# Dynamic Impacts of Lockdown Mandates on Domestic Violence – Evidence from Multiple Policy Shifts in Chile

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NBER GITE

# One in three women report ever experiencing domestic violence






# What We Do

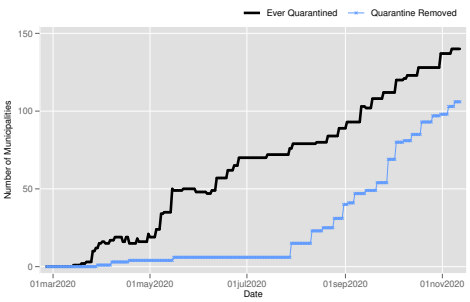
- Motivation: global surge in DV, a shadow pandemic (UN Women 2020)
  - Suggests a common factor: lockdown?
  - We estimate impacts of lockdown mandates on DV, and investigate mobility restrictions and employment as mechanisms
- Contributions:
  - Estimate causal dynamic impacts leveraging multiple policy experiments (Chaisemartin and D'Haultfoeuille 2020)
  - Analyse entry to *and exit* from lockdown to identify reversal vs ratchet effects
  - Analyse multiple DV indicators: distress, incidence, reporting
  - Investigate mechanisms, and furlough mitigation
  - Linked Chilean administrative data, municipality x month

# Visualizing Identifying Variation

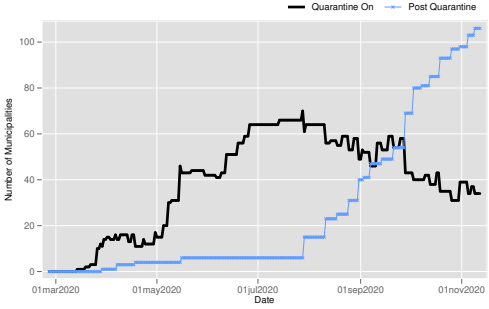
Chile has 346 municipalities, 143 entered lockdown in wave-1, and exits started in July

# Lockdown Entry and Exit

Figure 1: Temporal Dynamics of Lockdown Imposition and Removal




(a) Ever lockdowned




(b) Current lockdowns

# Estimating Dynamic Impacts of Lockdown Entry and Exit

- Allow for treatment effect heterogeneity using the de Chaisemartin & D'Haultfoeuille (2020) estimator
  - $K$ leads and $L$ lags to the event of lockdown (0 to 1)
  - Exit sample is restricted to entrants
  - In entry sample a municipality graduates out once it exits lockdown
  - To avoid endogenous lag length, samples include all time periods for municipalities that change status

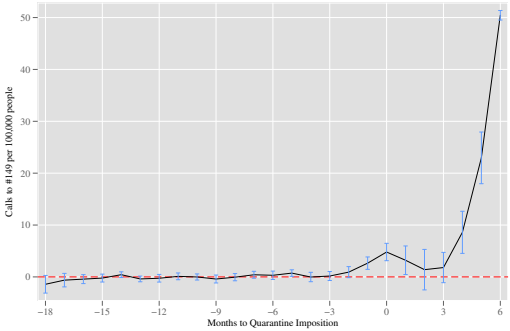
Event Study Specification | De Chaisemartin & D'Haultfoeuille Specification

- Identifying assumption: timing of lockdown entry and exit is conditionally quasi-random
  - Upheld by placebo effects
  - Control for potential predictors including Covid infection & test rates

