On the Tension Between Due Process Protection and Public Safety:

The Case of an Extensive Procedural Reform in Colombia

ONLINE APPENDIX

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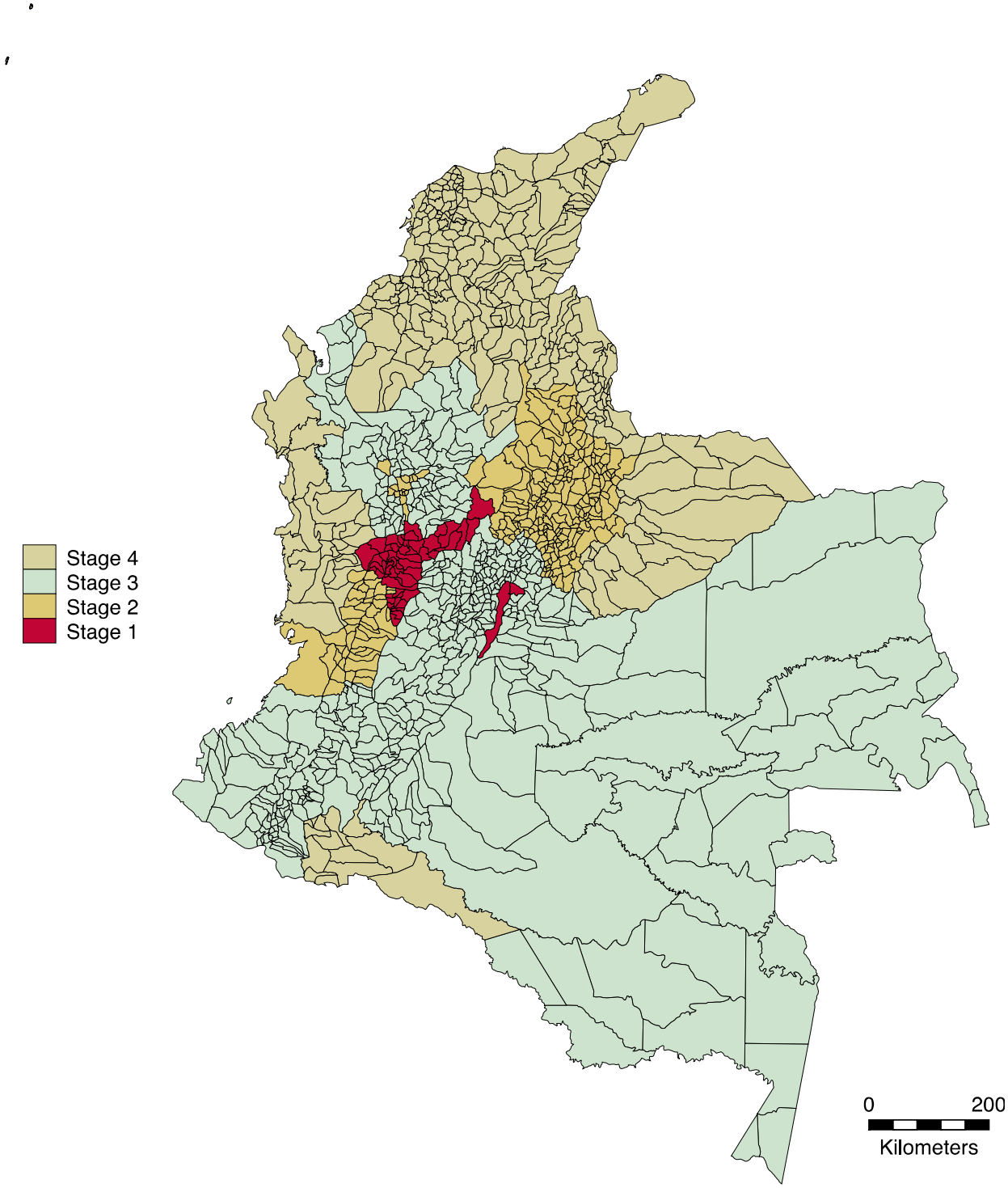
Figure A1. Implementation of the Adversarial Procedural Reform in Colombia, 2005-2008



Note: This map shows all the municipalities in Colombia by the stage of the implementation of the adversarial procedural reform, starting with municipalities in stage 1 which implemented the reform in January of 2005 and ending with municipalities in stage 4 which implemented it in January of 2008.

Table A1. Descriptive Statistics Variables in Main Results

Variables	Observations	Mean	Std. Dev	Min	Max
Unweighted Crime	78,894	14.99	23.58	0	834.33
Crime Index	78,894	2.57	4.19	0	134.42
Violent Crime Index	78,894	4.11	8.34	0	307.25
Property Crime Index	78,894	1.37	3.03	0	93.73
Homicides	78,894	3.76	9.76	0	374.90
Assaults	78,894	5.29	12.57	0	834.33
Sexual Offenses	62,977	4.49	8.44	0	232.29
Drug Offenses	62,977	3.51	9.77	0	941.37
Muggings	78,894	2.92	8.16	0	286.81
Business Robberies	78,894	0.96	3.51	0	99.50
Vehicle Thefts	78,894	0.43	2.30	0	183.53
Home Burglaries	78,894	1.63	5.68	0	191.94
Arrests	78,894	1.52	1.53	0	6.77
% Rural Population	78,894	1.05	0.65	0	4.09
Education Investment	77,660	3.55	0.94	0	12.34
Industry Tax Revenue	78,810	0.01	0.03	0	0.52
Fiscal Performance	77,790	4.08	0.16	2.52	4.51
Population Density	78,894	3.85	1.23	0.14	9.58
Forced Displacement Expulsion	78,918	3.83	2.11	0	9.63
Forced Displacement Reception	78,918	3.07	2.24	0	10.61

Note: this table shows the number of observations, mean, standard deviation, minimum and maximum for our variables of interests, both result and control. Crimes and arrests are reported per 100,000 Inhabitants.

Data Construction

Aggregated Crime

We created aggregated weighted crime as in Ortega, Mejía, and Ortiz (2015), following:

$$C_{i,t} = \sum_{s \in C} \left(\frac{p_s}{\sum_{s' \in C} p_{s'}} * S_{i,t} \right) \quad (1A)$$

where $C_{i,t}$ represents one of the three crime indices (total, violent, or property) in municipality i and month t; $S_{i,t}$ is the crime rate for type of crime s, in municipality i, during month t, expressed in terms of incidences per 100,000 inhabitants, and p_s is the average sentence length in years for individuals convicted for crime s. We calculated average sentence length using the Penal Code of 2007. To calculate the maximum sentence length, we used the maximum prison sentence for each crime corrected by the maximum prison sentenced in case of an aggravating circumstance. Table A2 reports these weights (p_s).

Table A2. Minimum and Maximum Sentence Length Colombian Penal Code

Crime	Min	Max	Average (p_s)
Homicides	13	40	27
Assaults	1	15	8
Muggings	1	16	9
Business Robberies	2	28	15
Home Burglaries	6	14	10
Vehicle Thefts	7	15	11
Total	30	128	80

Note: this table shows the minimum and maximum sentence length for different types of crimes according to the Colombian Penal Code 2007, Articles 103, 111-116, 239-241. These lengths are used to build the weights for the crime indices.

Indicators of Judicial and Prosecutorial Activity

First, we constructed rates allowing for information delays and timespans between denominator and numerator (CEPEJ 2014; Marciano et al. 2019):

$$Clearance\ Rate_{i,t}^{s} = \frac{\sum_{t=0}^{-11} Imputations_{i,t}^{s}}{\sum_{t=-1}^{11} Crime\ Reports_{i,t}^{s}} \quad (2A)$$

$$Settlement\ Rate_{i,t}^{s} = \frac{\sum_{t=0}^{-11} Settlements_{i,t}^{s}}{\sum_{t=-1}^{11} Crime\ Reports_{i,t}^{s}} \quad (3A)$$

