

# Illegal Drug Markets and Violence in Mexico: The market forces beyond Calderon

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# 1. Introduction: The recent Mexican case

- **The Mexican case: Twofold increase in homicide rates in the period 2006-2010**
  - Drug-related homicides increased over 400%, while other homicides increased “only” 70%.
- **Role of Mexico in the cocaine trade**
  - Cocaine is produced in the Andean region (Colombia, Peru, Bolivia)
  - Mexico is the main point of entry into the US: Mexican cartels control over 75% of the drugs entering the US
  - Most cocaine comes in by sea (especially from the Pacific) or in small aircraft (south border), and most of the time is transported into the US territory by land
- **Mexico is also a producer of cannabis and amphetamines**
  - However, about 60% of Mexicans Cartels’ income comes from the cocaine trade (which cannot be produced in Mexico)

# 1. Introduction: The debate in Mexico

- President Felipe Calderon took office in December 2006.
  - Homicide rates started to increase in 2007: **coincidence?**
  - Calderón started his term by declaring an open war on drug cartels, and started a full offensive using all branches of the armed forces against DTOs.
- Calderon's critics have argued that his actions are the main reason behind the violence outburst (Guerrero, 2011; Ríos, 2012; etc...).
  - Before: A few powerful cartels controlled most of the routes and there were relatively few violent disputes between cartels.
  - The Mexican armed forces have beheaded many cartels, splitting them into smaller factions and generating pronounced cycles of violence. Killing or capturing cartel leaders has also led to internal disputes over the control of drug routes, generating more violence (Guerrero, 2011).
  - Dell (2012) and Calderon et al. (2013) quantify the effects of crackdowns on DTOs on the levels of violence in Mexico.

# 1. Introduction: The role of Colombian policies

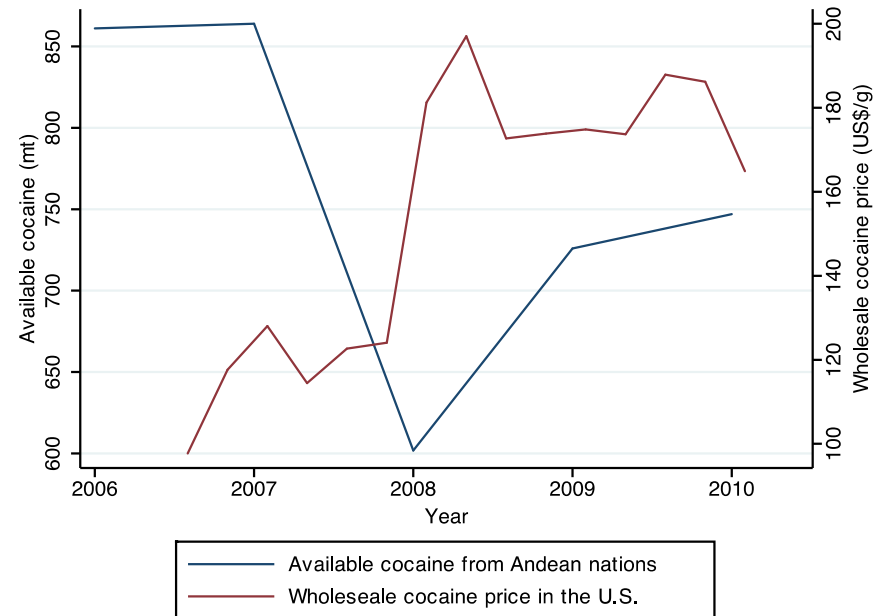
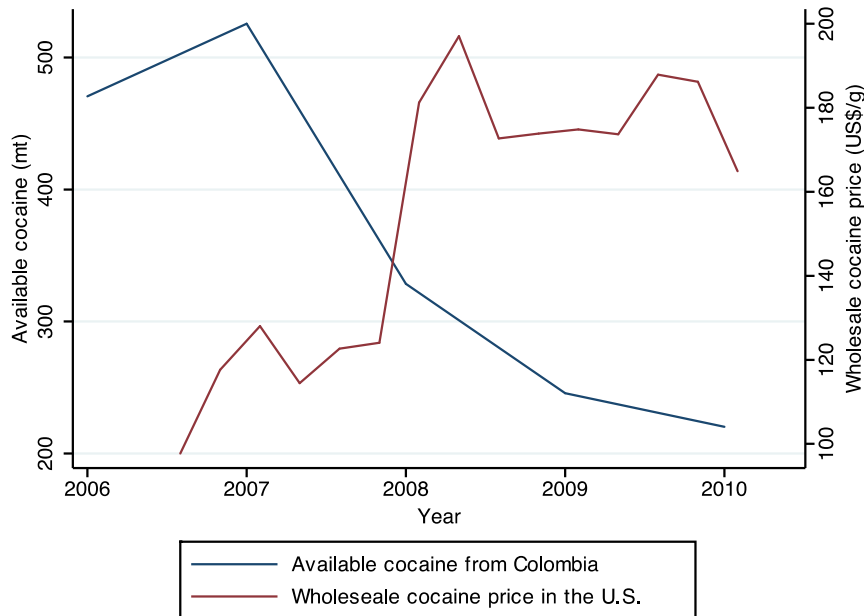
- Compelling as the previous arguments may be, the debate in Mexico has completely ignored another major change that took place roughly at the same time that Calderon took office: a large increase in cocaine seizures in Colombia as a result of a change in the anti-drug strategy in Colombia.
- When Juan Manuel Santos became Minister of Defense in Colombia in July 2006, he redefined the anti-drug strategy, making less emphasis in attacking those parts of the drug production chain that produce lower value added (coca crops) and more on the interdiction of drug shipments and the detection and destruction of cocaine processing labs.
- While the numbers of hectares of coca crops sprayed went down from 172,000 per year in 2006 to about 104,000 in 2009 (a 40% decrease), cocaine seizures went up from 127 MT in 2006 to 203 MT in 2009 (a 60% increase), and the number of cocaine processing labs destroyed from about 2,300 to about 2,900 during the same period (a 26% increase).