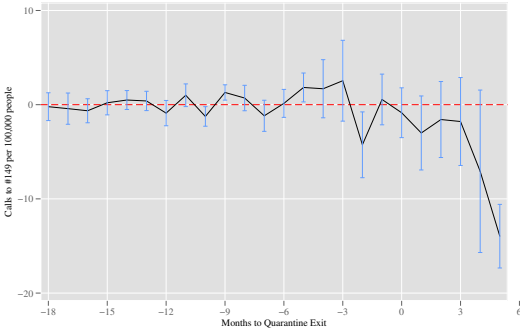
Formal tests

# Results – Domestic Violence Indicators

# $DID_M$ Estimates: Distress Calls




(a) Lockdown Entry

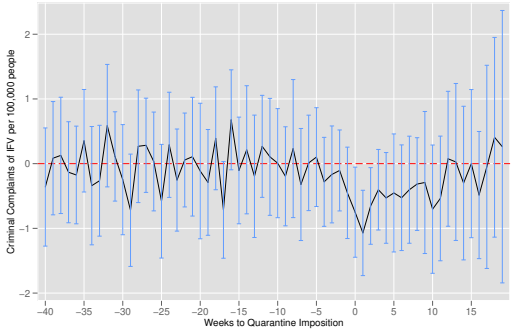



(b) Lockdown Exit

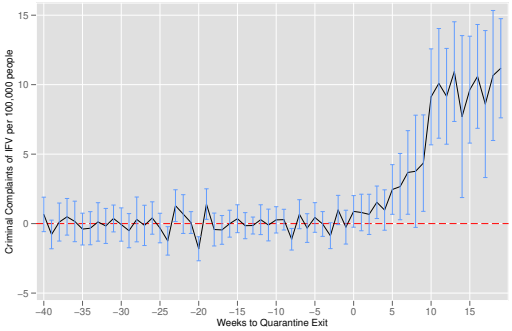
Figure 3: Distress Calls to Police DV Hotline (#149)

Event Studies | Descriptives | Identifying Variation

# $DID_M$ Estimates: DV Crime Reporting




(a) Lockdown Entry

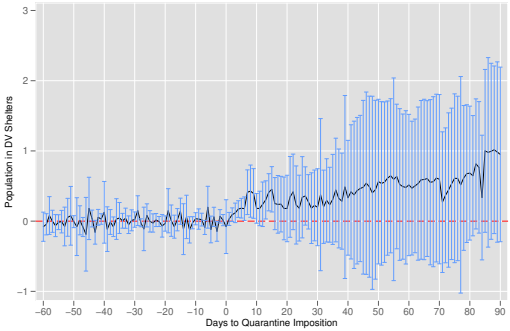



(b) Lockdown Exit

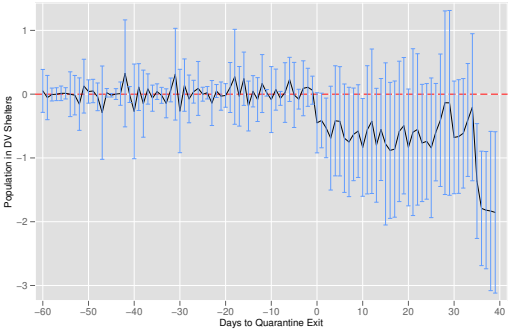
Figure 4: Lockdown Imposition and Removal and DV Crime Reporting to Police

Monthly Aggregates | Event Studies | Descriptives

# $DID_M$ Estimates: Domestic Violence Shelter Use




(a) Lockdown Entry

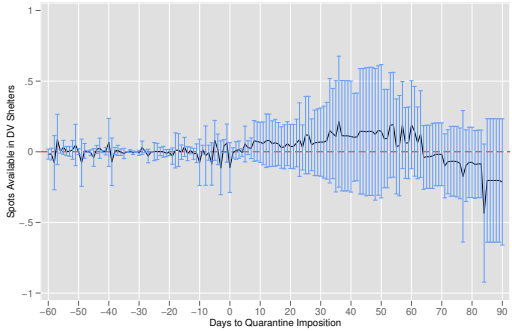



(b) Lockdown Exit

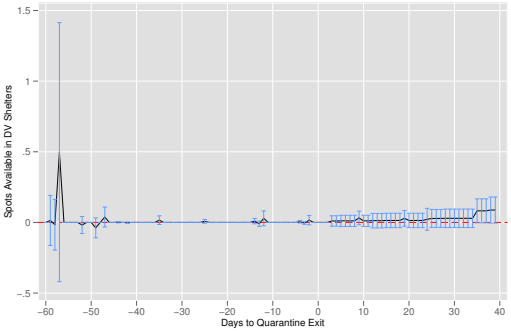
Figure 5: Lockdown Imposition and Removal- Impacts on DV Shelter Residence

