PAN won	PAN lost	P-value means diff.	PAN won	PAN lost	P-value means diff.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Population 2005	35019	38396	34270	0.54	59232	42934	0.44
	(97487)	(126163)	(89949)		(190580)	(103344)	
Population ages 15-29	25.6	26.2	25.5	0	26.2	25.9	0.33
(% of total)	(2.5)	(2.2)	(2.5)		(2.3)	(2.6)	
Population density, 2005	151.9	162.9	149.4	0.61	209.6	188.14	0.75
	(381.5)	(385.1)	(380.8)		(465.8)	(466.3)	
PAN incumbent	0.27	0.28	0.26	0.49	0.31	0.32	0.84
	(0.44)	(0.45)	(0.44)		(0.47)	(0.47)	
GDP per capita	5740	5996	5683	0.09	6085	6228	0.74
(USD, 2005)	(2678)	(2942)	(2613)		(3360)	(2759)	
Literacy rate ages	95.2	95.6	95.1	0.13	95.5	96.1	0.29
(ages 15-24, 2005)	(4.9)	(4.1)	(5.1)		(4.3)	(3.2)	
Mean years of	5.9	6.1	5.9	0.16	6.1	6.1	0.97
schooling, 2005	(1.4)	(1.4)	(1.4)		(1.4)	(1.4)	
Mean Homicides, 2006	11.77	9.31	12.31	0.04	12.03	12.66	0.86
Per 100 Population	(20.75)	(19.09)	(21.07)		(20.77)	(21.62)	
Observations	1416	257	1159		87	111	

Panel B: Trade Baseline

	Total sample				Spread 5%		
	All	PAN won	PAN lost	P-value means diff.	PAN won	PAN lost	P-value means diff.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total exports	52.5	81	46.1	0.14	178.6	71.5	0.35
	(340)	(681.6)	(195.7)		(1160.4)	(259.2)	
Exports: number of countries	19	19.5	18.9	0.71	22.6	22.6	1
	(19.9)	(22.5)	(19.3)		(27.2)	(23.6)	
Exports: number of products per country	2.2	2.5	2.1	0.07	3.2	2.6	0.4
	(2.8)	(4.1)	(2.4)		(6.1)	(3.7)	
Total imports	29.7	59.9	23	0.04	147.6	50.5	0.31
	(266.2)	(570.2)	(120.3)		(971)	(229.6)	
Imports: number of countries	7.7	8.4	7.5	0.45	11.4	10.7	0.82
	(16.7)	(20.1)	(15.8)		(27.4)	(19.7)	
Imports: number of products per country	2.8	3.3	2.7	0.11	4.7	3.6	0.35
	(5.5)	(6.8)	(5.2)		(9.6)	(7)	
Observations	1416	257	1159		87	111	

Notes: Columns 1-3 report means for all municipalities in which elections occurred in 2007 and 2008. Columns 5-6 restrict the sample to municipalities where PAN won or lost by a margin smaller than 5%. Columns 4, and 7 report p-values of t-tests on the difference in means. Standard errors are reported in parentheses.

Figure 3: **Spatial distribution of of electoral outcomes**



Notes: Panel A depicts the geographical distribution of PAN victories and losses in the 2007 and 2008 local elections. Panel B depicts PAN victories and losses by a margin smaller than 5%.

weight in this setting because of potential endogenous sampling in crime data. In particular, smaller municipalities are less likely to be represented in our sample because of potential underreporting. In our baseline WLS regression, a PAN victory causes an increase between 25 and 41 homicides per 100,000 population. We report robust standard errors for weighted regressions.

For a discussion on clustering in weighted regressions please see Solon et al. (2015)

Panel A of Figure 4 replicates the finding of Dell (2005) which is crucial for our identification. This graphs shows there is a discontinuous and significant effect of a close PAN election on cumulative homicides after the election when we weight by population in 2005.

Panel B of Table 2 shows that a PAN victory is not associated with any pre-trend increase in homicides: municipalities where PAN won by a close margin do not experience higher homicides rates before the election. Panel C analyses the impact on the absolute change in homicides: before and after the elections. A PAN win is associated with an increase of 37 in the homicide rate. In Panel D, we use the 2004 and 2005 elections to run a placebo test. Most of the administration of mayors elected in those elections occurred before the war. Close PAN wins are not associated with higher homicides over the new incumbent's term. Therefore, a PAN victory in itself did not cause higher violence at the municipality level. It seems that the main driver of violence was the combination of PAN victory with the implementation of the war on drugs.

Table A2 in the Appendix reports the same regressions when we restrict the sample to municipalities where PAN won or lost by a margin smaller than 3%. The results are consistent. Coefficients increase slightly and remain significant at 5%. Results are also similar when we increase the degree of the RD polynomial (Table A3 in the Appendix).

A natural question is whether the incidence of other types of crime also increased. It could be the case that homicides were concentrated in the war between rival cartels

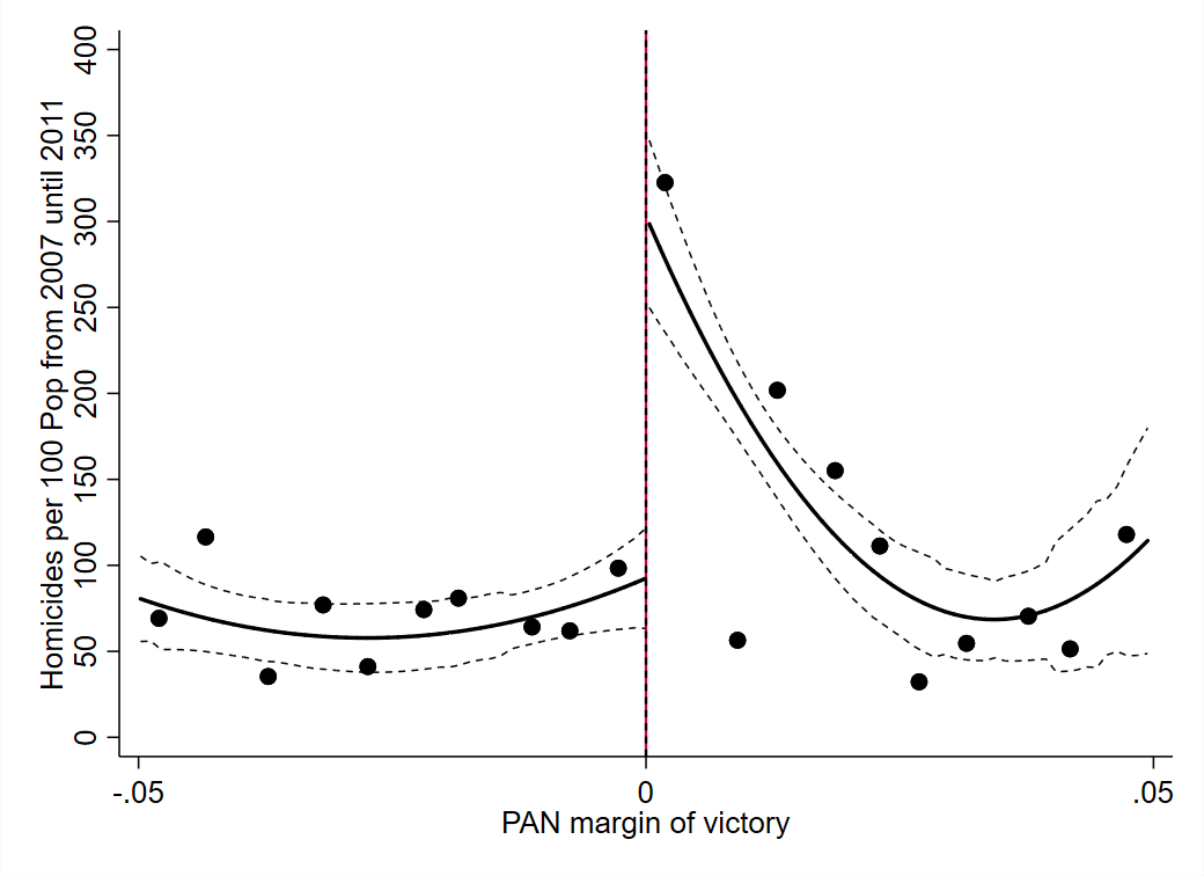
Table 2: **Effect on homicides, 5% spread**

	(1)	(2)	(3)
	Weighted OLS (Pop 2005)		
Panel A: Average homicide 3 years after election (2007 and 2008 elections)			
PAN win	25.90**	41.22**	41.22*
	(12.65)	(18.98)	(19.79)
Linear polynomial	No	Yes	Yes
Cluster: state level	No	No	Yes
Observations	198	198	198
R-squared	0.172	0.253	0.253
Panel B: Average homicide 3 years before election (2007 and 2008 elections)			
PAN win	3.29	3.76	3.76
	(2.71)	(4.32)	(4.80)
Observations	198	198	198
R-squared	0.030	0.034	0.034
Panel C: Average homicide 3 years after election minus 3 years before election (2007 and 2008 elections)			
PAN win	22.61**	37.47**	37.47**
	(10.80)	(16.62)	(16.81)
Observations	198	198	198
R-squared	0.179	0.301	0.301
Panel D: Placebo, average homicides 3 years after election (2004 and 2005 elections)			
PAN win	-5.08**	-0.81	-0.81
	(2.22)	(3.09)	(2.35)
Observations	247	247	247
R-squared	0.095	0.122	0.122

Notes: Columns 1-3 report standard WLS regressions. Weights are determined by population size in 2005. The dependent variable in panels A and D is average annual homicides per 100,000 population in the three years following local elections; in panel B the dependent variable is average annual homicides per 100,000 population in the three years preceding local elections; and in panel C the dependent variable is the difference between the dependent variables of panels A and B. In panels A, B and C, the sample is comprised of municipalities where PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections. In panels D, the sample is comprised of municipalities where PAN won or lost by a margin smaller than 5% in the 2004 and 2005 elections. Robust standard errors are reported in parentheses.