# 1. Introduction: The role of Colombian policies

- The change in the Colombian anti-drug strategy induced a huge negative supply shock in cocaine markets (50% decline in Colombian net cocaine supply) that was noticeable throughout the region (and even in cocaine street prices in the U.S).
- The price per pure gram in the streets of the U.S. went up from about \$135 in 2006 to about \$185 in 2009 for purchases of two grams or less, and from \$40 to \$68 for purchases between 10 and 50 grams during the same period.
- This supply shock induced a re accommodation of the cocaine production and trafficking business throughout the region.
- Our story: Displacement effects (and market forces) from Colombia to Mexico have played a substantial role in explaining the rise in drug trafficking activities and violence in Mexico.
- Our story does not preclude other explanations such as the role of Calderon's policies in the rising levels of violence. We simply believe that the second reason has been mostly ignored in the Mexican debate.

# 1. Stylized facts: Cocaine supply shock and cocaine prices

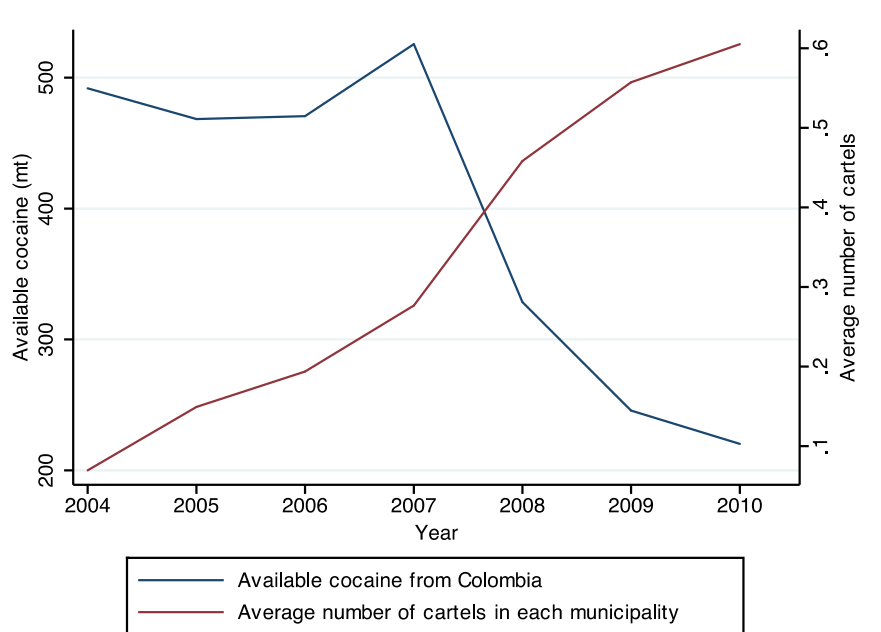
## Net cocaine supply from Colombia and cocaine prices in the U.S.