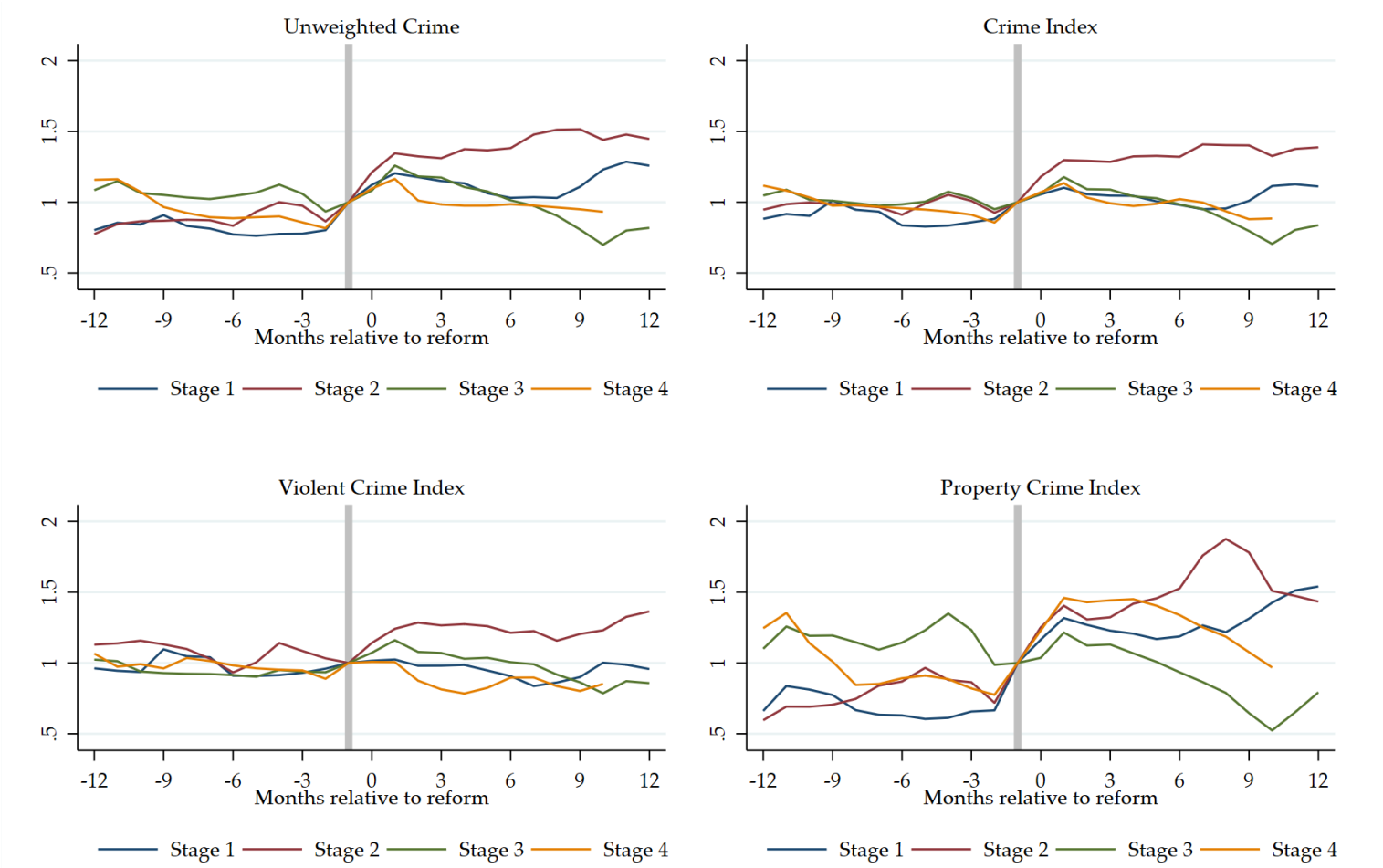
$$Acquittals\ or\ Convictions\ Rate_{i,t}^{s} = \frac{\sum_{t=0}^{-11} Acquittals\ or\ Convictions_{i,t}^{s}}{\sum_{t=-1}^{11} Crime\ Reports_{i,t}^{s}} \quad (4A)$$

In the second group, we proposed rates controlling for the total number of cases when no logical time-gap between denominator and numerator exists:

$$Preventive\ Measures_{i,t}^{s} = \frac{Cases\ with\ Active\ Measures_{i,t}^{s}}{Cases\ with\ Imputations_{i,t}^{s}} \quad (5A)$$

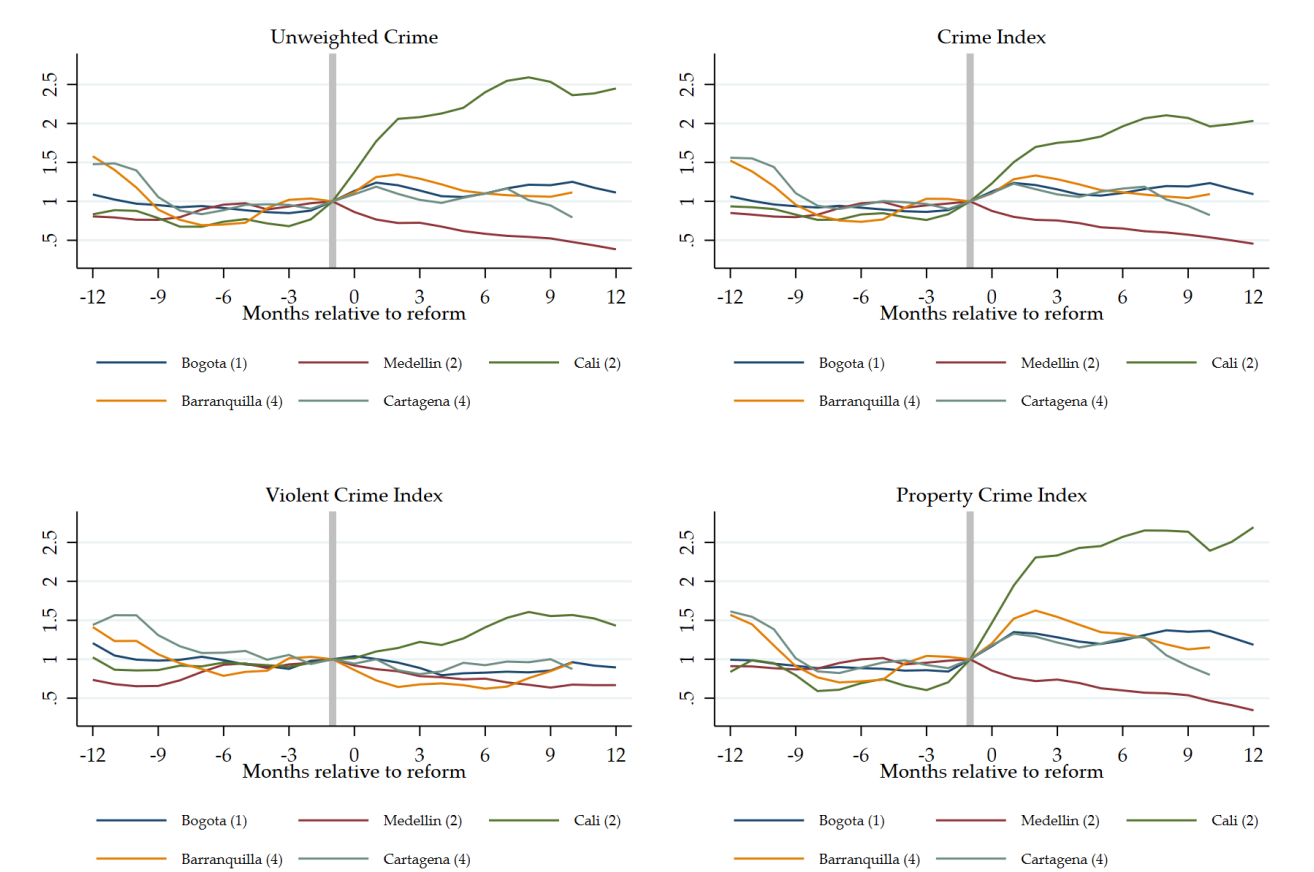
$$Acquittals\ or\ Convictions\ Ratio_{i,t}^{s} = \frac{Acquittals\ or\ Convictions\ in\ Court_{i,t}^{s}}{Acquittals+\ Convictions\ in\ Court_{i,t}^{s}} \quad (6A)$$

Figure A2. Evolution of the Average Number of Crimes by Stage of Implementation



Note: these figures show the average value of the four aggregate crime measures by stages of implementation of the adversarial procedural reform in Colombia, after taking a moving average of three months (MA-3) and normalizing to 1 the value in the month before the implementation (represented by the grey vertical band). These crime indices are computed as the weighted average of different types of crimes, where the weights are given by the average sentence length of each type of crime and are presented in Table 2A.

