

## What to expect when you are expecting (War is over)

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Stata Conferences  
LATAM

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## Introduction

- *"Every effect has a cause, and every cause has an effect."* - Ralph Waldo Emerson
- *"In this world, everything has a cause and effect. No action occurs without a motive."* - -  
Gautama Buddha
- *"(...) The questions that I find most interesting and where I think econometrics is most exciting, so simple causal questions with a kind of clear policy angle and some kind of credible identification strategy, that allows you to capture **causal effects**"* - Joshua Angrist

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- This work: effects of the end of conflict, in Colombia, between FARC's guerrilla and colombian national government, on health at birth
  - Changes in fetal losses
  - Effects across the health distribution observed at birth
  - Mechanisms of changes in culling effects

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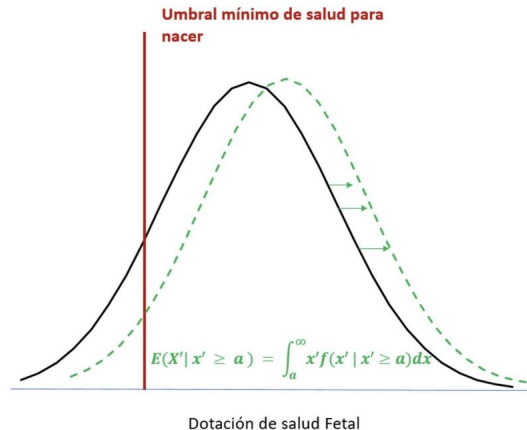
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  - Evidence of mechanism of decrease in culling effects
- Heterogeneous effect: Presence of another illegal armed group made the effect of the cease of fire with FARC null or ambiguous

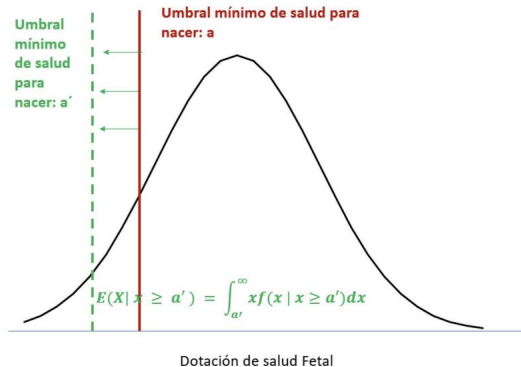
## Conceptual Framework

- Assume a normal distribution of health endowments
- Births are possible above a threshold
- ↓ **scarring** implies a movement of the entire distribution to the right
- ↓ **scarring** implies an improvement of the health at born observed



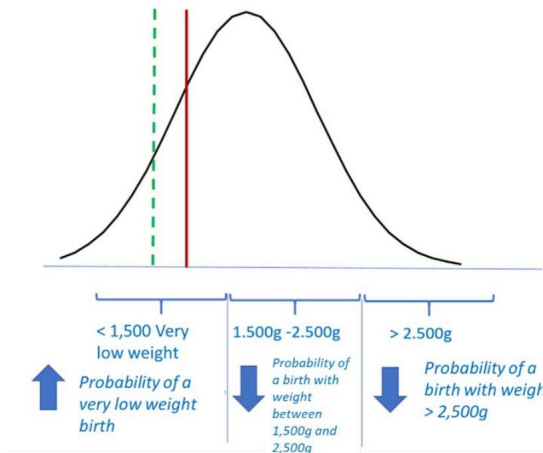
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- ↓ **culling** implies ↓ Probability of the other ranges of weight



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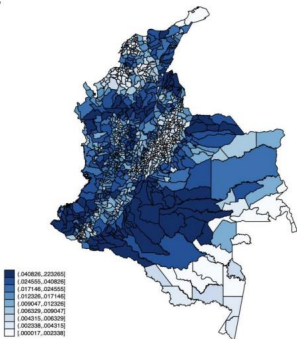
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    - Information period for its construction: 2002-2014
  - The classification of the municipality as PDET, established by the National Restoration Agency
    - It includes: levels of poverty; the degree of affectation derived from the conflict; the weakness of administrative institutions and management capacity; the presence of crops for illicit use and other illegitimate economies.

## Exposure to armed conflict

Mapa 1. Índice de Incidencia del Conflicto Armado en Colombia (2002-2013)

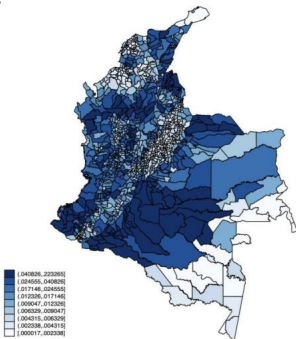


Fuente: elaboración propia a partir de Departamento Nacional de Planeación.