Figure 4: **Cumulative Homicides as a function of PAN electoral share**

Panel A. Direct Election Results



Notes: Panel A depicts a RDD graphs on cumulative homicides as a function of direct electoral shares for PAN in a Mexican municipality. The graph weights homicides by Population in 2005. Confidence intervals are presented at a 95% level.

and the war between state and cartels. In this scenario, other crimes, such as robbery, kidnapping, and extortion, could remain unchanged. There are some limitations in documenting the effects on other crimes. Data is noisier due to underreporting. Furthermore, the most reliable source started publishing crime statistics per municipality only in 2011. Therefore, differently from homicides where we could test the impact over the whole term, we can only test the impact on the level observed in 2011, and we cannot run a placebo test with previous elections. Table A1 in the appendix reports results for six different types of crime. In general, crime increases, but the effects are not always statistically significant. Effects on extortion and robbery are statistically significant.

5 Change in municipalities' exports

5.1 Main results

In this section we combine the identification based on close municipal elections with disaggregated municipal and firm level data. Our focus on exports combined with disaggregated data allows us to concentrate on supply effects. This is different from the rest of the literature studying the effects of violence in the economy. Violence could potentially affect the economy by diminishing the likelihood of individuals to consume or to demand certain type of goods. Our effect is driven by a drop in the production of goods that are not affected by local demand shocks.

The municipality-product-destination data allows us to control for demand specialization. Regressions on firm or economic outcomes have the same form as regressions on homicides (equation 1). When the data is disaggregated, we also include a set of dummies to control for foreign demand shocks or for firm shocks.

Even though the dummy close PAN win is as good as randomly assigned, to draw conclusions about the actual effects of the Drug War we need to show that the underperformance was not triggered by the election of PAN itself, but was triggered by propensity to engage in the war on drugs. To approach this question, we provide placebo estimates of the same specification for the 2004-2005 elections. We show that in previous PAN wins, there were no negative economic effects.

For several reasons, the main economic variable of interest in this paper is exports. First, exports are a good measure of economic activity at the local level and they are important determinants of local level growth. Second, the effect of the close election can drive both supply and demand. For example, if violence increases in a particular municipality it could drive workers out of the municipality. If we study local production instead of exports, then a negative shock could be driven by both a decrease in demand of those products by local workers and from firms experiencing a decrease in labor supply. If we concentrate on exports, then we can keep demand fixed (or at least exogenous to the

local shock). Third, export data is disaggregated at the municipality-product-destination levels. This allows us to control for foreign demand shocks.

In this section, we test whether the Drug War affected exports. For each municipality m, we observe the annual amount (in Pesos) of product p exported to country c. There is one caveat about the data. When a firm has a single plant or all their plants are in the same municipality, the exports reflect directly the municipality. When firms have multiple plants in different municipalities within the same state, then an approximation is made based on the workforce of each plant. We deal with this issue in the next section of the paper, in which we study firm micro level data.

Table 1 provides descriptive statistics and tests if municipalities where PAN won differ from municipalities where PAN lost. Municipalities won by PAN tend to be more open. The mean of total exports is higher. These differences are not statistically significant. Differences remain not significant after reducing the sample to close elections.

In table 3 we report the regressions of export growth on close PAN wins using the same weighting by population.[13] With country of destination dummies, we show that a close PAN win caused a decrease of 42% in export growth. When we control for destination-product dummies, export growth decrease by 40%. These controls also alleviate concerns that differential changes in the terms of trade of certain products drive the result. Therefore, after the implementation of the Drug War, municipalities performed worse in terms of trade even when the more open party was elected.

Panel A of Figure 5 shows there is a discontinuous and significantly negative effect of a close PAN election on log export growth after the election when we weight by population in 2005.

To test whether the negative effect on trade is due to the PAN election itself and not their implementation of the Drug War, we run a placebo regression on the previous municipal elections. Data is available from 2004, so we take export growth until 2006, the first year of the Drug War.[14] Table 4 reports the results from the elections after and before the Drug War. Before the Drug War, the close PAN wins had no effects on exports growth. After the Drug War, the effect on export growth is significantly negative. This favors the hypothesis that the Drug War, and not the PAN election in itself, had negative effects on trade.

Finally, we breakdown the results according to the degree of complexity in different products. We use the Product Complexity Index (PCI) from the Atlas of Economic Complexity developed by Hausmann et al. (2014) to separate products. This measure uses trade data to determine the complexity of a product according to two characteristics: ubiquity and the average diversity of its exporters. In theory, a more complex product is

[13]Miss-reporting, or lack of information, for firms in smaller municipalities is still a concern in this setting. Therefore, we decide to weight by population. Results are robust in the standard OLS regression

[14]The Drug War started in December 2006

Table 3: **Total exports & imports**

	(1)	(2)	(3)	(4)
	Weighted OLS (Pop. 2005)			
Panel A: Exports				
PAN win	-0.23***	-0.53***	-0.55***	-0.40***
	(0.08)	(0.08)	(0.07)	(0.08)
Linear RD Polynomial	No	Yes	Yes	Yes
Country of destination dummies	No	No	Yes	No
Product-country of destination dummies	No	No	No	Yes
Observations	17,735	17,735	17,721	15,185
R-squared	0.00	0.00	0.03	0.59
Panel B: Imports				
PAN win	-0.15**	-0.12	-0.17**	-0.14**
	(0.07)	(0.08)	(0.07)	(0.07)
Observations	23,181	23,181	23,164	19,892
R-squared	0.00	0.00	0.03	0.40

Notes: Columns 1-4 report weighted regressions. Weights are determined by population size in 2005. Standard errors are clustered at the municipality level. In panel A (B), the dependent variable is the natural logarithmic of total exports (imports) in the final year of the new incumbent's term, divided by total exports (imports) in the year when elections took place. In panel B (imports), country controls refer to country of origin dummies. The sample is comprised of triples municipality-country of destination (origin)-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections and (ii) the dependent variable for the triple is positive over the new incumbent's term.