Figure A3. Evolution of the Average Number of Crimes in Colombia's Largest Cities



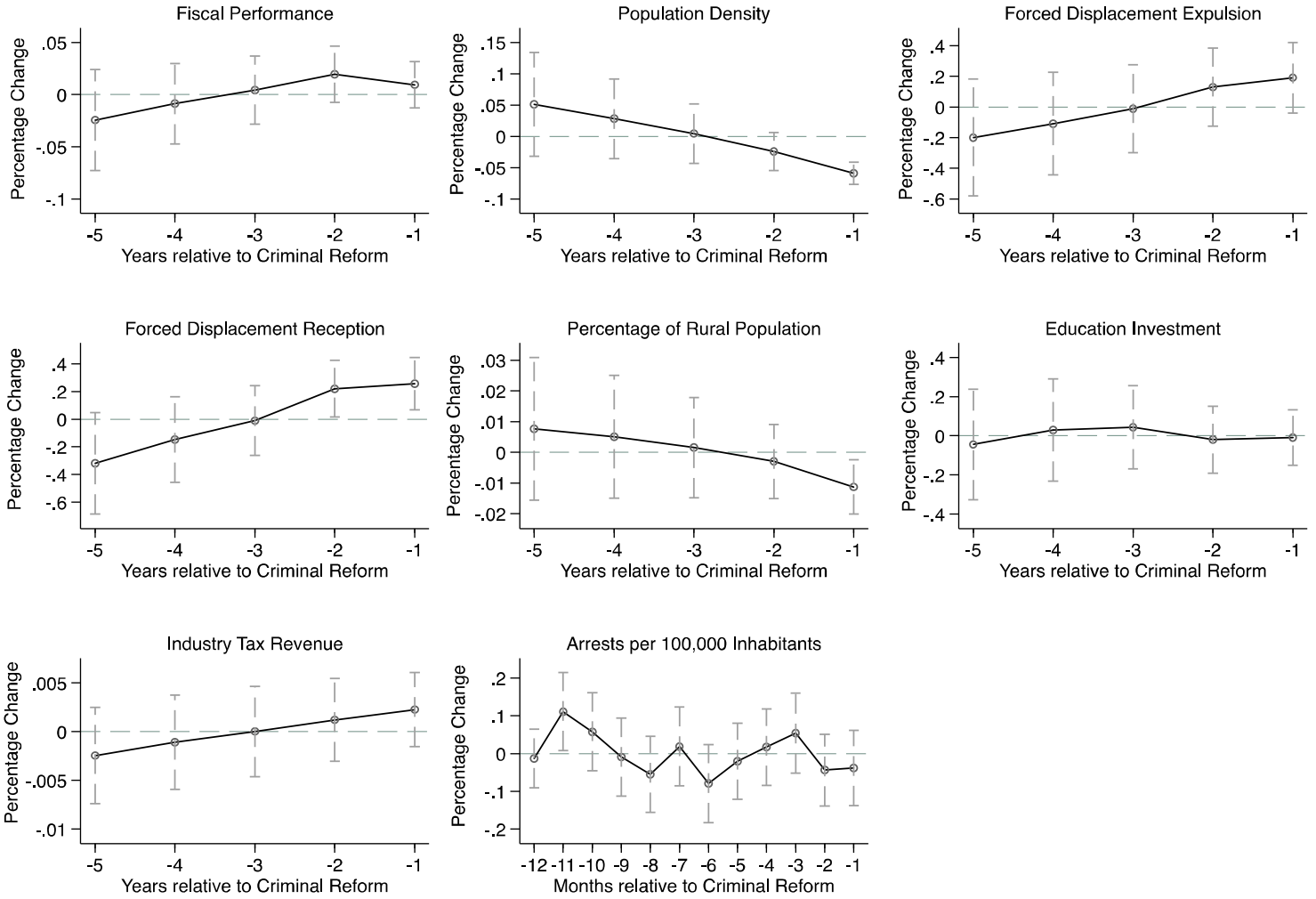
Note: these figures show the average value of the four aggregate crime measures in Colombia's five largest cities: Bogota, Medellin, Cali, Barranquilla, and Cartagena. The number in parenthesis denotes the stage of implementation where the municipality belongs to. These series were plotted after taking a moving average of three months (MA-3) and normalizing to 1 the value in the month before the implementation (represented by the grey vertical band). These crime indices are computed as the weighted average of different types of crimes, where the weights are given by the average sentence length of each type of crime and are presented in Table 2A.

Parallel Trends

Besides the main results we obtain from equation (1), we use this model to estimate statistical differences during the pre-treatment period for variables contained in vector $X_{i,t}$ and the lag of arrests ($Z_{i,t-1}$). For variables in vector $X_{i,t}$, we use the yearly-municipality information provided by the CEDE between 2000-2004 and restrict the analysis to the pre-treatment period. Figure A4 illustrates that our treatment and control groups had parallel trends during the five years before the implementation of the reform in all variables, except for population density.

In addition to the unconditional evaluation of the parallel trends and phase-in effects, we estimate a version of equation (1) in which we include a vector $X_{i,t}$ containing the mentioned economic, demographic, and institutional variables to control for time-varying municipality characteristics. Additionally, we incorporate the lag of police arrests ($Z_{i,t-1}$) to avoid endogeneity problems with this variable (Listokin 2003; Pfaff 2008; Rosenfeld and Wallman 2019). We perform this estimation and confirm that the parallel trends assumption seems to be reasonable even after the inclusion of vectors $X_{i,t}$ and $Z_{i,t-1}$. Table A3 presents these results, confirming the results presented in Figures 6 to 8 from the main text.

Figure A4. Leads-and-Lags Pre-Treatment Evaluation for Control Variables



Note: these figures show the coefficients of different regressions between each one of the control variables on time dummies for each period before the implementation of the procedural reform in Colombia. Except for arrests, which are available monthly, all variables are on a year-municipality level.

Table A3. Conditional Event Study Results During the Pre-Treatment Period (2003-2004)

Months Before Implementation	(1) Unweighted Crime	(2) Crime Index	(3) Violent Crime	(4) Property Crime	(5) Homicides	(6) Assaults	(7) Sexual Offenses	(8) Drug Offenses	(9) Muggings	(10) Business Robberies	(11) Vehicle s Thefts	(12) Home Burglaries
12 Months	0.045	0.039	0.068*	-0.022	0.075*	-0.069	-0.063*	-0.039	0.004	-0.002	-0.018	0.007
	(0.051)	(0.029)	(0.039)	(0.024)	(0.039)	(0.052)	(0.038)	(0.032)	(0.026)	(0.016)	(0.029)	(0.046)
11 Months	0.036	0.022	0.049	-0.002	0.007	0.089	0.016	-0.008	-0.032	0.011	0.025	0.065
	(0.066)	(0.037)	(0.049)	(0.028)	(0.052)	(0.066)	(0.046)	(0.037)	(0.032)	(0.022)	(0.037)	(0.058)
10 Months	-0.043	-0.041	-0.100**	0.041	-0.071	-0.052	0.009	0.103**	-0.032	-0.032	0.045	-0.073
	(0.068)	(0.038)	(0.050)	(0.029)	(0.051)	(0.062)	(0.047)	(0.040)	(0.031)	(0.023)	(0.036)	(0.058)
9 Months	-0.008	0.011	0.065	-0.039	0.050	0.056	-0.094*	-0.111***	0.023	-0.017	-0.009	0.059
	(0.066)	(0.037)	(0.050)	(0.029)	(0.051)	(0.063)	(0.053)	(0.040)	(0.028)	(0.021)	(0.035)	(0.056)
8 Months	0.079	0.055	0.027	0.040	0.028	0.000	0.039	0.110***	0.027	0.020	-0.020	0.004
	(0.066)	(0.037)	(0.050)	(0.027)	(0.051)	(0.063)	(0.047)	(0.039)	(0.027)	(0.020)	(0.034)	(0.057)
7 Months	-0.027	-0.028	-0.025	0.010	-0.036	-0.088	0.044	-0.020	-0.004	0.017	0.056*	0.022
	(0.062)	(0.034)	(0.048)	(0.026)	(0.049)	(0.067)	(0.049)	(0.038)	(0.027)	(0.021)	(0.033)	(0.054)
6 Months	-0.076	-0.025	-0.006	-0.057**	0.035	-0.021	-0.067	-0.077**	-0.026	0.020	-0.077**	-0.066
	(0.062)	(0.034)	(0.047)	(0.026)	(0.048)	(0.062)	(0.050)	(0.039)	(0.027)	(0.020)	(0.033)	(0.052)
5 Months	-0.018	-0.025	-0.066	0.045	-0.088*	0.013	-0.039	0.025	0.041	0.004	0.059*	0.016
	(0.066)	(0.036)	(0.048)	(0.028)	(0.049)	(0.062)	(0.049)	(0.041)	(0.028)	(0.021)	(0.033)	(0.053)
4 Months	0.015	0.014	0.006	-0.000	0.018	0.042	0.028	0.009	0.014	-0.033*	-0.039	-0.027
	(0.066)	(0.036)	(0.048)	(0.029)	(0.050)	(0.063)	(0.048)	(0.042)	(0.030)	(0.020)	(0.035)	(0.054)
3 Months	0.004	0.012	0.073	-0.054*	0.045	0.007	-0.029	-0.049	-0.051*	0.013	-0.026	0.039
	(0.063)	(0.035)	(0.047)	(0.028)	(0.048)	(0.065)	(0.048)	(0.041)	(0.029)	(0.020)	(0.035)	(0.054)
2 Months	-0.137**	-0.068**	-0.118**	0.016	-0.031	0.076	0.021	0.039	0.021	-0.007	0.012	-0.159***
	(0.062)	(0.035)	(0.047)	(0.027)	(0.049)	(0.064)	(0.047)	(0.039)	(0.029)	(0.021)	(0.033)	(0.053)
1 Month	0.093	0.035	0.048	0.012	0.036	-0.142**	-0.057	0.003	0.006	-0.007	-0.009	0.064
	(0.064)	(0.035)	(0.047)	(0.027)	(0.048)	(0.062)	(0.046)	(0.042)	(0.026)	(0.021)	(0.033)	(0.053)
Observations	75,976	75,976	75,976	75,976	75,976	60,882	60,882	75,976	75,976	75,976	75,976	75,976
R-squared	0.359	0.333	0.279	0.401	0.275	0.198	0.452	0.381	0.287	0.236	0.289	0.270
Year Month & Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Municipality FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: this table shows the results of a two-way fixed effects regression of the logarithm of different crime rates (log+1) on interactions between an indicator variable that equals 1 if the adversarial procedural reform has been implemented in a given municipality and month and dummy variables of each month before the implementation of the procedural reform. All regressions control for municipality, year, month, and year*month fixed effects, as well as for per capita Industry and Business tax collection, per capita investment in education, fiscal performance, density of population, rural index, displaced population, and the lag of police arrest. Municipality-clustered standard errors in parentheses. Crime indices are computed as the weighted average of different types of crimes, where the weights are given by the average sentence length of each type of crime and are presented in Table 2A. *** p<0.01, ** p<0.05, * p<0.1