Event Studies | Descrptives

# $DID_M$ Estimates: Available Places at DV Shelters




(a) Lockdown Entry




(b) Lockdown Exit

Figure 6: Increased Shelter Spots Facilitate About Half of the Increase in Use

Descriptives

# Impacts of Lockdown Entry

- Lockdown imposition leads to an increase in indicators of DV-related distress calls (and shelter use), but lower police reports
  - Calls increase 86%
  - Shelter use increases 11%
  - Reported cases decrease 5%
- Hard to identify whether decrease in police reports is because of curtailed services (supply) or proximity to perpetrator (demand)
- But we will see that it is related to mobility restrictions

# Impacts of Lockdown Exit

- Ratchet effect on distress calls (46% above baseline)
  - Fits with stylized fact of DV repeating within couples
- Lifting lockdown leads to a full reversal for shelter use and police reports
  - In fact reports are 10% above baseline, consistent with pent up demand plus additional demand given the increase in cases
- Our results accentuate the controversy around welfare impacts of lockdown imposition

# Impacts of Covid Infection and Test Rates

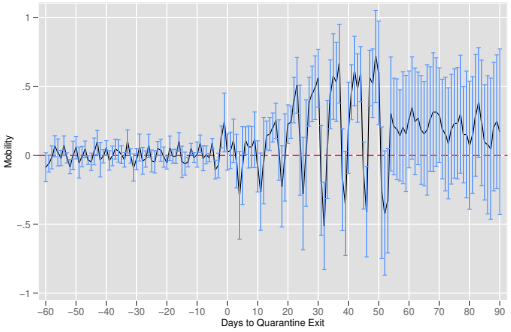
- Lockdown has significant impacts. But all outcomes (including mechanism outcomes) moved in the same direction in areas not locked down Descriptives
- Direct effects of Covid infection and test rates conditional on lockdown status are to increase distress and reduce escape or redress

# Mechanisms: Mobility and Employment Loss

# $DID_M$ Estimates: Mobility within Municipality




(a) Lockdown Entry



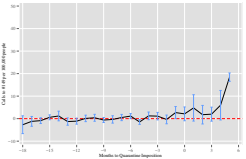

(b) Lockdown Exit

Figure 7: Mobility Patterns

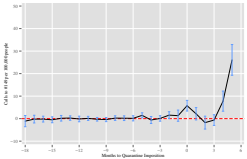
Event Studies | Descriptives 1 | Descriptives 2

# Testing Mobility as a Mechanism

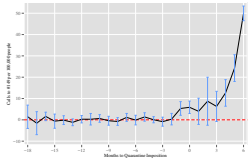
Panel A: Distress Calls – Lockdown Entry