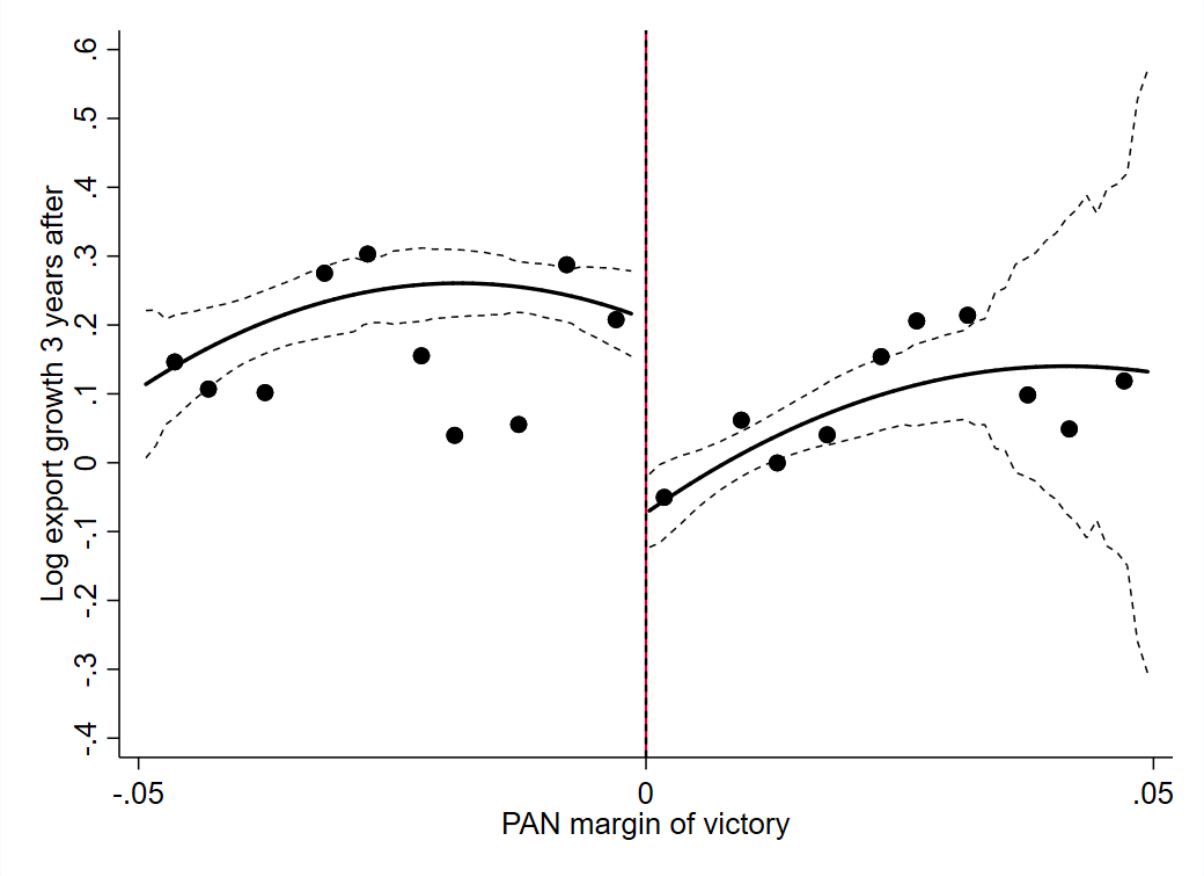
Table 4: **Placebo and pre-trends: total exports**

	WLS (weights Pop 2005)			
Panel A: Exports, placebo 2004-2005 Elections				
PAN win	-0.11***	-0.12	-0.13	-0.21
	(0.03)	(0.09)	(0.10)	(0.14)
Linear RD Polynomial	No	Yes	Yes	Yes
Country of destination dummies	No	No	Yes	No
Product-country of destination dummies	No	No	No	Yes
Observations	17,058	17,508	17,495	14,682
R-squared	0.00	0.00	0.03	0.60
Panel B: Exports, pre-trends 2007-2008 elections				
PAN win	0.10*	0.09	0.11	0.47***
	(0.06)	(0.09)	(0.07)	(0.11)
Observations	13,572	13,572	13,552	19,959
R-squared	0.00	0.00	0.01	0.59

Notes: Columns 1-4 report weighted regressions. Weights are determined by population size in 2005. Standard errors are clustered at the municipality level. In panel A, the dependent variable is the natural logarithmic of total exports in the final year of the new incumbent's term, divided by total exports in the year when elections took place for the election that happened before the Drug War was implemented. In panel B, the dependent variable is the natural logarithmic of total exports one year before the election took place, divided by the initial exports three years before. The sample is comprised of triples municipality-country of destination (origin)-product where: (i) PAN won or lost by a margin smaller than 5% in the 2004 and 2005 elections and (ii) the dependent variable for the triple is positive over the term.

Figure 5: **Log Export growth as a function of PAN electoral share**

Panel A. Direct Election Results



Notes: Panel A depicts a RDD graphs on log export growth as a function of direct electoral shares for PAN in a Mexican municipality. The graph weights log export growth by Population in 2005. Confidence intervals are presented at a 95% level. The data for exports is formed by triples of municipality, product, and country of destination.

produced by countries that export many products, but it is also produced by few countries (Hausmann et al., 2014). Complexity is relevant in our setting because it predicts future GDP growth. More complex economies tend to grow more (Hausmann et al., 2014). If the Drug War affected more complex products, then the long term effects would be more pernicious. Second, since complex products are exported by few countries, they are more likely to be traced. In consequence, they are not the most desirable legal products to hide illegal trade. An effect on complex products is less likely to be related to illegal trade, but to external effects of the Drug War on the economy.

In table 5 we report a monotonic pattern in export growth. We divide products in four quartiles depending on how they rank in terms of the economic complexity index. For low complexity the effects on export growth are indistinguishable from zero, or positive if we control for product-destination dummies. The higher the complexity the more negative and significant the effects over export's growth. This suggests that in the treated municipalities the negative impacts are concentrated in more complex industries.

Table 5: **Exports per quartile of product complexity**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1st quartile (low)		2nd quartile		3rd quartile		4th quartile (high)	
Panel A: Exports (WLS)								
PAN win	-0.07	0.11	-0.17	-0.32	-0.68***	-0.32***	-0.88***	-0.65***
	(0.25)	(0.34)	(0.14)	(0.23)	(0.06)	(0.05)	(0.29)	(0.11)
Linear RD Polynomial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of destination FE	Yes	No	Yes	No	Yes	No	Yes	No
Product-country of destination FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	3,899	3,535	3,790	3,220	4,695	4,011	5,306	4,418
R-squared	0.10	0.58	0.06	0.57	0.06	0.60	0.05	0.59

Notes: All columns report weighted regressions. Weights are determined by population size in 2005. Standard errors are clustered at the municipality level. The dependent variable is the natural logarithmic of total exports in the final year of the new incumbent's term, divided by total exports in the year when elections took place. The sample is comprised of triples municipality-country of destination (origin)-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections and (ii) the dependent variable for the triple is positive over the new incumbent's term. Products are divided in 1241 categories. We divide the 1241 products in four groups according to their complexity as defined by the Atlas of Economic Complexity.

5.2 Legal vs Illegal exports

A reduction in exports in the legal markets can be capturing a drop in illegal markets. One of the methods employed by cartels to smuggle drugs is hiding them in legal exports. Given the substantial size of Mexican drug exports, it could be the case that the reduction in exports is driven by illegal products, and not a debilitated business environment.[15]

[15]Estimates of total Mexican drug exports to the US vary substantially, from US$ 6.6 billion to as much as US$ 39 billion (Kilmer et al. (2010)). In 2008, Mexico legal exports to the US amounted to US$ 230 billion.

Testing this hypothesis is challenging, because of the lack of information about the illegal market, thus the evidence that we provide is only suggestive. We use the variation in exports across different destinations to test whether the effects are concentrated in destinations that are likely to be trafficking hubs.

What are the patterns across trading partners? In tables A4 and A5 (in the appendix) we separate the effect across important trading partners of Mexico. We divide countries in four groups: Europe, China, United States and a group formed by three countries: Colombia, Peru and Bolivia. These regions are not only important trading partners in legal products, but, with the exception of China, play important roles in the drug business. The US and Europe are the main consumers, while Colombia, Peru, and Bolivia are the main exporters of coca and cocaine.[16]

First, we look at countries that are main export destinations for drug trafficking from Mexico. According to the World Drug Report (2010) Mexico is a main producer of opioids. It also plays an important role in the distribution of cocaine. In 2004, Mexico exported 90% of the cocaine consumed in the US (O'Neil (2009)). Therefore, if we are only capturing an effect related to drug trafficking then only destinations like US or Europe should be affected. Indeed, we find a significant drop for the US. But no effect for Europe. On the other hand, we find a significant and larger decrease in export growth to China, which is unlikely to be related to drug trafficking itself.

Another evidence that is hard to reconcile with the hypothesis of reduction in illegal markets causing a decrease in exports is our findings on complexity. We argue that trades on high complexity products are easier to trace and, therefore, less likely to be useful as covers for illegal trade. We find significantly larger negative effects on municipality level export growth for high complexity products. This effect persists when we use firm level data.

Overall the results suggest that the election of PAN had significant negative effect on trade at the municipality level. By running placebo regression on previous elections, we established that this effect is not related to the election of PAN itself, but on the election of PAN at the time of the Drug War. This suggests that the main driver of the negative performance was the implementation of the Drug War.

5.3 Cartel Presence and North vs. South

Mexico offers another relevant source of heterogeneity to study the effects of violence and exports. Mexican cartels smuggle drugs to the US, and cartel activity is an important source of violence. This provides us with a contemporaneous heterogeneity that further

[16]In 2006, 84% of the Mexican legal exports went to the US; 4.5% to Europe, 0.7% to China, and 1,3% to Colombia, Peru and Bolivia. Out of total imports, 49.04% comes from the US, 12% from Europe, and 9.7% from China, and 0.43% from Colombia, Peru and Bolivia.

evidences that the negative effects on exports are caused by violence increases, and not other policies that PAN implemented at the local level.