Robustness, Placebo Tests and Alternative Specifications

To test the robustness of our results, we first perform two falsification tests. Our first test consists of evaluating our model during the pre-treatment period following the same implementation order as in the actual reform. In particular, we assume that the reform was implemented every six months, starting in January of 2003 for the first group, and ending in July of 2004 for the fourth group. The bottom panel of Table A4 shows no particular relationship between the implementation of the reform and crime rates and, for most crimes, this relationship is not significant. Moreover, in this table we also present the results of the main specification from equation (2) excluding the lags of arrests. Results are robust to the exclusion of this variable.

In a second falsification test, we randomly assign all Colombian municipalities to different waves and estimate equation (1) using this random order. We repeat this random assignment 100 times and, in Table A5, present the average coefficients and standard errors across these 100 estimations. After these 100-estimations, we do not find a consistent pattern indicating spurious results.

Tables A6 to A8 show that our results are robust to excluding Bogota, Medellin and Cali, Colombia's three largest cities and where most crime is located. In addition, Tables A9 to A11 show that the results also hold when excluding the vector of control variables $X_{i,t}$ and the lag of arrests.

Moreover, we include different empirical exercises to test the robustness of our results recognizing the staggered nature of our treatment. First, in Figure A5 presents a graphic representation of the Goodman-Bacon (2021) decomposition for the different outcomes of interest. These decomposition shows the large variance in the optimal weights across comparison groups and motivates the use of other estimation methods.

Second, we estimate the event study specifications using the doubly robust estimator proposed by Callaway & Sant'Anna (2021), who weigh these comparisons using both the variance and the centrality of the treatment. In these estimations, we cluster the standard errors at the municipality level using a bootstrap with 1000 iterations. Figures A6 to A8 show similar results than Figures 6 to 8 in the text, but with slightly larger standard errors.

Finally, we estimate our differences-in-differences specification using the methodology proposed by Wooldridge (2021), who states that a highly flexible Difference-in-Difference model can account for this issue and produce similar estimates than those from the above-mentioned authors, but with lower standard errors. Table A12 contains the results.

Table A4. Robustness Check without $Z_{i,t-w}$ and Falsification 2003-2004

	(1) Unweighted Crime	(2) Crime Index	(3) Violent Crime	(4) Property Crime	(5) Homicides	(6) Assaults	(7) Sexual Offenses	(8) Drug Offenses	(9) Muggings	(10) Business Robberies	(11) Vehicles Thefts	(12) Home Burglaries
Panel A:												
T	0.311***	0.162***	0.190***	0.119***	0.051***	0.301***	-0.013	-0.295***	0.122***	0.063***	0.019**	0.082***
	(0.031)	(0.017)	(0.020)	(0.017)	(0.018)	(0.029)	(0.023)	(0.026)	(0.025)	(0.014)	(0.008)	(0.019)
Observations	77,094	77,094	77,094	77,094	77,094	77,094	61,671	61,671	77,094	77,094	77,094	77,094
R-square	0.431	0.379	0.302	0.441	0.276	0.320	0.197	0.450	0.404	0.300	0.236	0.304
Panel B:												
T	0.280***	0.146***	0.183***	0.098***	0.051***	0.284***	-0.015	-0.318***	0.090***	0.051***	0.021***	0.069***
	(0.030)	(0.016)	(0.019)	(0.016)	(0.017)	(0.028)	(0.022)	(0.026)	(0.024)	(0.014)	(0.008)	(0.018)
Exposure Time to T	0.013***	0.007***	0.003**	0.009***	-0.000	0.007***	0.001	0.013***	0.014***	0.005***	-0.001*	0.006***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Observations	77,094	77,094	77,094	77,094	77,094	77,094	61,671	61,671	77,094	77,094	77,094	77,094
R-square	0.432	0.380	0.303	0.443	0.276	0.321	0.197	0.452	0.407	0.301	0.236	0.305
Panel A:												
Placebo	-0.127***	-0.078***	-0.127***	-0.003	-0.084***	-0.119***	0.047	0.016	0.018	0.001	-0.026**	0.002
	(0.031)	(0.019)	(0.026)	(0.014)	(0.027)	(0.028)	(0.030)	(0.024)	(0.018)	(0.012)	(0.012)	(0.017)
Observations	25,689	25,689	25,689	25,689	25,689	25,689	19,146	19,146	25,689	25,689	25,689	25,689
R-square	0.502	0.438	0.356	0.532	0.322	0.372	0.286	0.509	0.480	0.351	0.278	0.380
Panel B:												
Placebo	-0.122***	-0.074***	-0.124***	-0.002	-0.073***	-0.129***	0.041	0.035	0.023	-0.005	-0.028**	0.006
	(0.031)	(0.019)	(0.026)	(0.013)	(0.028)	(0.028)	(0.030)	(0.023)	(0.018)	(0.012)	(0.012)	(0.016)
Exposure Placebo	0.003	0.003	0.002	0.001	0.007*	-0.007*	-0.003	0.011***	0.004	-0.004**	-0.002	0.003
	(0.004)	(0.003)	(0.004)	-0.002	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.002)	(0.002)	(0.002)
Observations	25,689	25,689	25,689	25,689	25,689	25,689	19,146	19,146	25,689	25,689	25,689	25,689
R-square	0.502	0.438	0.356	0.532	0.322	0.372	0.286	0.509	0.480	0.351	0.278	0.380
Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Municipio FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: the top panel of this table shows the results of a two-way fixed effects regression of the logarithm of different crime rates (log+1) on an indicator variable that equals 1 if the adversarial procedural reform has been implemented in a given municipality and month (all columns) and the non-negative difference between a given month and the month of implementation up to 12 months (only in panel B). All regressions control for municipality, year, month, and year*month fixed effects, as well as for per capita Industry and Business tax collection, per capita investment in education, fiscal performance, density of population, rural index, displaced population, and exclude the lag of police arrest. The bottom panel estimates the same regression but assuming the reform was implemented every six months, starting in January of 2003 for the first group, and ending in July of 2004 for the fourth group as a placebo test. Municipality-clustered standard errors in parentheses. Crime indices are computed as the weighted average of different types of crimes, where the weights are given by the average sentence length of each type of crime and are presented in Table 2A. *** p<0.01, ** p<0.05, * p<0.1

Table A5. Randomization Falsification Test-Average Calculations 100-Estimations

VARIABLE	(1) Crime Index	(2) Violent Crime	(3) Property Crime	(4) Homicides	(8) Assaults	(9) Muggings	(10) Business Robberies	(11) Vehicles Thefts	(12) Home Burglaries
Panel A:									
Placebo	-0.027	-0.049	0	-0.024	-0.053	0.036	-0.007	-0.023	0.013
	(0.047)	(0.06)	(0.051)	(0.036)	(0.083)	(0.067)	(0.029)	(0.043)	(0.019)
Observations	76,189	76,189	76,189	76,189	76,189	76,189	76,189	76,189	76,189
R-square	0.331	0.277	0.399	0.274	0.267	0.381	0.286	0.289	0.235
Panel B:									
Placebo	-0.024	-0.048	0.003	-0.024	-0.053	0.037	-0.003	-0.02	0.009
	(0.045)	(0.058)	(0.05)	(0.034)	(0.079)	(0.066)	(0.029)	(0.042)	(0.017)
Exposure Placebo	-0.002	-0.001	-0.002	0	0	-0.001	-0.003	-0.002	0.003***
	(0.003)	(0.003)	(0.003)	(0.002)	(0.006)	(0.004)	(0.002)	(0.003)	(0.001)
Observations	76,189	76,189	76,189	76,189	76,189	76,189	76,189	76,189	76,189
R-square	0.331	0.277	0.4	0.274	0.267	0.381	0.287	0.289	0.236
Year Month & Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Municipio FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: this table shows a falsification test of the paper's main result, where we randomly assigned all Colombian municipalities to different waves of implementation and estimate 100 times a two-way fixed effects regression of the logarithm of different crime rates (log+1) on an indicator variable that equals 1 if the placebo reform has been implemented in a given municipality and month (all columns) and the non-negative difference between a given month and the month of the placebo implementation up to 12 months (columns 5 to 8). The table presents the average estimator and standard errors across these 100 estimations. All regressions control for municipality, year, month, and year*month fixed effects, as well as for per capita Industry and Business tax collection, per capita investment in education, fiscal performance, density of population, rural index, displaced population, and the lag of police arrest. Municipality-clustered standard errors in parentheses. Crime indices are computed as the weighted average of different types of crimes, where the weights are given by the average sentence length of each type of crime and are presented in Table 2A. *** p<0.01, ** p<0.05, * p<0.1