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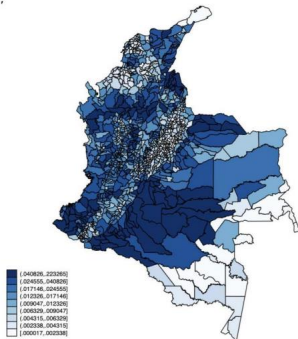
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- Wide territorial coverage of the conflict
- Greater extension of the most exposed municipalities
- Municipal heterogeneity in the affectation of the conflict

## Balance table

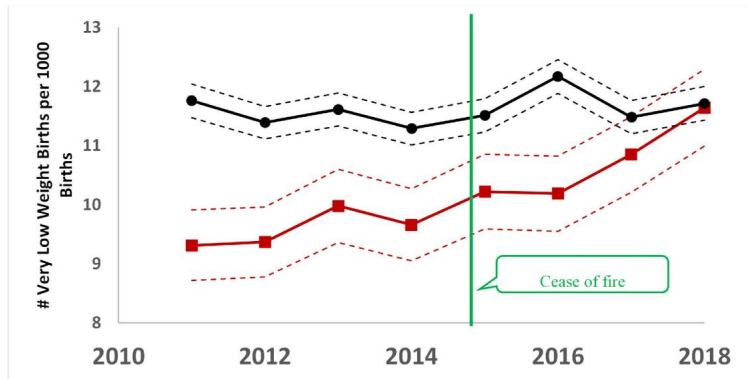
*Table 1. Balance table of PDET and No PDET municipalities*

Variable	Pre: 2011-2014			Post: 2015-2018		
	No PDET	PDET	Difference	No PDET	PDET	Difference
Very Low Weight Births per 1000 Births	11.597 (107.061)	9.684 (97.930)	-1.912*** (0.182)	11.738 (107.705)	10.847 (103.582)	-0.891*** (0.185)
Probability of a birth in a Healthcare Institution	0.992 (0.090)	0.983 (0.131)	-0.009*** (0.000)	0.992 (0.087)	0.982 (0.133)	-0.010*** (0.000)
Probability of a birth with assistance of a physician	0.992 (0.091)	0.982 (0.135)	-0.010*** (0.000)	0.993 (0.086)	0.982 (0.131)	-0.010*** (0.000)
Probability of a birth with caesarean	0.442 (0.497)	0.457 (0.498)	0.014*** (0.001)	0.454 (0.498)	0.472 (0.499)	0.019*** (0.001)
Number of medical consultancies during pregnancy	6.291 (2.481)	5.474 (2.476)	-0.818*** (0.004)	6.515 (2.590)	5.692 (2.473)	-0.823*** (0.004)
Number of children the mother has (including the newborn)	1.894 (1.229)	2.169 (1.528)	0.275*** (0.002)	1.845 (1.143)	2.068 (1.393)	0.222*** (0.002)
Observations	2,229,030	396,009	2,625,039	2,211,774	394,307	2,606,081

Source: Own elaboration from Vital Statistics of DANE and Territorial Renewal Agency

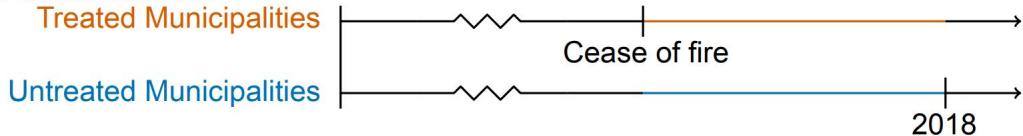
## Evolution of Very Low Weight Births

Figure 4. Very Low Weight Births (weight < 1.500 g)



## Identification Strategy

- Peace talks during the government of Juan Manuel Santos
- Ceasefire in 2015



## Identification Strategy

$$y_{imt} = \alpha_m + \delta_t + \beta Post_t Conflict_m + \Gamma X_{imt} + \sum_{t \neq 0}^T \sum_{c \in Z_m} \gamma' c \times year_t + \epsilon_{imt}; 3$$

where,

$y_{imt}$  is: very low birth weight, sex at birth, delivery care by a doctor and if the delivery was attended in a health institution

$Post_t$  is a dummy variable that takes the value of 1 if the birth occurs after the year 2014 and 0 otherwise

$Conflict_m$  is IICA, some dichotomous classification of IICA or PDET

$\alpha_m$  are the municipality fixed effects

$\delta_t$  are the year fixed effects

$X_{imt}$  are controls at the level of each birth

$Z_m$  is a vector of variables at municipality level which includes variables as years of education of parents, age of parents, social security regime and marital status

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- In all cases, the errors are cluster type at the municipal level before and after the ceasefire.