To that end we explore two differences in the intensity of treatment. One comes from the prevalence of pre-existing violence and cartel activity in the North of the country. Second, we use data collected by Coscia and Rios (2012) on cartel presence at the municipal level in Mexico. As a baseline for cartel activity we use a dummy for the presence of any cartel at the beginning of the drug war. Coscia and Rios (2012) do an excellent job collecting data from relevant web sources such as newspapers and blogs on Drug Trafficking Organizations (DTO) activities in Mexican municipalities using an automatized system. However, there are some limitations in the ability to collect information since powerful cartels can suppress it (Wainwright, 2016). This problem can be especially prevalent in badly governed municipalities. Using the measure directly could introduce a bias. Nonetheless, it is unlikely that this potential bias is correlated with the close election outcomes. Therefore, it is interesting to explore this heterogeneity in relation to the close electoral outcome.

In table 6 Panel A we show that the effect of a close PAN win on exports is significantly negative in the north of the country. Panel B shows the effect is either positive or indistinguishable from zero in southern municipalities. This supports the interpretation that our estimate is a lower bound of the negative effects on exports. In municipalities were the drug war was less prevalent, PAN had higher export growth on average.

In table 6 Panel C we show a similar pattern for municipalities with pre-existing cartel participation. The negative effect on export growth is only significant in municipalities with pre-existing cartel presence. In panel D, when controlling for product-destination fixed effects, PAN wins in municipalities with no cartel presence experienced a significantly positive growth after the election.

6 Change in firms' exports

The nature of the electoral discontinuity allows us to study the economic effects of increased violence at a microeconomic level. A potential concern with the municipality-level export data used in the analyses above is that it is built through the geographic imputation of firms' exports according to the distribution of their workforce as expressed in social security records. To check that this imputation is not problematic, we validate results with firm-level export data for a sample of firms that operate in a single municipality in every given year. This helps assess the intensive-margin growth in exports and the extensive-margin disappearance of export relationships at the firm, product and country of destination level, while also allowing for the inclusion of industry-level fixed-effects that control for sector-wide dynamics in firms' main activity.

Table 6: **Log Export Growth Heterogeneity by Municipalities with Pre-existing Propensity to Drug Trafficking**

	(1)	(2)	(3)
	WLS (weights Pop 2005)		
Panel A: North			
PAN win	-0.62***	-0.63***	-0.40***
	(0.17)	(0.15)	(0.07)
Linear RD Polynomial	Yes	Yes	Yes
Country of destination dummies	No	Yes	No
Product-country of destination dummies	No	No	Yes
Observations	17,068	17,053	14,120
R-squared	0.00	0.03	0.59
Panel B: South			
PAN win	0.13*	0.14**	0.11
	(0.07)	(0.06)	(0.09)
Observations	4,367	4,349	2,790
R-squared	0.00	0.10	0.80
Panel C: Pre-existing cartel presence			
PAN win	-0.55***	-0.56***	-0.46***
	(0.10)	(0.09)	(0.07)
Observations	16,923	16,910	13,798
R-squared	0.01	0.02	0.42
Panel D: No pre-existing cartel presence			
PAN win	-0.11	-0.13*	0.09**
	(0.08)	(0.07)	(0.04)
Observations	4,273	4,256	3,084
R-squared	0.00	0.08	0.67

Notes: Columns 1-3 report weighted regressions. Weights are determined by population size in 2005. Standard errors are clustered at the municipality level. The dependent variable is the natural logarithmic of total exports in the final year of the new incumbent's term, divided by total exports in the year when elections took place. The sample is comprised of triples municipality-country of destination (origin)-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections and (ii) the dependent variable for the triple is positive over the new incumbent's term. The sample is divided into two parts using the median of the (average) latitude of the municipalities. In panel A, we report results for the northern municipalities, while in Panel B we report results for the southern municipalities. In Panel C we report effects in municipalities with pre-existing cartel participation (as identified by Coscia and Rios (2012)). In Panel D we report effects in municipalities with no pre-existing cartel activity.

Leveraging from administrative sources on transaction-level Customs data and firm-level social security data [17], we now evaluate whether being exposed to a marginal PAN victory in a firm's municipality leads to a change in its export performance. As discussed, we focus on firms that exported from a single municipality at baseline, and evaluate the change in their exports and the disappearance of their export relationships.

At the intensive margin, we estimate the following equation:

$$log\left(\left[\frac{X_{fmpc}^{t'}}{X_{fmpc}^{t}}\right]^{(t'-t)}\right) = \beta_0+\beta_1 PANwin_m+\delta f(Margin_m, PANwin_m)+\psi_{pc}+\kappa_i+\epsilon_{fm} \quad (3)$$

Where X_{fmpc}^{t} stands for the exports of firm f of product p to country of destination c, located in municipality m in baseline year t. The dependent variable captures the logarithm of the average yearly growth factor in total exports at the firm, product and country of destination level between years t and t'. β_1 captures the percent difference in the average yearly growth factor of the exports at this level for firms marginally exposed to a PAN mayor in their municipality. ψ_{pc} stands for product-country of destination fixed-effects that control for external demand, and κ_i stands for industry fixed-effects that control for factors that are fixed for the main activity of every firm in the data. Standard errors are clustered at the municipality level, which is the level of the treatment. As with the main specifications in the Municipality-level analysis, the bandwidth for close elections is 5% and we use linear controls at both sides of the electoral discontinuity.

6.1 Main Results

Table 7 shows how firm-level specifications largely validate municipality level results at the intensive margin. For the sample of municipalities with close elections in 2007 and 2008, Panel A shows that a marginal PAN victory associates with a 19% drop in the growth factor of firm exports between 2007 and 2010. Panel B shows either a null or positive pre-trend effect for firm export growth between 2004 and 2007. Panel C provides a "simple" difference in difference estimate, where the difference of the effect of a marginal PAN victory at pre-trend and post-treatment is assessed restricting linear trends around the discontinuity to remain unchanged between pre and post treatment. This specification shows that a Marginal PAN victory associates with a drop of 13% in the export growth factor of firms. Similarly, Panel D shows a "full" difference in difference

[17] These anonymized sources were provided by the Mexican Social Security and Tax Authorities as inputs for the development of the Mexican Atlas of Economic Complexity. We worked with this data locally at Harvard's Center for International Development, which partnered with the Mexican government in developing this data visualization tool. Information about the Mexican Atlas of Economic Complexity is available at http://complejidad.datos.gob.mx.

estimate that allows for linear trends to vary between pre and post treatment. Results suggest that a marginal PAN victory associate with a drop of 18%.

Table 8 shows similar specifications applied for a placebo sample of municipalities with close elections in 2004 and 2005. Similarly to the municipality level results, we observe no effect of a Marginal PAN victory in this context.

Table 8 shows similar specifications applied for a placebo sample of municipalities with close elections in 2004 and 2005. Again consistent with municipality level results, we observe no effect of a Marginal PAN victory in this setting. These results confirm that the effects of a marginal PAN victory are contingent to the period of the war on drugs.

Panel A of Table 9 shows that the effect of a Marginal PAN victory in 2007/2008 on future export growth is still observed into 2013, after the US economic crisis had largely subsided. Hence, we believe these results are not contingent to the crisis[18]. Panels B and C of Table 9 evaluate the short and long term effects of a marginal PAN victory on the probability for a firm to lose an export relationship with foreign country for a given product. Results largely show a null effect. In the context of the negative and significant effects observed at the intensive margin, the evidence is consistent with firms adapting to the increasingly violent environment by reducing the intensity of their ongoing export relationships, but not by disproportionately rescinding on these relationships. This finding can be interpreted as consequence of increasing marginal costs of exporting with fixed and sunk costs of developing export relationships.[19]

6.2 Cartel Presence and North vs. South

The finding that the effects of a marginal PAN win are contingent on the period of the war on drugs suggests that they are a consequence of the war. However, it could still be argued that it may be an effect of the specific characteristics of local PAN rule during that same period. An alternative test of whether these effects are driven by the war on drugs, as opposed to other current local PAN rule dynamics, is to verify whether the effects are concentrated on areas where the war on drugs was implemented. First, a marginal PAN victory should have not led to increasing violence in municipalities where there was no presence of drug cartels at the onset of the war. Second, as discussed above, violence increases should be more prevalent in northern Mexico.

Table **??** shows similar regression discontinuity estimates, evaluating how the effects of a marginal PAN victory are contingent on baseline cartel presence[20]. Panel A shows

[18]Sadly, we cannot perform difference in difference estimations for this longer time span, as data is not available for years before 2004.

[19]For a theoretical motivation behind the margins of adjustment see Melitz (2003), and for an estimation on the relevance of each method of adjustment in trade see Helpman, Melitz, and Rubinstein (2008)

[20]We take municipality-year estimates of cartel presence from Coscia and Ríos (2012).