(a) Low Movement Change

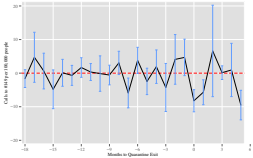


(b) Mid Movement Change

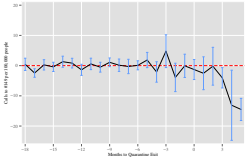


(c) High Movement Change

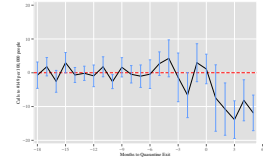
Panel B: Distress Calls –Lockdown Exit



(d) Low Movement Change



(e) Mid Movement Change

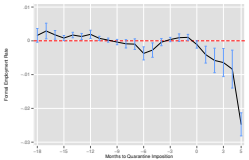


(f) High Movement Change

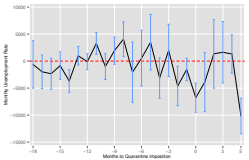
Similar Patterns for Crime Reporting

# $DID_M$ Estimates: Labour Market Outcomes

Panel A: Lockdown Entry

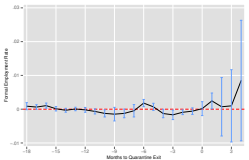



(a) Formal Employment

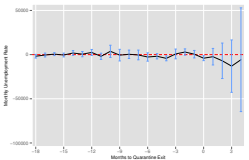



(b) Formal Wages

Panel B: Lockdown Exit




(c) Formal Employment

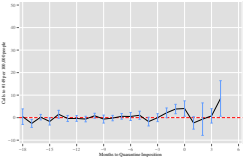



(d) Formal Wages

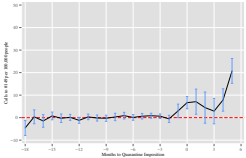
Results for other outcomes

# Testing Employment as a Mechanism

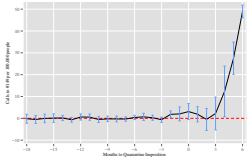
Panel A: Distress Calls– Lockdown Entry



(a) Low Vulnerability

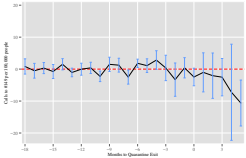


(b) Mid Vulnerability

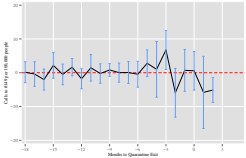


(c) High Vulnerability

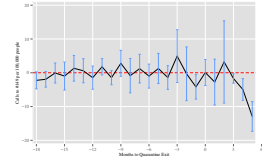
Panel B: Distress Calls–Lockdown Exit



(d) Low Vulnerability



(e) Mid Vulnerability



(f) High Vulnerability

Similar results for crime reporting

# Shift-share Estimates: DV calls decrease and reporting increases in formal sector employment rates

| | Calls | | | | Crime |
|---|---|---|---|---|---|
| | All Calls | Economic | Physical | Psychological | Reporting |
| | (1) | (2) | (3) | (4) | (5) |
| Formal Employment | -0.738*** | -0.0129** | -0.396*** | -0.328** | 0.979*** |
| | (0.250) | (0.00645) | (0.136) | (0.130) | (0.243) |
| bservations | 4,475 | 4,475 | 4,475 | 4,475 | 4,475 |
| $R^2$ | 0.295 | 0.015 | 0.285 | 0.165 | 0.048 |
| Mean Dep. Var. | 4.865 | 0.0299 | 1.849 | 2.986 | 42.82 |
| First Stage F-Statistics | 384.9 | 384.9 | 384.9 | 384.9 | 469.2 |

Clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

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# Summary: Mechanisms

- Lockdown leads to a drop in mobility and an increase in unemployment
  - Mobility declines 30% initially, 15% on average
  - Formal employment declines 15%
- Changes in DV are larger in municipalities where lockdown has larger impacts on these intermediate outcomes
  - Using shift share instrument we estimate job loss explains 8% of increase in DV calls
  - Employment loss exhibits ratchet effects, lining up with DV
  - Compelling indication that mobility restrictions drive lower reporting
- Mechanisms consistent with job loss creating economic stress and exposure (Bhalotra et al. 2021), and with mobility restrictions creating both exposure and isolation (Etheridge and Spantig 2021)

# Work in Progress

- Partial identification methods to examine sensitivity to selection into lock-down
- Assess if furlough payments and unemployment benefits mitigate effects of lockdown (and unemployment)
- We are (re-)surveying a representative sample of $\sim$ 3200 women starting late-June. This will expand the scope of the analysis

# Policy implications

- Address causes of higher distress: unemployment, exposure
- Unemployment: Investigate potential for furlough schemes and unemployment benefits to mitigate
- Exposure: lockdown exclusions, shelters, alternative ways of reporting, buffer (endogenous) state capacity

- Our results accentuate the controversy around lockdown mandates, indicating substantial and persistent impacts of lockdown over and above impacts of Covid infections

Thank you!