## Results

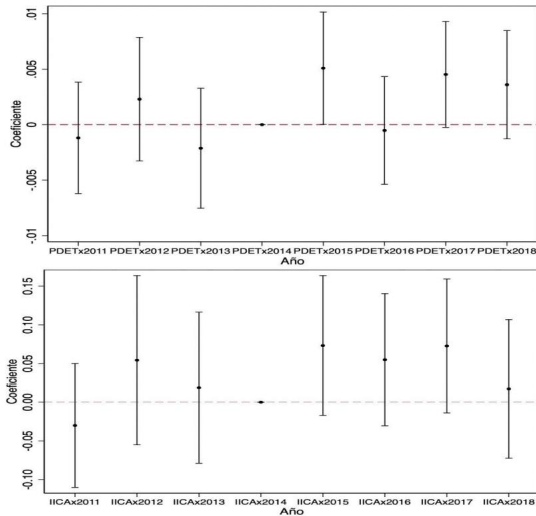
	Mean at	<i>Pr</i> (Sex at birth= <i>Male</i> )		
	<i>t</i> = -1	Post	1 Year	4 Years
	(1)	(2)	(3)	(4)
Post*IIICA	51.38 (0.21)	4.63 (1.40)	0.73 (0.46)	0.17 (0.46)
Post*PDET	51.32 (0.16)	0.34 (0.08)	0.51 (0.26)	0.36 (0.25)

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We are in presence of a positive shock: ↓ culling and ↓ scarring

## Previous trends: Sex at birth



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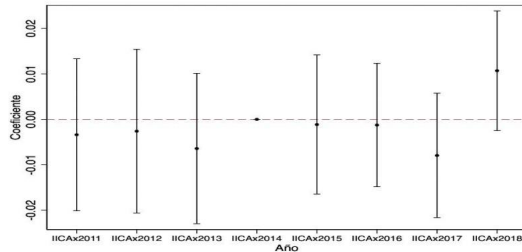
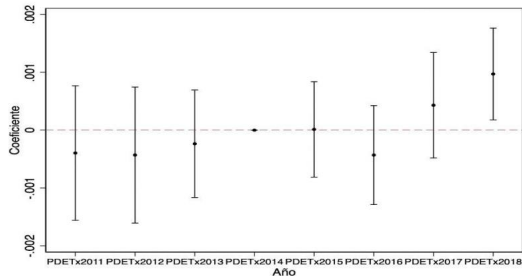
	Mean at	Pr(Very Low Weight=1)		
	$t = -1$	Post	1 Year	4 Years
	(1)	(2)	(3)	(4)
Post*IICA	0.79 (0.03)	0.33 (0.28)	-0.11 (0.78)	1.07 (0.67)
Post*PDET	0.97 (0.03)	0.05 (0.02)	0.00 (0.04)	0.10 (0.04)

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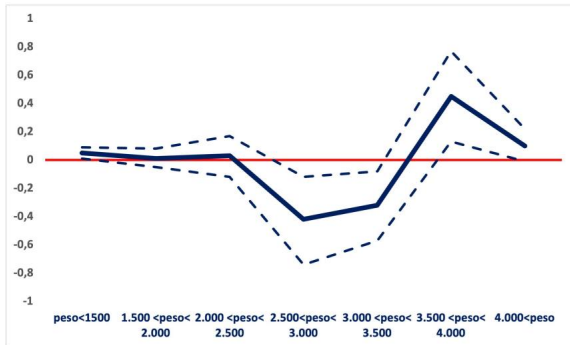
↓ culling dominates ↓ scarring shaping the health of the population

## Previous trends: Very Low Weight



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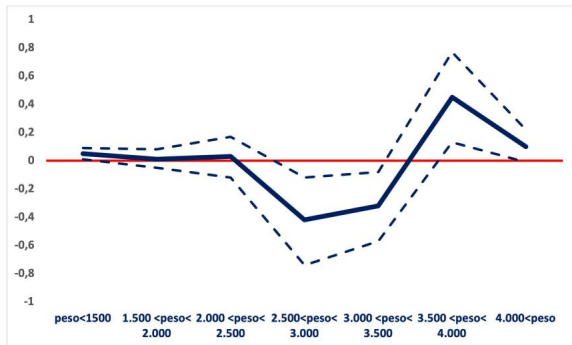
Treatment variable: PDET