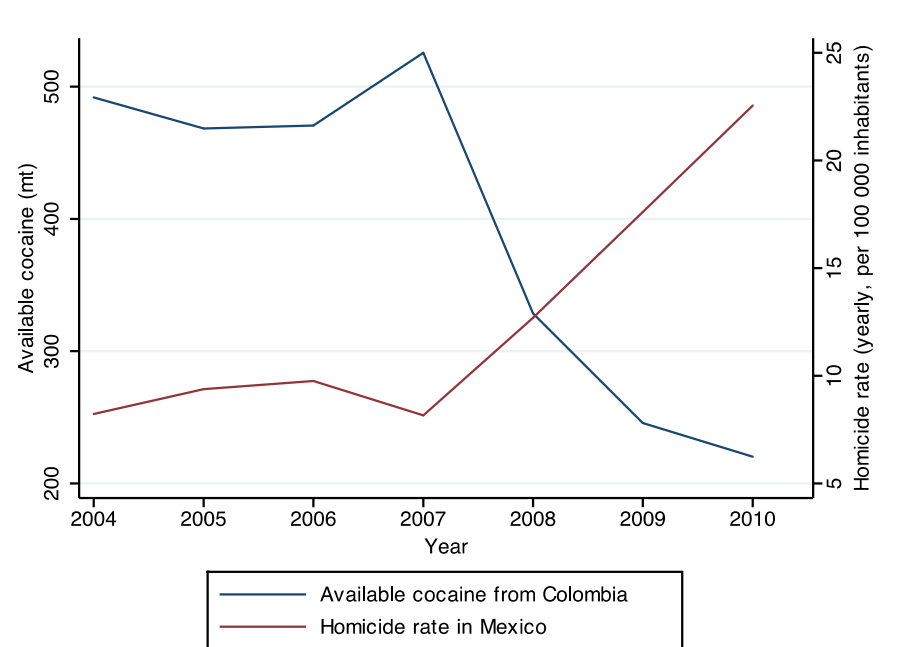
# 1. Stylized facts: Supply shock from Colombia and drug trafficking and violence in Mexico

## Net cocaine supply from Colombia and....

### Number of cartels per municipality



### Homicide rate in Mexico



## 2. This paper's contribution

- This paper:
  1. Quantifies the (causal) effect of the size (or intensity) of drug trafficking activities on the levels of violence in Mexico between 1990 (2007) and 2010.
  2. Quantifies the role of anti-drug policies implemented in Colombia in the rise of drug trafficking and violence in Mexico (e.g., quantify the so-called ballooning or displacement effects).
  3. The paper is (relatively) silent about the effects of Calderon's policies against DTOs on violence.



## 2. Summary of main results

- ❑ Our estimates show that:
  - Successful interdiction policies implemented in Colombia starting in 2007-2008 explain a non-negligible fraction of the increase in drug trafficking activities and violence in Mexico in the last few years.
- ❑ We find particularly large effects on violence generated by turf wars between DTOs (executions).
- ❑ Effect of drug trafficking activities on violence is only significant for municipalities with presence of two or more cartels.
- ❑ Finally, we do a series of falsification tests (not shown in this presentation) that further corroborate the channel proposed by our identification strategy.