Table A6. Difference-in-Difference Results for Aggregate Crime Measures (excluding Bogotá, Medellín, and Cali)

VARIABLES	Panel A				Panel B			
	(1) Unweighted Crime	(2) Crime Index	(3) Violent Crime Index	(4) Property Crime Index	(5) Unweighted Crime	(6) Crime Index	(7) Violent Crime Index	(8) Property Crime Index
T	0.196***	0.110***	0.142***	0.081***	0.169***	0.097***	0.136***	0.062***
	(0.031)	(0.017)	(0.020)	(0.017)	(0.030)	(0.016)	(0.020)	(0.016)
Exposure Time to T					0.012***	0.006***	0.002*	0.009***
					(0.002)	(0.001)	(0.001)	(0.001)
Observations	75,763	75,763	75,763	75,763	75,763	75,763	75,763	75,763
R-squared	0.356	0.330	0.278	0.395	0.357	0.331	0.278	0.397
Year Month & Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Municipio FE	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Mean T=0	13.52	2.45	4.1	1.16	13.52	2.45	4.1	1.16
Effect of Reform	22%	12%	15%	8%	37%	18%	17%	19%

Note: this table shows the results of a two-way fixed effects regression of the logarithm of different crime rates (log+1) on an indicator variable that equals 1 if the adversarial procedural reform has been implemented in a given municipality and month (all columns) and the non-negative difference between a given month and the month of implementation up to 12 months (columns 5 to 8). Regressions exclude Colombia's largest cities: Bogota, Medellin, and Cali. All regressions control for municipality, year, month, and year*month fixed effects, as well as for per capita Industry and Business tax collection, per capita investment in education, fiscal performance, density of population, rural index, displaced population, and the lag of police arrest. Municipality-clustered standard errors in parentheses. Mean T=0 corresponds to the mean of the dependent variable for those observations in the control group before the implementation of the reform. Effect of T is calculated as $(\exp(\beta_1) - 1) * 100$ for columns (1) to (4) and as $(\exp(\beta_1 + 12 * \beta_2) - 1) * 100$ for columns (5) to (8). Crime indices are computed as the weighted average of different types of crimes, where the weights are given by the average sentence length of each type of crime and are presented in Table 2A. *** p<0.01, ** p<0.05, * p<0.1

Table A7. Difference-in-Difference Results for Violent and Drug Crimes (excluding Bogotá, Medellín, and Cali)

VARIABLES	Panel A				Panel B			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Homicides	Assaults	Sexual Offenses	Drug Offenses	Homicides	Assaults	Sexual Offenses	Drug Offenses
T	0.034*	0.222***	-0.005	-0.292***	0.035**	0.208***	-0.007	-0.314***
	(0.018)	(0.029)	(0.023)	(0.026)	(0.017)	(0.029)	(0.023)	(0.026)
Exposure Time to T					-0.000	0.006***	0.001	0.013***
					(0.001)	(0.002)	(0.001)	(0.002)
Observations	75,763	75,763	60,669	60,669	75,763	75,763	60,669	60,669
R-squared	0.273	0.268	0.196	0.445	0.273	0.268	0.196	0.448
Year Month & Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Municipio FE	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Mean T=0	3.98	4.52	4.13	2.93	3.98	4.52	4.13	2.93
Effect of Reform	3%	25%	0%	-25%	15%	32%	1%	-15%

Note: this table shows the results of a two-way fixed effects regression of the logarithm of different crime rates (log+1) on an indicator variable that equals 1 if the adversarial procedural reform has been implemented in a given municipality and month (all columns) and the non-negative difference between a given month and the month of implementation up to 12 months (columns 5 to 8). Regressions exclude Colombia's largest cities: Bogota, Medellin, and Cali. All regressions control for municipality, year, month, and year*month fixed effects, as well as for per capita Industry and Business tax collection, per capita investment in education, fiscal performance, density of population, rural index, displaced population, and the lag of police arrest. Municipality-clustered standard errors in parentheses. Mean T=0 corresponds to the mean of the dependent variable for those observations in the control group before the implementation of the reform. Effect of T is calculated as $(\exp(\beta_1) - 1) * 100$ for columns (1) to (4) and as $(\exp(\beta_1 + 12 * \beta_2) - 1) * 100$ for columns (5) to (8). *** p<0.01, ** p<0.05, * p<0.1

Table A8. Difference-in-Difference Results for Property Crimes (excluding Bogotá, Medellín, and Cali)

VARIABLES	Panel A				Panel B			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Muggings	Business Robberies	Vehicles Thefts	Home Burglaries	Muggings	Business Robberies	Vehicles Thefts	Home Burglaries
T	0.080***	0.042***	0.016**	0.056***	0.051**	0.031**	0.018**	0.043**
	(0.025)	(0.014)	(0.008)	(0.019)	(0.024)	(0.013)	(0.008)	(0.018)
Exposure Time to T					0.013***	0.005***	-0.001	0.005***
					(0.002)	(0.001)	(0.001)	(0.001)
Observations	75,763	75,763	75,763	75,763	75,763	75,763	75,763	75,763
R-squared	0.376	0.281	0.205	0.286	0.379	0.282	0.205	0.286
Year Month & Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Municipio FE	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Mean T=0	2.42	0.77	0.44	1.40	2.42	0.77	0.44	1.40
Effect of Reform	8%	4%	2%	6%	23%	10%	1%	11%

Note: this table shows the results of a two-way fixed effects regression of the logarithm of different crime rates (log+1) on an indicator variable that equals 1 if the adversarial procedural reform has been implemented in a given municipality and month (all columns) and the non-negative difference between a given month and the month of implementation up to 12 months (columns 5 to 8). Regressions exclude Colombia's largest cities: Bogota, Medellin, and Cali. All regressions control for municipality, year, month, and year*month fixed effects, as well as for per capita Industry and Business tax collection, per capita investment in education, fiscal performance, density of population, rural index, displaced population, and the lag of police arrest. Municipality-clustered standard errors in parentheses. Mean T=0 corresponds to the mean of the dependent variable for those observations in the control group before the implementation of the reform. Effect of T is calculated as $(\exp(\beta_1) - 1) * 100$ for columns (1) to (4) and as $(\exp(\beta_1 + 12 * \beta_2) - 1) * 100$ for columns (5) to (8). *** p<0.01, ** p<0.05, * p<0.1

Table A9. Difference-in-Difference Results for Aggregated Measures – No Controls

VARIABLES	Panel A				Panel B			
	(1) Unweighted Crime	(2) Crime Index	(3) Violent Crime Index	(4) Property Crime Index	(5) Unweighted Crime	(6) Crime Index	(7) Violent Crime Index	(8) Property Crime Index
T	0.178***	0.103***	0.137***	0.070***	0.154***	0.091***	0.134***	0.051***
	(0.031)	(0.016)	(0.019)	(0.017)	(0.030)	(0.016)	(0.019)	(0.016)
Exposure Time to T					0.009***	0.004***	0.001	0.007***
					(0.002)	(0.001)	(0.001)	(0.001)
Observations	78,894	78,894	78,894	78,894	78,894	78,894	78,894	78,894
R-squared	0.355	0.327	0.273	0.401	0.356	0.328	0.273	0.402
Year Month & Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Municipio FE	YES	YES	YES	YES	YES	YES	YES	YES
Controls	NO	NO	NO	NO	NO	NO	NO	NO
Mean T=0	13.52	2.45	4.1	1.16	13.52	2.45	4.1	1.16
Effect of Reform	19%	11%	15%	7%	30%	15%	16%	14%