Table 7: **Firm-level regressions for municipalities**

	(1)	(2)	(3)	(4)	(5)
Panel A: Log export growth between 2007-2010, Close Elections from 2007/2008					
PAN win	-0.14***	-0.14**	-0.14***	-0.21**	-0.22**
	(0.05)	(0.06)	(0.05)	(0.09)	(0.09)
Observations	17,348	17,348	17,348	17,348	14,647
R-squared	0.00	0.02	0.05	0.15	0.12
Panel B: Log export growth between 2004-2007, Close Elections from 2007/2008					
PAN win	0.09	0.13*	0.05	0.10	0.29***
	(0.07)	(0.07)	(0.08)	(0.10)	(0.07)
Obs	20,914	20,914	20,914	20,914	17,338
Rsq	0.00	0.02	0.04	0.15	0.12
Panel C: Log growth export growth, Simple Diff-in-Diff Close Elections from 2007/2008					
PAN win *Post	-0.14***	-0.14***	-0.14***	-0.14***	-0.14***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Obs	38,262	38,262	38,262	38,262	34,908
Rsq	0.01	0.01	0.02	0.08	0.06
Panel D: Log export growth, Full Diff-in-Diff Close Elections from 2007/2008					
PAN win *Post	-0.14***	-0.21**	-0.225**	-0.22**	-0.19**
	(0.02)	(0.09)	(0.09)	(0.08)	(0.08)
Obs	38,262	38,262	38,262	38,262	34,908
Rsq	0.01	0.01	0.02	0.08	0.06
Fixed Effects	None	Country	Product	Country Product	Country Product Industry

Notes: Columns 1-5 report OLS regressions because exports are obtained from administrative level data, and are unlikely to suffer from under-reporting. Standard errors are clustered at the municipality level. The sample is comprised of triples firms-country of destination-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections and (ii) the dependent variable for the triple is positive over the new incumbent's term.

Table 8: **Firm-level regressions for placebo municipalities with close elections in 2004/2005**

	(1)	(2)	(3)	(4)	
Panel A: Log export growth between 2007-2010, Close Elections from 2004/2005					
PAN win	0.07	0.09	0.02	-0.01	0.15*
	(0.08)	(0.07)	(0.10)	(0.08)	(0.09)
Observations	13,201	13,201	13,201	13,201	11,569
R-squared	0.00	0.01	0.06	0.15	0.12
Panel B: Log export growth between 2004-2007, Close Elections from 2004/2005					
PAN win	0.05**	0.01	0.09***	0.11*	-0.10**
	(0.02)	(0.06)	(0.03)	(0.05)	(0.05)
Obs	16,601	16,601	16,601	16,601	14,113
Rsq	0.00	0.01	0.05	0.15	0.12
Panel C: Log growth export growth, Simple Diff-in-Diff Close Elections from 2004/2005					
PAN win	-0.04	-0.04	-0.04	-0.05	-0.07
*Post	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Obs	29,802	29,802	29,802	29,802	27,341
Rsq	0.01	0.01	0.03	0.08	0.06
Panel D: Log export growth, Full Diff-in-Diff Close Elections from 2004/2005					
PAN win	-0.04	0.04	0.01	-0.01	0.00
*Post	(0.04)	(0.11)	(0.09)	(0.10)	(0.11)
Obs	29,802	29,802	29,802	29,802	27,341
Rsq	0.01	0.01	0.03	0.08	0.06
Fixed Effects	None	Country	Product	Country Product	Country Product Industry

Notes: Columns 1-5 report OLS regressions because exports are obtained from administrative level data, and are unlikely to suffer from under-reporting. Standard errors are clustered at the municipality level. The sample is comprised of triples firms-country of destination-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections and (ii) the dependent variable for the triple is positive over the new incumbent's term.

Table 9: **Long-term intensive-margin regression and extensive-margin regressions**

	(1)	(2)	(3)	(4)	(5)
Panel A: Log growth factor of exports between 2007-2013, Close Elections from 2007/2008					
PANwin	-0.14***	-0.13***	-0.12***	-0.13**	-0.14***
	(0.05)	(0.05)	(0.04)	(0.06)	(0.04)
Observations	14,264	14,264	14,264	14,264	12,223
R-squared	0.00	0.03	0.06	0.17	0.12
Panel B: Relationship disappearance between 2007-2010, Close Elections from 2007/2008					
PANwin	-0.04	-0.07	-0.06	-0.07	0.05
	(0.09)	(0.06)	(0.09)	(0.07)	(0.06)
Observations	41,900	41,900	41,900	41,900	34,539
R-squared	0.01	0.12	0.08	0.29	0.29
Panel C: Relationship disappearance between 2007-2013, Close Elections from 2007/2008					
PANwin	-0.08	-0.10*	-0.09	-0.08	0.05
	(0.08)	(0.05)	(0.08)	(0.05)	(0.04)
Observations	41,900	41,900	41,900	41,900	34,539
R-squared	0.02	0.10	0.09	0.27	0.28
Fixed Effects	None	Country	Product	Country Product	Country Product Industry

Notes: Columns 1-5 report OLS regressions because exports are obtained from administrative level data, and are unlikely to suffer from under-reporting. Standard errors are clustered at the municipality level. The sample is comprised of triples firms-country of destination-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections. for the intensive margin the second condition (ii) is that the dependent variable for the triple is positive over the period after the election. For the extensive margin we show whether a firm stopped exporting afterwards.

results for the sample of municipalities with close elections in 2007 and 2008. Regressions 1 and 5 show that a marginal PAN win in municipalities with baseline cartel presence associates with a 14% to 23% drop in export growth rates between 2007 and 2010, while regressions 2 and 6 show null effects in municipalities without baseline cartel presence. Regressions 3 and 7 show "simple" difference in difference estimates between municipalities with and without cartel presence, showing a negative effect of a marginal PAN victory on export growth factors of about 20%. Finally, regressions 4 and 8 capture a triple difference in difference estimate interacting the previous difference in difference with pre and post treatment status. In this setting, a marginal PAN victory in municipalities with baseline cartel presence during the war on drugs associates with a drop in export growth factors of about 13%. Panel B of the table show similar estimates for a placebo sample of municipalities with close elections in 2004 and 2005, showing largely null estimates throughout.

Table 11 follows a similar strategy but for northern parts of the country -where violence increases concentrated- and southern parts -where violence was not as intensely affected.[21] For Panel A, regressions 1 and 5 show that a marginal PAN win in northern municipalities also associates with a 14% to 23% drop in export growth rates between 2007 and 2010, while regressions 2 and 6 show null effects in southern municipalities. Regressions 3 and 7 show a negative difference in difference effect of a northern marginal PAN victory on export growth factors between 35% and 42%. Finally, regressions 4 and 8 also show negative triple difference in difference effects of about 13%. Panel B shows results for the sample of municipalities with close elections in 2004 and 2005, yielding largely null results.

6.3 Effect Heterogeneity: Size, Product Complexity and Input dependence

There are many possible mechanisms through which violence may disrupt the exporting activities of local firms. Violence may prevent a firm's capacity to source the necessary human capital for its operations; it may hamper the capacity for firms to raise capital and leverage their operations; and it may disrupt the transportation of inputs and outputs. Effects may be more relevant for smaller firms on which the added operating costs of violence may be more onerous, or on larger firms which may have a higher chance for some aspect of their operations to be disrupted by violence.

Ideally, to assess which of these channels may be operating, we would evaluate how a firm's size and its reliance on human capital, capital, finance and transportation services affect the degree to which a marginal PAN victory determines export performance.

[21] The North-South segmentation was determined by the median latitude among the municipalities in the respective sample of close elections

Table 10: **Regression in municipalities with and without baseline cartel presence**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Log growth exports from 2007/2010, Close Elections from 2007/2008								
PANwin	-0.216**	-2.976			-0.209**	-0.281		
	(0.0885)	(2.825)			(0.0868)	(1.174)		
Cartels			-0.271**				-0.227	
*PANwin			(0.117)				(0.200)	
Cartels				-0.138***				-0.133***
*PANwin*Post				(0.0212)				(0.0248)
Observations	15,939	1,409	17,348	38,262	14,170	95	14,647	34,908
R-squared	0.135	0.899	0.152	0.081	0.115	0.546	0.116	0.064
Fixed	Country	Country	Country	Country	Country	Country	Country	Country
Effects	Product	Product	Product	Product	Product	Product	Product	Product
					Industry	Industry	Industry	Industry
Cartel	Present	Absent	DiD	DiD	Present	Absent	DiD	DiD
Panel B: Log growth exports 2004/2007, Close Elections from 2004/2005 (Placebo)								
PANwin	0.00448	0.346			0.177*	3.776		
	(0.0938)	(0.716)			(0.0869)	(2.897)		
Cartels			-0.0415				0.230**	
*PANwin			(0.0725)				(0.110)	
Cartels				-0.0438				-0.0612
*PANwin*Post				(0.0401)				(0.0467)
Observations	12,772	429	13,201	29,802	11,340	104	11,569	27,341
R-squared	0.145	0.771	0.150	0.081	0.117	0.522	0.118	0.059
Fixed	Country	Country	Country	Country	Country	Country	Country	Country
Effects	Product	Product	Product	Product	Product	Product	Product	Product
					Industry	Industry	Industry	Industry
Cartel	Present	Absent	DiD	DiD	Present	Absent	DiD	DiD

Notes: Columns 1-8 report OLS regressions because exports are obtained from administrative level data, and are unlikely to suffer from under-reporting. Standard errors are clustered at the municipality level. The sample is comprised of triples firms-country of destination-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections and (ii) the dependent variable for the triple is positive over the new incumbent's term. We measure cartel presence in before the relevant election using data constructed by Coscia and Rios (2012). The variable cartels is a dummy that determines whether there was cartel presence in a municipality. The variable post represents a value of 1 after an election and 0 before.