# 3. Main results

- IV estimates

Dependent variable: various homicide rates  
 Total: Total *drug-related* homicides

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Homicide rate	Total	Total	Total	Total	Total	Executions	Aggressions	Confrontations	INEGI	SINAIS
Number of cartels	0.2883*** (0.0410)	0.5056*** (0.0827)	0.5082*** (0.0833)	0.5100*** (0.0839)	0.7947*** (0.2005)	0.7354*** (0.1896)	0.0573** (0.0289)	0.2539*** (0.0892)	0.6828*** (0.1801)	0.7858*** (0.2135)
<b>Controls</b>										
GDP per capita (Mexico)	Yes									
National military expenditure	Yes									
Time fixed effects		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Income			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State presence				Yes	Yes	Yes	Yes	Yes	Yes	Yes
Differential effects by HDI					Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,768	9,768	9,768	9,612	9,608	9,608	9,608	9,608	9,608	9,608

*NOTE:* Robust standard errors with clustering by municipality are shown in parentheses. Coefficients with \*\*\* are significant at the 1% level. Those with \*\* are significant at the 5% level. Those with \* are significant at the 10% level.

# 3. Main results

- IV estimates with different measures of Cartels' presence

	(1)	(2)	(3)	(4)	(5)
Dependent variable: Total drug-related homicide rate					
Number of cartels	0.7723*** (0.1923)				
Presence of cartels		6.7115 (5.8051)		-0.2168 (0.5608)	-0.6449 (0.5395)
Two or more cartels			2.1424*** (0.6465)	2.3191*** (0.7113)	2.3578*** (0.7450)
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Spatial instruments used					
Distance to US border	Yes	Yes	Yes	Yes	Yes
Distance to Pacific Ocean				Yes	
Distance to Pacific Ocean squared				Yes	
Distance to the sea					Yes
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Observations	9,608	9,608	9,608	9,588	9,588

*NOTE:* Robust standard errors with clustering by municipality are shown in parentheses. Coefficients with \*\*\* are significant at the 1% level. Those with \*\* are significant at the 5% level. Those with \* are significant at the 10% level.

# 3. Main results

- Robustness check - IV estimates (proxy of drug trafficking: value of cocaine seized)

Dependent variable: various homicide rates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Homicide rate	Total	Total	Total	Total	Total	Executions	Aggressions	Confrontations	INEGI	SINAIS
Value of cocaine seizures	1.553 (1.353)	1.039** (0.427)	1.043** (0.429)	1.042** (0.429)	1.037** (0.436)	0.846** (0.357)	0.011 (0.017)	0.262** (0.132)	1.104** (0.450)	1.277** (0.543)
Controls										
GDP per capita (Mexico)	Yes									
National military expenditure	Yes									
Time fixed effects		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Income			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State presence				Yes	Yes	Yes	Yes	Yes	Yes	Yes
Differential effects by HDI					Yes	Yes	Yes	Yes	Yes	Yes
Observations	110,475	110,475	110,475	108,627	108,021	108,021	108,021	108,021	108,021	108,021

*NOTE:* Robust standard errors with clustering by municipality are shown in parentheses. Coefficients with \*\*\* are significant at the 1% level. Those with \*\* are significant at the 5% level. Those with \* are significant at the 10% level.

## 4. Interpretation and conclusions

- Clear (causal) effect of drug-trafficking activities on violence in Mexico
  - The effect is strongest on violence generated by clashes between DTOs, but there is also an effect for confrontations between cartels and the government
  - Average number of cartels: 0.194 (2006) – 0.605 (2010)
  - Each additional cartel increases violence by about 120%
  - Increase in homicide rate of 48%
- Cocaine seizures in Colombia increased by 120% between 2006 and 2010
  - This has caused:
    - On average, 0.46 more cartels in municipalities at the US border, and 0.23 more cartels in municipalities 1000 km away from the border
    - Increase in the homicide rate of 37% in municipalities at the US border, and of 17% in municipalities 1000 km away from the border

## 4. Interpretation and conclusions

- Most of the effect occurs in municipalities with two or more cartels
  - Evidence that drug trafficking *per se* is not the cause
  - Instead: the competition between cartels over the control of routes.
- Drug seizures in Colombia have a striking effect on drug trafficking and violence in Mexico
  - Clear evidence of a displacement or “ballooning effect” (first paper that formally quantifies these effects).
  - Successful policies in one country might not be as effective once they are evaluated at the regional level.
- **Our results indicate that drug policies implemented in Colombia account for a non-negligible fraction of the increase in drug trafficking activities and violence observed in Mexico over the last political Sexenium.**