Note: this table shows the results of a two-way fixed effects regression of the logarithm of different crime rates (log+1) on an indicator variable that equals 1 if the adversarial procedural reform has been implemented in a given municipality and month (all columns) and the non-negative difference between a given month and the month of implementation up to 12 months (columns 5 to 8). All regressions control for only municipality, year, month, and year*month fixed effects. Municipality-clustered standard errors in parentheses. Mean T=0 corresponds to the mean of the dependent variable for those observations in the control group before the implementation of the reform. Effect of T is calculated as $(\exp(\beta_1) - 1) * 100$ for columns (1) to (4) and as $(\exp(\beta_1 + 12 * \beta_2) - 1) * 100$ for columns (5) to (8). Crime indices are computed as the weighted average of different types of crimes, where the weights are given by the average sentence length of each type of crime and are presented in Table 2A. *** p<0.01, ** p<0.05, * p<0.1

Table A10. Difference-in-Difference Results for Violent and Drug Crimes – No Controls

VARIABLES	Panel A				Panel B			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Homicides	Assaults	Sexual Offenses	Drug Offenses	Homicides	Assaults	Sexual Offenses	Drug Offenses
T	0.031*	0.214***	-0.009	-0.289***	0.035**	0.202***	-0.010	-0.315***
	(0.017)	(0.029)	(0.023)	(0.025)	(0.017)	(0.028)	(0.022)	(0.026)
Exposure Time to T					-0.002	0.005***	0.001	0.012***
					(0.001)	(0.002)	(0.001)	(0.002)
Observations	78,894	78,894	62,977	62,977	78,894	78,894	62,977	62,977
R-squared	0.267	0.268	0.197	0.449	0.267	0.268	0.197	0.451
Year Month & Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Municipio FE	YES	YES	YES	YES	YES	YES	YES	YES
Controls	NO	NO	NO	NO	NO	NO	NO	NO
Mean T=0	3.98	4.52	4.13	2.93	3.98	4.52	4.13	2.93
Effect of Reform	3%	24%	-1%	-25%	1%	30%	0%	-16%

Note: this table shows the results of a two-way fixed effects regression of the logarithm of different crime rates (log+1) on an indicator variable that equals 1 if the adversarial procedural reform has been implemented in a given municipality and month (all columns) and the non-negative difference between a given month and the month of implementation up to 12 months (columns 5 to 8). All regressions control for only municipality, year, month, and year*month fixed effects. Municipality-clustered standard errors in parentheses. Mean T=0 corresponds to the mean of the dependent variable for those observations in the control group before the implementation of the reform. Effect of T is calculated as $(\exp(\beta_1) - 1) * 100$ for columns (1) to (4) and as $(\exp(\beta_1 + 12 * \beta_2) - 1) * 100$ for columns (5) to (8). *** p<0.01, ** p<0.05, * p<0.1

Table A11. Difference-in-Difference Results for Property Crimes – No Controls

VARIABLES	Panel A				Panel B			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Muggings	Business Robberies	Vehicles Thefts	Home Burglaries	Muggings	Business Robberies	Vehicles Thefts	Home Burglaries
T	0.062**	0.039***	0.018**	0.048**	0.031	0.029**	0.020***	0.036**
	(0.025)	(0.013)	(0.008)	(0.019)	(0.024)	(0.013)	(0.007)	(0.018)
Exposure Time to T					0.012***	0.004***	-0.001	0.004***
					(0.002)	(0.001)	(0.000)	(0.001)
Observations	78,894	78,894	78,894	78,894	78,894	78,894	78,894	78,894
R-squared	0.379	0.292	0.234	0.293	0.381	0.293	0.234	0.293
Year Month & Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Municipio FE	YES	YES	YES	YES	YES	YES	YES	YES
Controls	NO	NO	NO	NO	NO	NO	NO	NO
Mean T=0	2.42	0.77	0.44	1.40	2.42	0.77	0.44	1.40
Effect of Reform	6%	4%	2%	5%	12%	8%	1%	9%

Note: this table shows the results of a two-way fixed effects regression of the logarithm of different crime rates (log+1) on an indicator variable that equals 1 if the adversarial procedural reform has been implemented in a given municipality and month (all columns) and the non-negative difference between a given month and the month of implementation up to 12 months (columns 5 to 8). All regressions control for only municipality, year, month, and year*month fixed effects. Municipality-clustered standard errors in parentheses. Mean T=0 corresponds to the mean of the dependent variable for those observations in the control group before the implementation of the reform. Effect of T is calculated as $(\exp(\beta_1) - 1) * 100$ for columns (1) to (4) and as $(\exp(\beta_1 + 12 * \beta_2) - 1) * 100$ for columns (5) to (8). *** p<0.01, ** p<0.05, * p<0.1