# Appendices

# Related Literature-1

- Closest relative: Miller et al. Nov 2020, administrative data for LA
  - Single lockdown. Model is standard DID with discrete indicators for lockdown start and stop
  - Similar results for entry. Results for exit opposite of ours- methods?

- Bullinger et al July 2020, similar data Chicago
  - Similar results for calls and reporting (emphasis on the gap), single lockdown, no analysis of exit

- Ivandic et al. (2020) also uses calls and reporting. Finds increases in both DV in London police data. Shows importance of distinguishing current vs ex partner and first vs third party reporting

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# Related Literature-2

- Leslie & Wilson July 2020, 14 large US cities. Similar,
  - Similar results for calls, single date for lockdown, no analysis of police reports, no analysis of exit. Results derive from new cases and weekdays.
  - Similar studies of increases in calls: Agüero (2021) Peru, Perez-Vincent et al. (2020) Argentina, McCrary and Sanga 2020 USA

- Perez-Vincent et al. (2020): Victimization survey after lockdown compares DV in households where partner was/not exempt from stay at home orders, indicating association of exposure with DV

- Government-mandated stay-at-home orders can only explain a portion of the pandemic's economic impact (Rojas et al., 2020; Gupta et al., 2020; Aum et al., 2020).
  - Consistent with our unemployment results

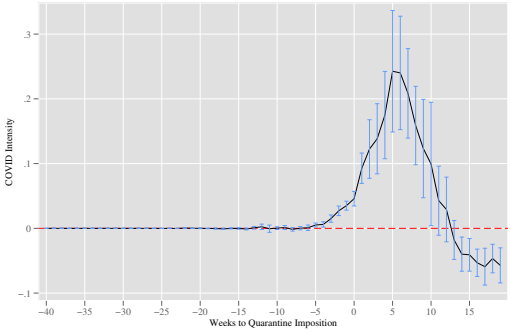
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# Measures of Economic Conditions

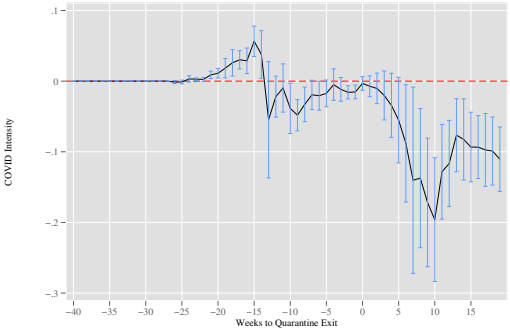
1. Formal labour markets: census of all workers from the unemployment insurance data base
   - Each worker contributes to this scheme (so can observe labour market participation)
   - When unemployment occurs, they receive payouts (so can observe formal unemployment)
   - Also observe salaries, individual work sector, sex, etc.
2. Estimates of formal and informal labour markets: rolling employment survey
   - Can estimate LFP, employment, unemployment among formal *and* informal
   - But unlike point 1, data is not representative by municipality
3. Observe all individuals furloughed (by month and municipality)
   - Known as the "Employment Protection Law"
   - Available to all formal labour market participants
   - Covers maximum 15 monthly payments
   - After payment 5, only covers 45% of income

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# $DID_M$ Estimates: COVID-19 Case Rates and Lockdown