Table 11: **Regressions in northern and southern municipalities**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Log growth exports 2007/2010, Close Elections from 2007/2008								
PANwin	-0.149**	0.870			-0.267**	0.992		
	(0.0665)	(2.223)			(0.0966)	(0.625)		
North*			-0.355**				-0.537*	
PANwin			(0.156)				(0.297)	
North*				-0.140***				-0.136***
PANwin*Post				(0.0221)				(0.0264)
Observations	15,682	1,627	17,309	38,154	14,033	261	14,622	34,834
R-squared	0.128	0.816	0.152	0.080	0.114	0.500	0.116	0.064
Fixed	Country	Country	Country	Country	Country	Country	Country	Country
Effects	Product	Product	Product	Product	Product	Product	Product	Product
					Industry	Industry	Industry	Industry
North	Yes	No	DiD	DiD	Yes	No	DiD	DiD
Panel B: Log growth exports 2004/2007, Close Elections from 2004/2005								
PANwin	0.140	0.454**			0.538*			
	(0.101)	(0.110)			(0.213)			
North*PANwin			-0.149				-0.224	
			(0.192)				(0.378)	
North*PANwin*Post				-0.0468				-0.0676
				(0.0456)				(0.0534)
Observations	9,479	71	9,550	21,674	8,197	20	8,240	19,599
R-squared	0.172	0.931	0.174	0.093	0.135	0.698	0.136	0.068
Fixed	Country	Country	Country	Country	Country	Country	Country	Country
Effects	Product	Product	Product	Product	Product	Product	Product	Product
					Industry	Industry	Industry	Industry
North	Yes	No	DiD	DiD	Yes	No	DiD	DiD

Notes:Columns 1-8 report OLS regressions because exports are obtained from administrative level data, and are unlikely to suffer from under-reporting. Standard errors are clustered at the municipality level. The sample is comprised of triples firms-country of destination-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections and (ii) the dependent variable for the triple is positive over the new incumbent's term. To measure North and South we divide municipalities by separating Mexico in two areas using the median latitude. The variable North is a dummy that determines whether the location was above or below the median latitude. The variable post represents a value of 1 after an election and 0 before.

However, given the features of our administrative data, we can only make this assessment directly for the workforce size of exporters. Nevertheless, we are able to build from input dependence metrics at the exported product level to assess whether the negative regression discontinuity effects documented above are larger for product groups that disproportionately depend on a given input or not.

For exporter size, we split the sample of exporters around the median workforce size in the distribution of single-municipality exporters of 2007. Furthermore, we test for five different product segmentations.[22] The measures are suggestive of the channels through which violence might be affecting export growth:

- Product Complexity: This metric from Hausmann et al. (2011) empirically approximates the diversity on the productive capacities required to export a product competitively from a given country. Hence, it can be thought of as a measure of the intensity of input complementarity for a given product.

- Capital dependence: This metric from Shirotori et al (2010) captures the Revealed Capital Intensity of the product from international trade patterns and national capital endowments of their competitive exporters.

- Human capital dependence: Also from Shirotori et al (2010), this measure captures the Revealed Human Capital Intensity of the product from international trade and national human capital endowment patterns.

- Finance dependence: This metric from Kaplan and Zingales (1997) and subsequent work by Lamont et al (2001), measures a product's dependence in external capital for its production. Cash crops with fast turnaround -like tobacco- are in the bottom of the finance dependence list, while sectors that require long-term leverage for their working capital -like medicines- are in the top of the list.

- Trucking dependence: We build this metric according to a product's appeared dependence on trucking services as measured in the US input-output tables.

Table 12 shows the correlations between the product complexity and input dependence scores for capital, human capital, finance and trucking. Table 13 shows regression discontinuity estimates of the effects of a PAN victory in a close municipality election in 2007 and 2008 on export growth between 2007 and 2010, conditioning for exporter size groups or for product groups with high and low complexity or input dependence levels[23]. Panel A includes country of destination/product fixed effects, while Panel B

[22] All input dependence metrics are converted into the 1992 version of the Harmonized System of product classification. Export data for some products cannot be matched to input dependence scores, so that export data for these products cannot be used for the subsequent analyses.

[23] The segmentation on high and low levels of complexity or input dependence was set at their respective median values in the product distribution

Table 12: **Correlation in product-level complexity and input dependence**

	Product Complexity	Capital Dependence	Human Capital Dependence	Ext. Finance Dependence	Trucking Dependence
Product Complexity	1				
Capital Dependence	0.79	1			
Human Capital Dependence	0.71	0.80	1		
External Finance Dependence	0.36	0.28	0.25	1	
Trucking Dependence	-0.05	-0.05	-0.01	-0.38	1

adds firm industry fixed effects. Results suggest that the negative effects of the war on drugs are either contingent to or appear more detrimental for larger exporters, high complexity products, capital intensive products, human capital intensive products, finance dependent products[24] and products that do not rely heavily on trucking services.

[24]Estimates between high and low finance dependence coefficients only seem meaningfully different for the Panel B specification that adds fixed effects for the main activity of the firm.

Table 13: **Heterogeneity in effects by exporter size and product groups (complexity and input dependence)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Panel A: Log growth factor of exports between 2007-2010, Close Elections from 2007/2008, Country/Product Fixed Effects													
PANwin	-0.21**	-0.27***	-0.04	-0.27***	-0.12	-0.32***	-0.06	-0.21**	-0.19	-0.27**	-0.12	0.06	-0.38***
	(0.09)	(0.09)	(0.25)	(0.08)	(0.10)	(0.07)	(0.11)	(0.09)	(0.120)	(0.10)	(0.09)	(0.19)	(0.04)
Obs	17,256	15,706	1,550	12,523	4,733	11,047	6,209	12,329	4,927	11,658	5,598	6,759	10,497
Rsq	0.15	0.16	0.39	0.15	0.17	0.15	0.16	0.16	0.12	0.14	0.18	0.16	0.15
Segment	Full	Large Exporters	Small Exporters	High Complexity	Low Complexity	High Capital Dependence	Low Capital Dependence	High Finance Dependence	Low Finance Dependence	High Human Capital Dependence	Low Human Capital Dependence	High Trucking Dependence	Low Trucking Dependence

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Panel B: Log growth factor of exports between 2007-2010, Close Elections from 2007/2008, Country/Product and Industry Fixed Effects													
PANwin	-0.21**	-0.23***	0.19	-0.27**	0.01	-0.34**	0.00	-0.23***	-0.13	-0.26***	-0.04	0.18	-0.47***
	(0.09)	(0.09)	(0.35)	(0.12)	(0.14)	(0.13)	(0.14)	(0.08)	(0.15)	(0.09)	(0.17)	(0.13)	(0.10)
Obs	14,559	13,284	1,027	10,558	3,959	9,243	5,266	10,307	4,215	9,803	4,709	5,623	8,880
Rsq	0.12	0.12	0.35	0.12	0.15	0.11	0.15	0.13	0.12	0.11	0.16	0.12	0.13
Segment	Full	Large Exporters	Small Exporters	High Complexity	Low Complexity	High Capital Dependence	Low Capital Dependence	High Finance Dependence	Low Finance Dependence	High Human Capital Dependence	Low Human Capital Dependence	High Dependence	Low Dependence

Notes: Columns 1-13 report OLS regressions because exports are obtained from administrative level data, and are unlikely to suffer from under-reporting. Standard errors are clustered at the municipality level. The sample is comprised of triples firms-country of destination-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections and (ii) the dependent variable for the triple is positive over the new incumbent's term. We divide below and above median by product characteristics. Product Complexity: This metric from Hausmann et al. (2011) empirically approximates the diversity on the productive capacities required to export a product competitively from a given country. Capital dependence: This metric from Shirotori et al (2010) captures the Revealed Capital Intensity of the product from international trade patterns and national capital endowments of their competitive exporters. Human capital dependence: Also from Shirotori et al (2010), this measure captures the Revealed Human Capital Intensity of the product from international trade and national human capital endowment patterns.Finance dependence: This metric from Kaplan and Zingales (1997) and subsequent work by Lamont et al (2001), measures a product's dependence in external capital for its production. Trucking dependence: We build this metric according to a product's appeared dependence on trucking services as measured in the US input-output tables.