Figure A5. Goodman-Bacon (2021) Decomposition

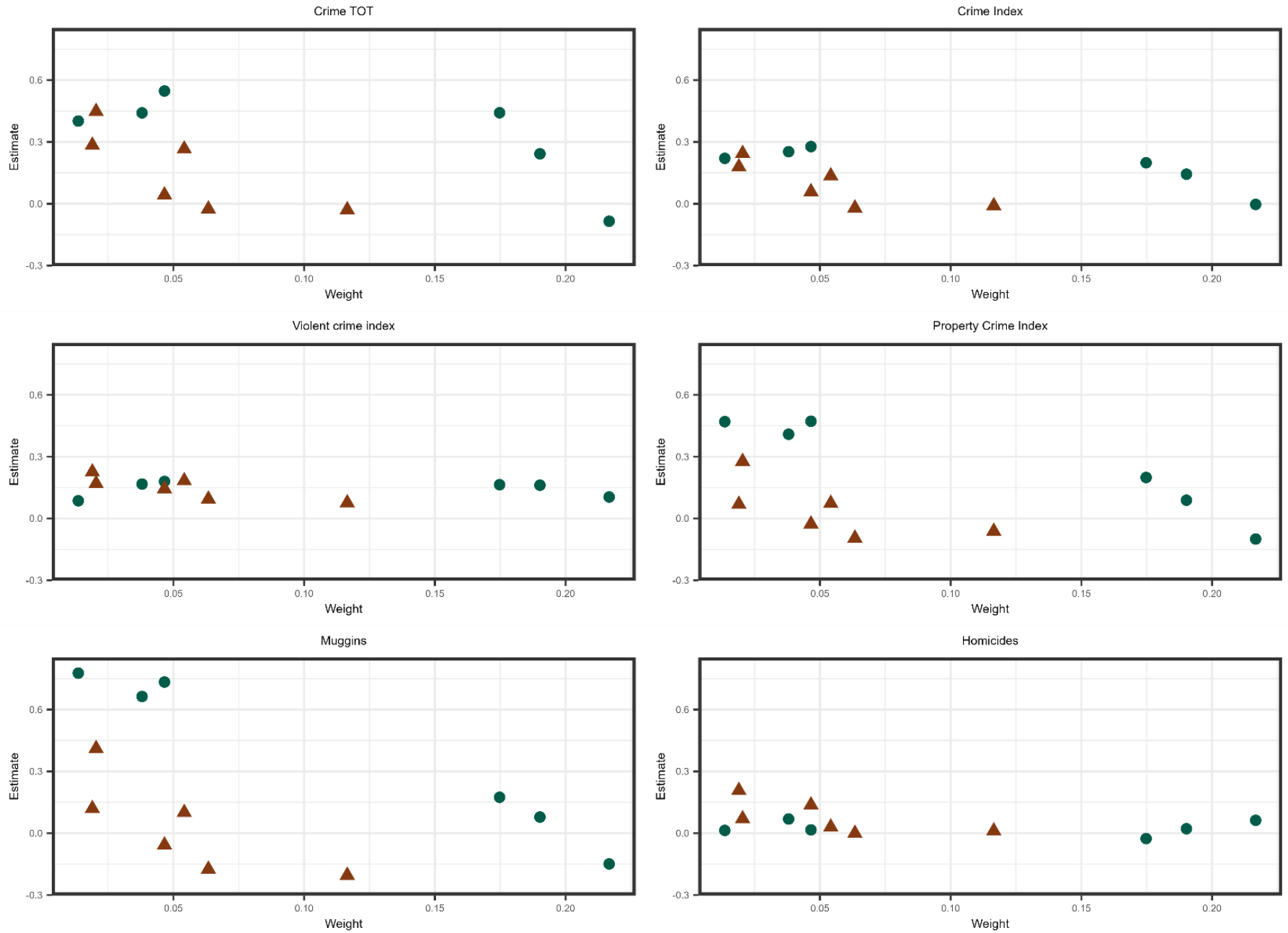
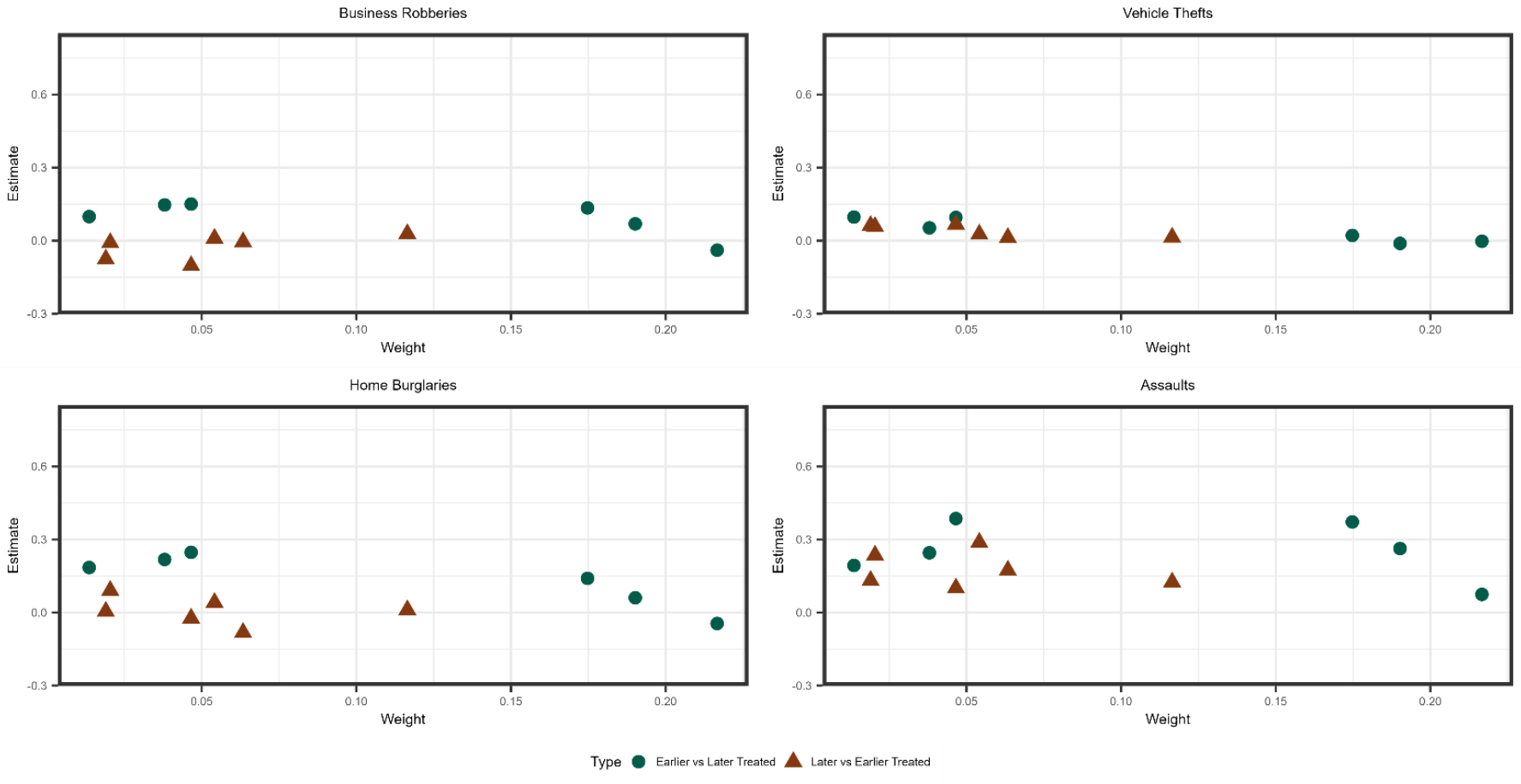
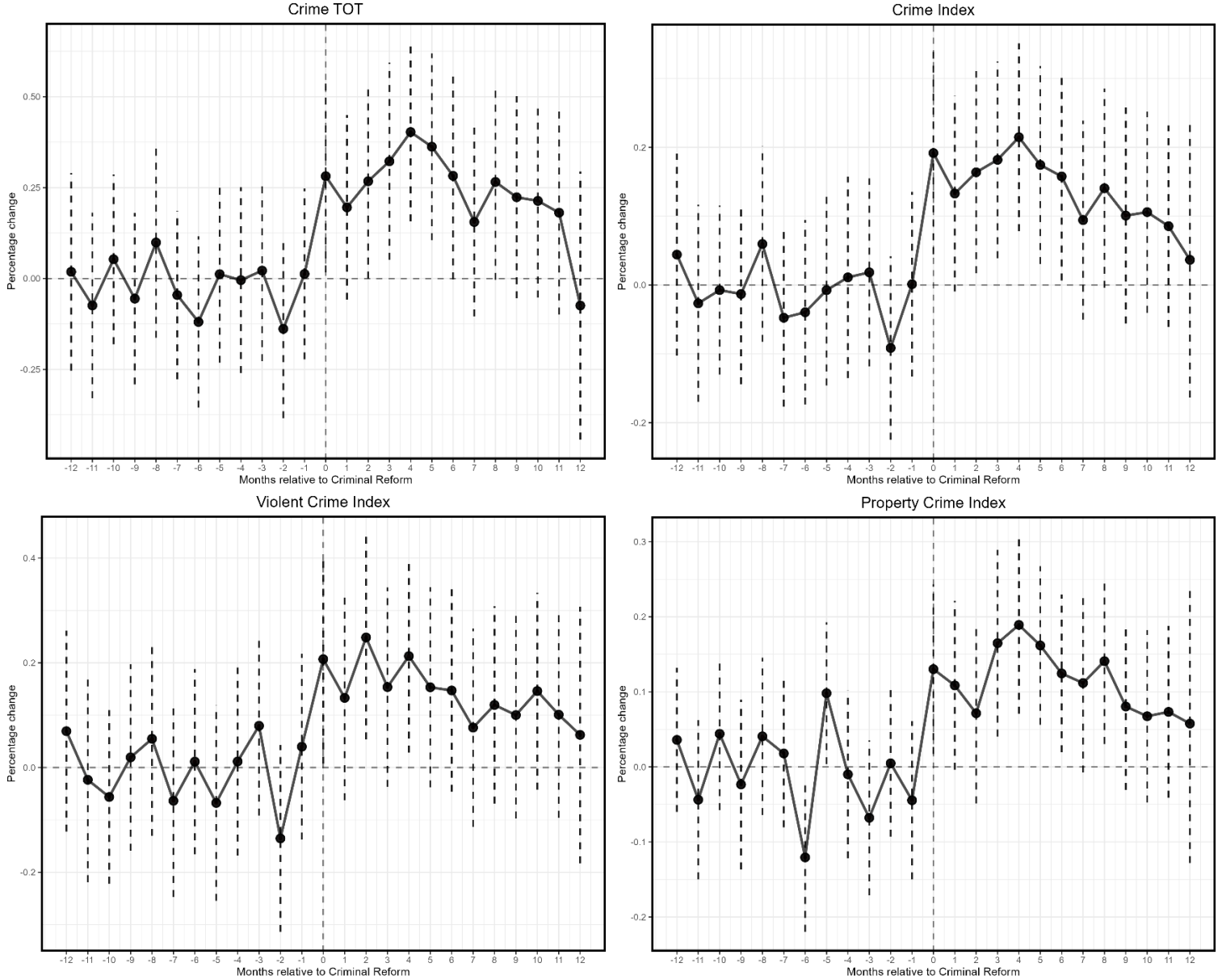


Figure A6. Goodman-Bacon (2021) Decomposition (continuation)