(a) Lockdown Entry

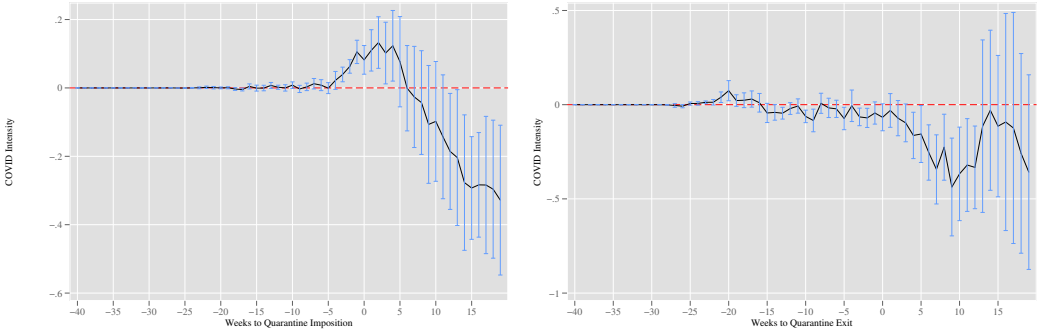



(b) Lockdown Exit

Figure 11: Lockdown Imposition and Removal and COVID-19 Cases per 1,000

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# $DID_M$ Estimates: PCR Test Rates and Lockdown



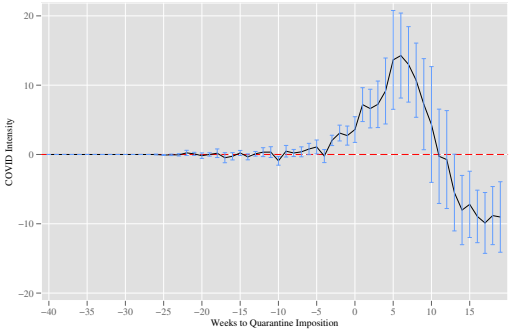

(a) Lockdown Entry

(b) Lockdown Exit

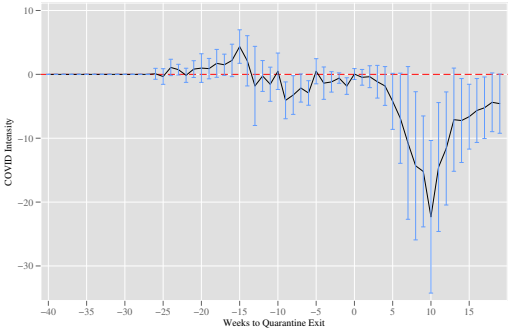
Figure 12: Lockdown Imposition and Removal and PCR Tests per 1,000

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# $DID_M$ Estimates: Test Positivity and Lockdown




(a) Lockdown Entry




(b) Lockdown Exit

Figure 13: Lockdown Imposition and Removal and PCR Test Positivity

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# Identifying Variation for Dynamic Effects

Table 1: Proportion of Municipalities and Population Driving Estimates (lockdown Imposition)

| | lockdown Imposition | | lockdown Exit | |
|---|---|---|---|---|
| Time Period | Municipalities | Population | Municipalities | Population |
| 0 | 131 | 16635535 | 40 | 4856999 |
| 1 | 97 | 14709668 | 40 | 4856999 |
| 2 | 62 | 11034481 | 15 | 1308894 |
| 3 | 44 | 7829823 | 6 | 136536 |
| 4 | 30 | 5518065 | 6 | 136536 |
| 5 | 7 | 1680245 | 4 | 45299 |
| 6 | 1 | 89493 | – | – |

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## Table 2: Regression Average Estimates: DV Distress Calls

| | Baseline Models | | With COVID Intensity Measures | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| **Aggregate $DID_M$ Estimates** | | | | | | |
| Quarantine Imposed | 4.299*** | 4.299*** | 3.555*** | 4.078*** | 3.892*** | 3.939*** |
| | (1.107) | (0.946) | (1.139) | (0.978) | (1.287) | (1.524) |
| Quarantine Removed | -1.996 | -1.996 | -1.367 | -0.808 | -1.083 | -0.350 |
| | (1.246) | (1.240) | (1.146) | (1.390) | (1.426) | (1.476) |
| **Two-way Fixed Effect Estimates** | | | | | | |
| Quarantine Imposed | 7.804*** | 7.101*** | 5.542*** | 7.163*** | 5.220*** | 5.404*** |
| | (1.059) | (0.795) | (0.822) | (0.800) | (0.844) | (0.841) |
| Quarantine Removed | 2.781** | 2.331** | 2.716** | 2.262** | 2.508** | 2.221** |
| | (1.326) | (1.069) | (1.113) | (1.074) | (1.103) | (1.106) |
| Population INE | | 0.001** | 0.001** | 0.001** | 0.001** | 0.001** |
| | | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Diagnosed COVID cases per 1,000 people | | | 0.356*** | | | 0.263* |
| | | | (0.093) | | | (0.150) |
| PCR tests per 1,000 people | | | | -0.008 | | -0.059** |
| | | | | (0.027) | | (0.030) |
| Rate of positive PCR tests | | | | | 0.144*** | 0.076 |
| | | | | | (0.032) | (0.051) |
| Observations | 7,266 | 7,266 | 7,266 | 7,266 | 7,266 | 7,266 |
| Mean of Dependent Variable | 5.036 | 5.036 | 5.036 | 5.036 | 5.036 | 5.036 |