- ↑ Left tail; ↓ Middle; ↑ Right tail

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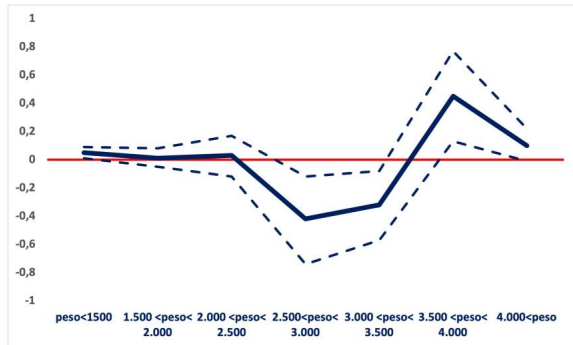


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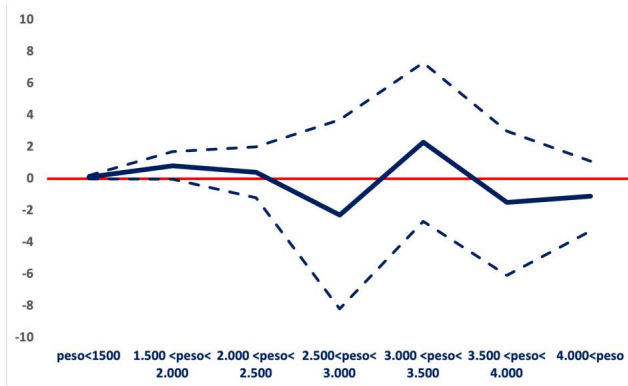
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- ↑ Left tail; ↓ Middle; ↑ Right tail
- Coherent with both ↓ **culling** and ↓ **scarring**
- Also coherent with curve flattening. But ↓ Fetal death allow us to reject it

## Results

Treatment variable: IICA



## Mechanisms

	Mean at	Pr(Birth with a physician=1)		
	$t = -1$	Post	1 Year	4 Years
	(1)	(2)	(3)	(4)
Post*IICA	95.95 (0.55)	0.40 (1.13)	-0.92 (1.95)	2.88 (1.70)
Post*PDET	96.84 (0.38)	0.19 (0.08)	0.00 (0.13)	0.31 (0.11)

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	Mean at	Pr(Birth in a Healthcare institution=1)		
	$t = -1$	Post	1 Year	4 Years
	(1)	(2)	(3)	(4)
Post*IICA	96.26 (0.53)	- 0.57 (1.06)	-2.2 (1.99)	0.76 (1.70)
Post*PDET	96.84 (0.38)	0.07 (0.07)	-0.11 (0.13)	0.12 (0.12)

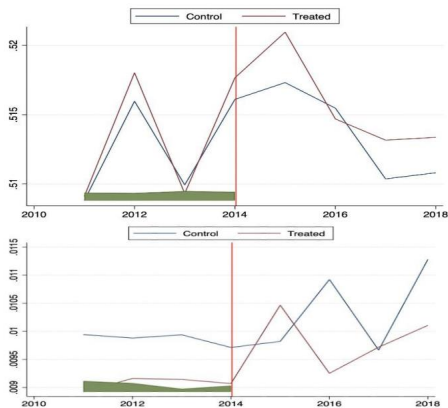
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## Heterogeneity

	Cease of fire's effects			
	Pr(Sex at brith=Male)		Pr(Very Low Weight Birth=1)	
	ELN	Paramilitaries	ELN	Paramilitaries
Post*IICA	3.21 (2.63)	1.2 (2.7)	0.01 (0.53)	0.18 (0.43)
Post*PDET	0.33 (0.22)	0.08 (0.13)	-0.02 (0.05)	0.09 (0.04)

## Robustness: Synthetic Differences in Differences



Dependent variable:  
sext at birth

Dependent variable:  
Very low weight



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- The decrease in culling effects allowed weaker babies to be born
- Post-conflict contexts can generate changes in prenatal parental investment capacities that are observed in improvements in delivery care through health institutions and medical personnel
- It is important to accompany the measures aimed at the elimination of violence, with measures that promote the institutional presence of the state
- Even in the presence of conflict, the institutional presence mitigate its negative effects in the short and long term.

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