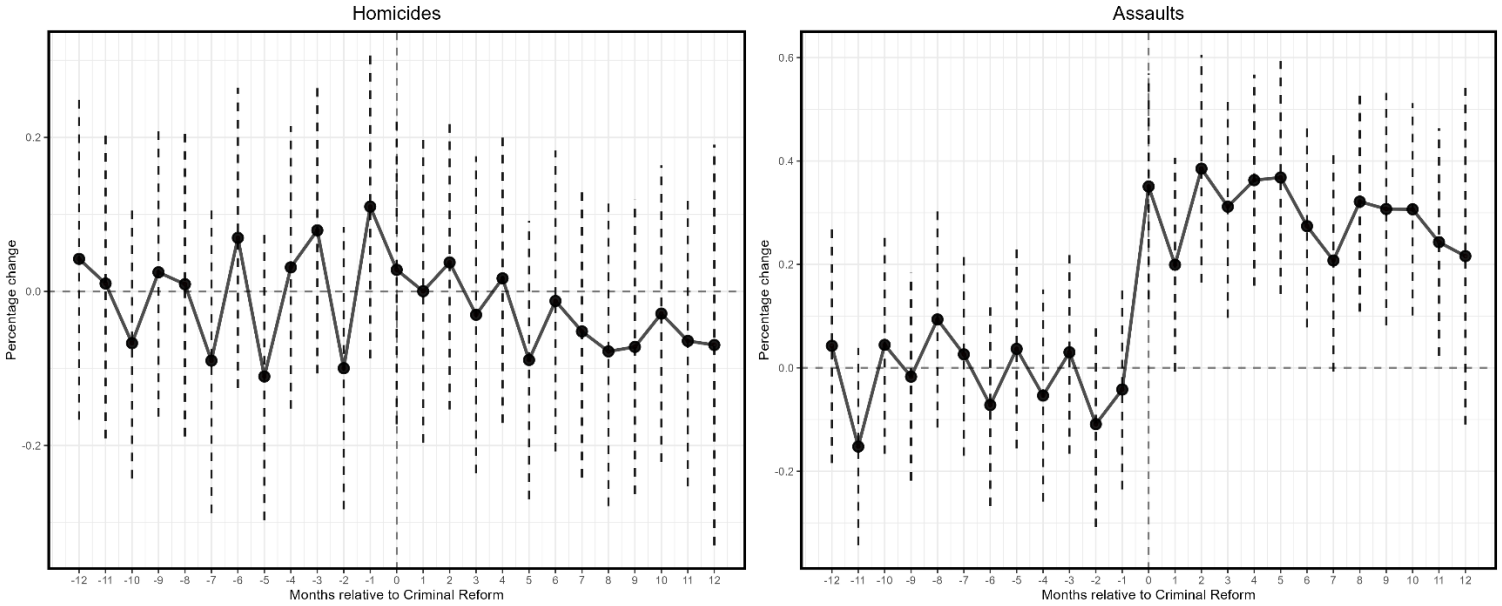
Note: these figures show the result of the Goodman-Bacon (2020) decomposition for different types of crimes. Crime indices are computed as the weighted average of different types of crimes, where the weights are given by the average sentence length of each type of crime and are presented in Table 2A. The horizontal axis shows the weight assign by the decomposition, while the vertical axis shows the estimate given by the comparison of a particular pair of treatment-control groups. Circles represent comparisons between earlier and later treated, while triangles represent comparisons between later and earlier treated.

Figure A6. Event Study Estimation using Callaway & Sant'Anna (2021) Methodology: Aggregated Crime Measures



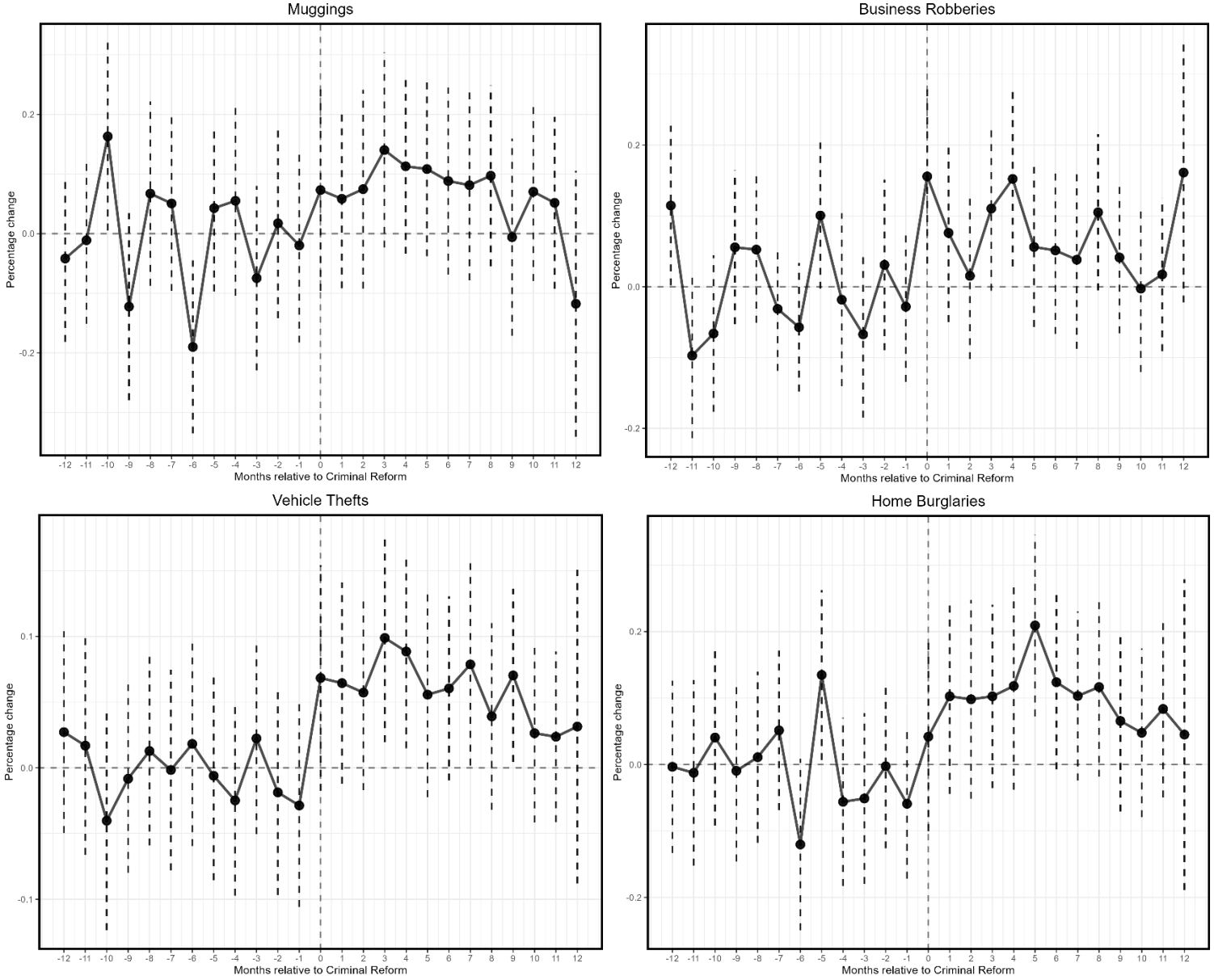
Note: this figure shows the results of an event study of the logarithm of different crime rates as a function of the leads and lags relative to the month of implementation of the reform in a municipality estimated using Callaway & Sant'Anna's (2021) doubly robust estimator. Dashed lines represent 95% confidence intervals computed with standard errors clustered at the municipality level using a bootstrap with 1000 iterations. Crime indices are computed as the weighted average of different types of crimes, where the weights are given by the average sentence length of each type of crime.

Figure A7. Event Study Estimation using Callaway & Sant'Anna (2021) Methodology: Violent Crimes



Note: this figure shows the results of an event study of the logarithm of different crime rates as a function of the leads and lags relative to the month of implementation of the reform in a municipality estimated using Callaway & Sant'Anna's (2021) doubly robust estimator. Dashed lines represent 95% confidence intervals computed with standard errors clustered at the municipality level using a bootstrap with 1000 iterations.

Figure A8. Event Study Estimation using Callaway & Sant'Anna (2021) Methodology: Property Crimes



Note: this figure shows the results of an event study of the logarithm of different crime rates as a function of the leads and lags relative to the month of implementation of the reform in a municipality estimated using Callaway & Sant'Anna's (2021) doubly robust estimator. Dashed lines represent 95% confidence intervals computed with standard errors clustered at the municipality level using a bootstrap with 1000 iterations.

Table A12. Difference-in-Difference Results using Wooldridge's (2021) Methodology

Panel A: Crime Aggregations	(1) Unweighted Crime	(2) Crime Index	(3) Violent Crime Index	(4) Property Crime Index
T	0.160***	0.082***	0.117***	0.053***
	(0.037)	(0.020)	(0.023)	(0.020)
Observations	75,975	75,975	75,975	75,975
R-squared	0.370	0.344	0.291	0.416
Panel B: Violent Crimes	(1) Homicides	(2) Assaults	(3) Sexual Offenses	(4) Drug Offenses
T	0.015	0.223***	-0.003	-0.208***
	(0.022)	(0.034)	(0.028)	(0.026)
Observations	75,975	75,975	60,881	60,881
R-squared	0.285	0.285	0.210	0.466
Panel C: Property Crimes	(1) Muggings	(2) Business Robberies	(3) Vehicles Thefts	(4) Home Burglaries
T	0.058**	0.027	0.007	0.039*
	(0.028)	(0.018)	(0.009)	(0.022)
Observations	75,975	75,975	75,975	75,975
R-squared	0.396	0.301	0.248	0.306
Year Month & Month-Year FE	YES	YES	YES	YES
Municipality FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES

Note: this table shows the results of a two-way fixed effects regression of the logarithm of different crime rates (log+1) on an indicator variable that equals 1 if the adversarial procedural reform has been implemented in a given municipality and month, estimated using the methodology presented in Wooldridge (2021). All regressions control for municipality, year, month, and year*month fixed effects, as well as for per capita Industry and Business tax collection, per capita investment in education, fiscal performance, density of population, rural index, displaced population, and the lag of police arrest. Municipality-clustered standard errors in parentheses. Crime indices from Panel A are computed as the weighted average of different types of crimes, where the weights are given by the average sentence length of each type of crime and are presented in Table 2A. *** p<0.01, ** p<0.05, * p<0.1