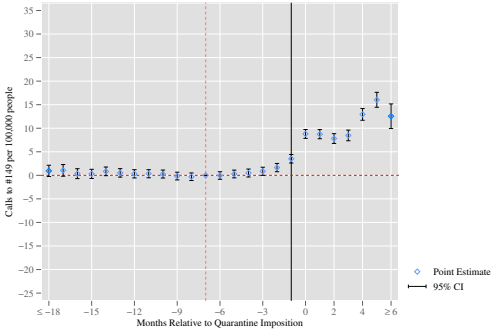
## Table 3: Regression Average Estimates: Residents in DV Shelters

| | Baseline | With COVID Intensity Measures | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| **Aggregate $DID_M$ Estimates** | | | | | |
| Quarantine Imposed | 0.391* | 0.380 | 0.359 | 0.388 | 0.422 |
| | (0.222) | (0.427) | (0.247) | (0.282) | (0.483) |
| Quarantine Removed | -0.606 | -0.625 | -0.611 | -0.606 | -0.628 |
| | (0.442) | (0.468) | (0.442) | (0.442) | (0.468) |
| **Two-way Fixed Effect Estimates** | | | | | |
| At least one municipality under quarantine | 0.053* | 0.131*** | 0.129*** | 0.088*** | 0.155*** |
| | (0.029) | (0.032) | (0.032) | (0.032) | (0.034) |
| All municipalities exited quarantine | -0.025 | 0.029 | 0.005 | -0.004 | 0.035 |
| | (0.115) | (0.124) | (0.115) | (0.115) | (0.124) |
| Diagnosed COVID cases per 1,000 people | | -0.578*** | | | -0.566*** |
| | | (0.091) | | | (0.164) |
| PCR test per 1.000 people, mean | | | -0.232*** | | -0.166*** |
| | | | (0.035) | | (0.042) |
| Rate of positive PCR tests | | | | -0.003*** | 0.002 |
| | | | | (0.001) | (0.002) |
| Observations | 4,576 | 4,528 | 4,576 | 4,576 | 4,528 |
| Mean of Dependent Variable | 3.534 | 3.539 | 3.534 | 3.534 | 3.539 |

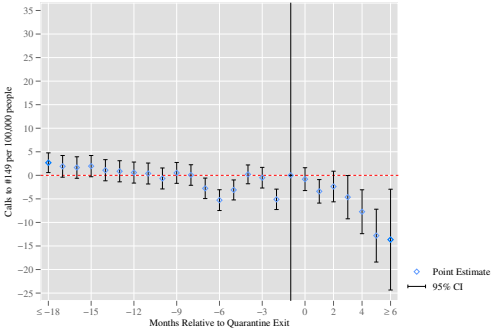
## Table 4: Regression Average Estimates: Formal Employment