Table 14: **Regression on local greenfield CAPEX**

	(1)	(2)	(3)	(4)
Greenfield CAPEX (MM US$), Close Elections from 2007/2008 Weighted by Population (2005)				
PANwin	-2,294**	-378.4		
	(891.5)	(628.4)		
PANwin*Post			213.0	-1,916*
			(860.2)	(1,094)
Observations	21	18	39	39
R-squared	0.522	0.051	0.337	0.510
Specification	2007-2010	2004-2007	Simple DiD	Full DiD

The learning from this exercise is consistent with important stylized facts of trade. Exporters tend to be firms that rely more on fixed capital and skill intensity.[25] In our results, the negative effect on exports is more pronounced precisely on these industries.

7 Effects on greenfield investment CAPEX

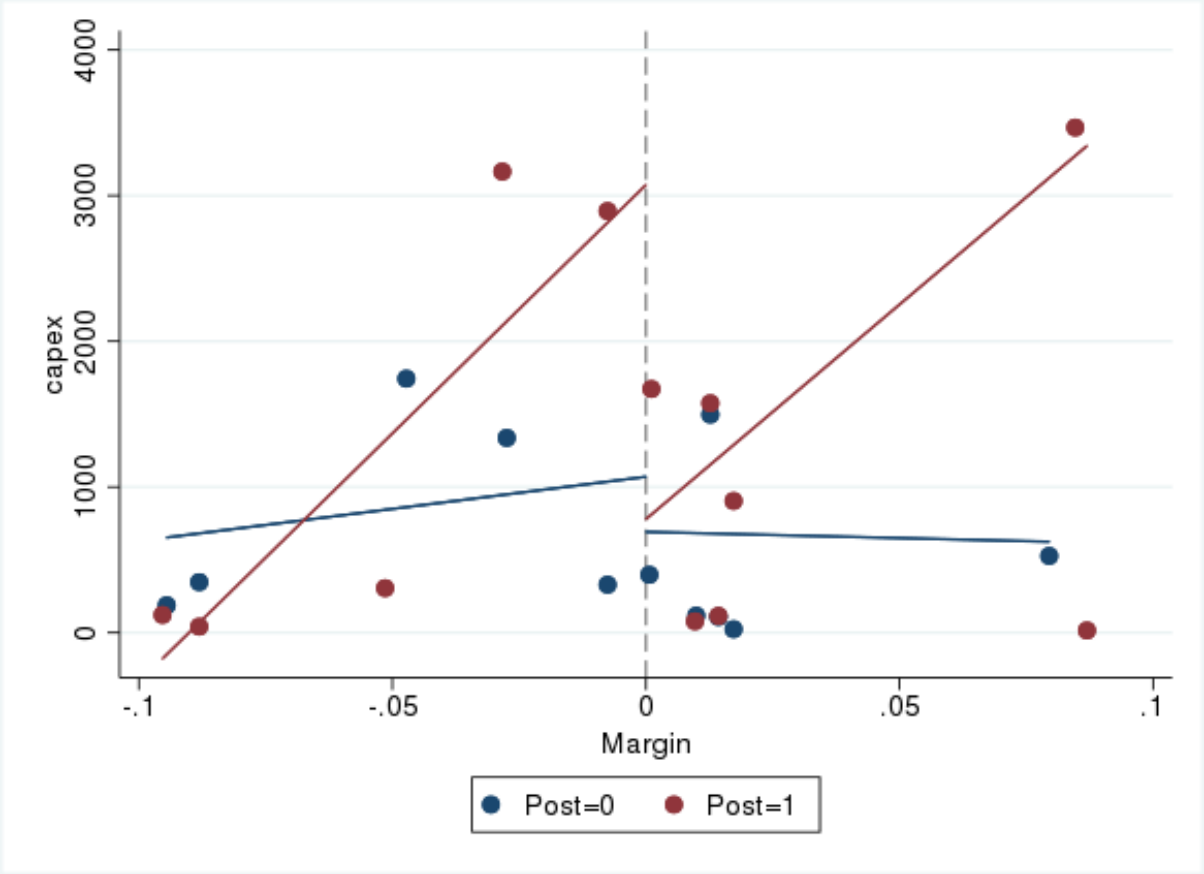
While the data we have used thus far can help us assess the effects of the war on drugs on the growth in exports and the disappearance of export relationships, it does not allow us to assess the capacity for a locality to attract new projects from outside investors. For this purpose, we would need a yearly dataset on greenfield investments, identifying the destination municipality and the magnitude invested in the project. To our knowledge, such data is not available in Mexican statistical or administrative sources.

For this purpose, we use data from fDi Markets, a service from the Financial Times with a comprehensive database of crossborder greenfield investments covering all countries and sectors worldwide, documenting every investments' capital expenditures. From this investment specific dataset we build an aggregate dataset of the CAPEX received by a municipality between 2003 and 2006 (pre-treatment), and between 2007 and 2010 (post-treatment). After restricting our sample to municipalities with close elections in 2007 or 2008[26], we retain CAPEX data for 39 municipalities. Table 14 shows that regression discontinuity results for the post-treatment period and for a "full" difference in difference estimate with the timing of treatment both find that a marginal PAN victory associates with a reduction in CAPEX between 2007 and 2010 of $ 2 billion. Figure 6 provides a visual representation of the estimates.

[25] See Mayer and Ottaviano (2008)

[26] We expand the electoral bandwidth to 10% in order to gain more observations and reduce the variance in the estimates.

Figure 6: Greenfield CAPEX as a function of the electoral discontinuity, pre-treatment vs. post-treatment.



8 Conclusion

The Mexican Drug War has drawn the attention of the population, the media and the academia because of the scale of its consequences. We confirm the results in Dell (2015), who provides evidence that homicides increase disproportionately in municipalities where the rollout of the war effort was supported by PAN mayors. We provide evidence that other crimes increased as well, albeit our estimates are only suggestive. These overall increases in crimes suggest other potential unintended consequences of the Drug War.

We take a step further and try to assess how the Drug War affected the real economy. We document a negative change in trade patterns, with export growth decreasing significantly after a close PAN win. The declines do not depend on whether the destination is a main international drug trade route through Mexico. We argue that a direct, reduced-form approach would yield lower-bound estimates of the negative economic effects of increased violence, and we provide placebo estimates on previous elections, regions without baseline Cartel presence and regions facing low violence increases to test the direct economic effects of narrow PAN victories outside the context of the Mexican Drug War. We interpret our results as evidence of external effects from the Drug War, as effects are not observed outside the temporal and geographic context of the Drug War.

Observing firm-level microdata, we find that firms locating in a municipality that was exposed to a PAN mayor faced lower export growth rates, but we do not find a higher probability of firm exit from product-country markets. This is consistent with the view that violence increases the marginal costs of exporting, but does not affect the fixed costs of sustaining trading relationships. Additionally, we find that the effects are stronger for larger exporters, as well as for exports of more complex, more capital-intensive, more skill-intensive and more finance-dependent products.

The main results suggest that violence can negatively affect trade at the local level. In the case of Mexico, the Drug War policy did not only cost lives, but damaged the export capacity of firms in the most affected locations.

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10 Appendix

Table A1: **Effect on other crimes**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS		WLS		OLS		WLS	
	Panel A: Robbery (business establishments)				*Panel B: Assaults*			
PAN win	7.9	29.8**	46.5	68.5	13.5	42.6	142.9**	192.8
	(7.491)	(14.839)	(35.284)	(45.864)	(17.919)	(37.687)	(66.821)	(119.079)
Linear polynomial	No	Yes	No	Yes	No	Yes	No	Yes
Observations	139	139	139	139	139	139	139	139
R-squared	0.008	0.043	0.106	0.143	0.004	0.050	0.175	0.235
	Panel C: Extortion				*Panel D: Kidnapping*			
PAN win	-0.5	-0.5	1.7	4.7*	-0.4	0.1	0.3	1.4
	(0.685)	(1.456)	(2.189)	(2.646)	(0.303)	(0.558)	(0.643)	(1.026)
R-squared	0.004	0.041	0.026	0.169	0.011	0.018	0.006	0.098
	Panel E: Robbery (banks branches, cash-in-transit vehicles)				*Panel F: Robbery (all cases, excluding business and banks)*			
PAN win	0.4	0.6	1.3	2.8*	39.8	254.4**	455.0	917.1***
	(0.301)	(0.423)	(0.865)	(1.616)	(65.096)	(126.760)	(299.769)	(345.038)
R-squared	0.015	0.019	0.118	0.323	0.003	0.049	0.123	0.217

Notes: Columns 1-2 and 5-6 report standard OLS regressions. Columns 3-4 and 7-8 report weighted regressions. Weights are determined by population size in 2005. In all panels the dependent variables are averages of a certain crime type per 100,000 population in 2011. In panel A the dependent variable is robberies that targeted business establishments (including cargo theft); in Panel B, assaults; in panel C, extortions; in Panel D, kidnapping; in Panel E, robberies that targeted bank branches and cash-in-transit vehicles; and in Panel F, robberies (excluding business and banks). For all regressions, the sample is comprised of municipalities where crime data is available and where PAN won or lost by a margin smaller than 5% in the 2004 and 2005 elections. Robust standard errors are reported in parentheses.

Table A2: **Effect on homicides, 3% spread**

	(1)	(2)	(3)	(4)	(5)	(6)
	Standard OLS			Weighted OLS (Population 2005)		
Panel A: Average homicide 3 years after election						
PAN win	-0.66	-0.20	-0.20	28.97**	47.91**	47.91**
	(6.83)	(9.06)	(6.26)	(13.87)	(18.87)	(19.36)
Linear polynomial	No	Yes	Yes	No	Yes	Yes
Cluster: state level	No	No	Yes	No	No	Yes
Observations	123	123	123	123	123	123
R-squared	0.000	0.005	0.005	0.185	0.306	0.306
Panel B: Average homicide 3 years before election						
PAN win	1.29	1.48	1.48	4.23	2.40	2.40
	(3.38)	(4.41)	(3.29)	(3.15)	(4.57)	(4.85)
R-squared	0.001	0.004	0.004	0.049	0.057	0.057
Panel C: Average homicide 3 years after election minus 3 years before election						
PAN win	-1.95	-1.68	-1.68	24.74**	45.51***	45.51**
	(5.74)	(7.68)	(4.84)	(11.75)	(17.29)	(18.01)
R-squared	0.001	0.004	0.004	0.182	0.340	0.340

Notes: Columns 1-3 report standard OLS regressions. Columns 4-6 report weighted regressions. Weights are determined by population size in 2005. The dependent variable in panel A is average annual homicides per 100,000 population in the three years following local elections; in panel B the dependent variable is average annual homicides per 100,000 population in the three years preceding local elections; and in Panel C the dependent variable is the difference between the panel the dependent variables of panels A and B. For all regressions, the sample is comprised of municipalities where PAN won or lost by a margin smaller than 3% in the 2007 and 2008 elections. Robust standard errors are reported in parentheses.

Table A3: **Effect on homicides, RD polynomials**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS				WLS (Pop. 2005)			
Panel A: Average homicide 3 years after election, 5% spread								
PAN win	0.79	-0.25	20.92	27.27	41.22*	52.98***	53.04**	68.11**
	(7.30)	(6.41)	(32.52)	(35.61)	(19.79)	(17.57)	(21.86)	(23.88)
Degree of polynomial	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Observations	198	198	198	198	198	198	198	198
R-squared	0.00	0.01	0.04	0.05	0.25	0.30	0.30	0.33
Panel A: Average homicide 3 years after election, total sample								
PAN win	3.30	3.62	4.31	0.21	14.86	24.61**	31.65*	47.36**
	(2.13)	(3.33)	(6.02)	(5.83)	(9.94)	(11.46)	(15.61)	(22.20)
Observations	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416
R-squared	0.00	0.00	0.01	0.01	0.02	0.03	0.03	0.05

Notes: Columns 1-4 report standard OLS regressions. Columns 5-8 report weighted regressions. Weights are determined by population size in 2005. The dependent variable is average annual homicides per 100,000 population in the three years following local elections. In Panel A, the sample is comprised of municipalities where PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections. In Panel B the sample is comprised of all municipalities in which elections occurred in 2007 and 2008. All standard errors are clustered at the state level.

Table A4: **Exports per region**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS				WLS (Pop. 2005)			
Panel A: Europe								
PAN win	-0.14**	-0.22*	-0.23**	-0.11	-0.16*	-0.14	-0.12	0.01
	(0.06)	(0.12)	(0.12)	(0.11)	(0.09)	(0.16)	(0.16)	(0.22)
Linear RD Polynomial	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Country of destination FE	No	No	Yes	No	No	No	Yes	No
Product-country of destination FE	No	No	No	Yes	No	No	No	Yes
Observations	2,924	2,924	2,922	2,453	2,924	2,924	2,922	2,453
R-squared	0.00	0.00	0.02	0.67	0.00	0.00	0.03	0.69
Panel B: Bolivia, Colombia and Peru								
PAN win	-0.43**	-0.88***	-0.87***	-0.51**	-0.61**	-1.15***	-1.14***	-0.77*
	(0.19)	(0.22)	(0.22)	(0.22)	(0.25)	(0.41)	(0.41)	(0.39)
Observations	1,013	1,013	1,013	857	1,013	1,013	1,013	857
R-squared	0.02	0.03	0.03	0.62	0.03	0.04	0.04	0.69
Panel C: United States								
PAN win	-0.14**	-0.39***		-0.22	-0.16*	-0.55***		-0.47***
	(0.07)	(0.12)		(0.15)	(0.08)	(0.14)		(0.15)
Observations	4,363	4,363		4,185	4,363	4,363		4,185
R-squared	0.00	0.00		0.30	0.00	0.00		0.36
Panel D: China								
PAN win	0.04	-0.53		-1.08**	-0.04	-1.25***		-1.61***
	(0.19)	(0.42)		(0.41)	(0.22)	(0.38)		(0.44)
Observations	330	330		284	330	330		284
R-squared	0.00	0.01		0.51	0.00	0.01		0.54

Notes: Columns 1-4 report standard OLS regressions; columns 5-8 report weighted regressions. Weights are determined by population size in 2005. Standard errors are clustered at the municipality level. In all panels, the dependent variable is the natural logarithmic of total exports in the final year of the new incumbent's term, divided by total exports in the year when elections took place. The sample is comprised of triples municipality-country of destination-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections and (ii) the dependent variable for the triple is positive over the new incumbent's term. When the region is comprised of a single country, product-country of destination dummies are actually product dummies, and the regressions with country of destination dummies are redundant.

Table A5: **Imports per region**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS				WLS (Pop. 2005)			
Panel A: Europe								
PAN win	0.05	-0.12	-0.15	-0.17	0.10	-0.00	-0.07	-0.11
	(0.11)	(0.15)	(0.14)	(0.12)	(0.10)	(0.15)	(0.12)	(0.08)
Linear RD Polynomial	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Country of origin FE	No	No	Yes	No	No	No	Yes	No
Product-country of origin FE	No	No	No	Yes	No	No	No	Yes
Observations	5,922	5,922	5,921	4,762	5,922	5,922	5,921	4,762
R-squared	0.00	0.00	0.02	0.32	0.00	0.00	0.02	0.44
Panel B: Bolivia, Colombia and Peru								
PAN win	-0.21	0.04	-0.12	0.87	-0.39*	0.32	0.22	1.16**
	(0.26)	(0.33)	(0.31)	(0.63)	(0.20)	(0.37)	(0.34)	(0.55)
Observations	106	106	106	68	106	106	106	68
R-squared	0.00	0.01	0.05	0.59	0.01	0.03	0.06	0.74
Panel C: United States								
PAN win	-0.07	-0.16		-0.13	-0.08**	-0.12		-0.13
	(0.05)	(0.11)		(0.12)	(0.03)	(0.08)		(0.09)
Observations	6,264	6,264		6,106	6,264	6,264		6,106
R-squared	0.00	0.00		0.20	0.00	0.00		0.29
Panel D: China								
PAN win	-0.19	-0.43**		-0.56***	-0.24	-0.44**		-0.60***
	(0.15)	(0.20)		(0.17)	(0.16)	(0.16)		(0.18)
Observations	2,411	2,411		2,252	2,411	2,411		2,252
R-squared	0.00	0.01		0.27	0.00	0.01		0.34

Notes: Columns 1-4 report standard OLS regressions; columns 5-8 report weighted regressions. Weights are determined by population size in 2005. Standard errors are clustered at the municipality level. In all panels, the dependent variable is the natural logarithmic of total imports in the final year of the new incumbent's term, divided by total imports in the year when elections took place. The sample is comprised of triples municipality-country of destination (origin)-product where (i) PAN won or lost by a margin smaller than 5% in the 2007 and 2008 elections and (ii) the dependent variable for the triple is positive over the new incumbent's term. When the region is comprised of a single country, product-country of destination dummies are actually product dummies, and the regressions with country of destination dummies are redundant.