| | Baseline Models | | With COVID Intensity Measures | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| **Aggregate $DID_M$ Estimates** | | | | | | |
| Quarantine Imposed | -0.004*** | -0.004*** | -0.003** | -0.004*** | -0.003** | -0.003* |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.002) |
| Quarantine Removed | 0.001 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| **Two-way Fixed Effect Estimate** | | | | | | |
| (mean) quarantine | -0.006*** | -0.005*** | -0.004** | -0.005*** | -0.003* | -0.003** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.002) | (0.002) |
| quarantineExit | -0.000 | 0.000 | -0.000 | 0.001 | -0.001 | 0.000 |
| | (0.003) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Population (INE) | | -0.000*** | -0.000*** | -0.000*** | -0.000*** | -0.000*** |
| | | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Diagnosed COVID cases per 1,000 people | | | -0.000** | | | -0.000 |
| | | | (0.000) | | | (0.000) |
| PCR tests per 1,000 people | | | | 0.000 | | 0.000** |
| | | | | (0.000) | | (0.000) |
| Rate of positive PCR tests | | | | | -0.000*** | -0.000 |
| | | | | | (0.000) | (0.000) |
| Observations | 6,920 | 6,920 | 6,920 | 6,920 | 6,920 | 6,920 |
| Mean of Dependent Variable | 0.275 | 0.275 | 0.275 | 0.275 | 0.275 | 0.275 |

# Event Studies: Distress Calls




(a) lockdown Entry

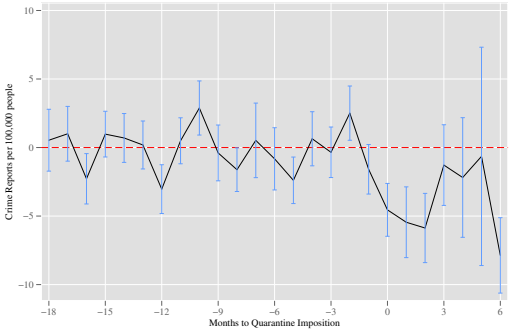



(b) lockdown Exit

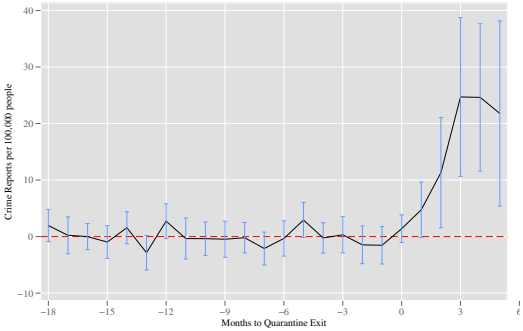
Figure 14: Lockdown Imposition and Removal and Distress Calls to Police DV Hotline (#149)

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# $DID_M$ Estimates: Crime Reporting (Monthly Aggregates)




(a) lockdown Entry

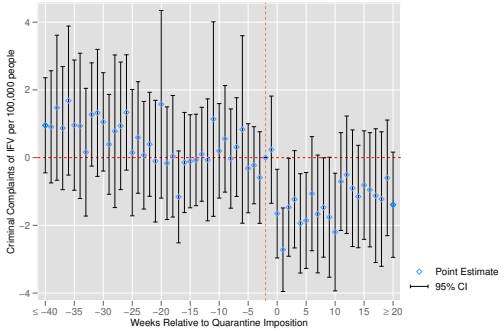



(b) lockdown Exit

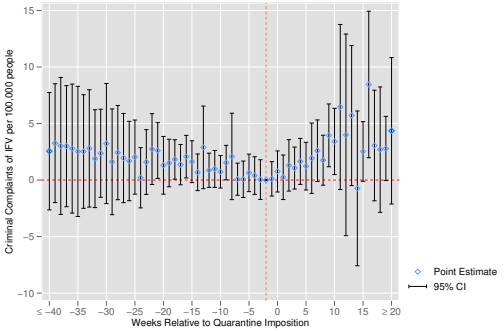
Figure 15: lockdown Imposition and Removal and Formal Crime Reporting of VIF to Police

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# Event Studies: Crime Reporting




(a) lockdown Entry




(b) lockdown Exit

Figure 16: lockdown Imposition and Removal and Formal VIF Crime Reports to the Police

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Table 5: Violence Indicators pre and post-COVID and in Lockdown

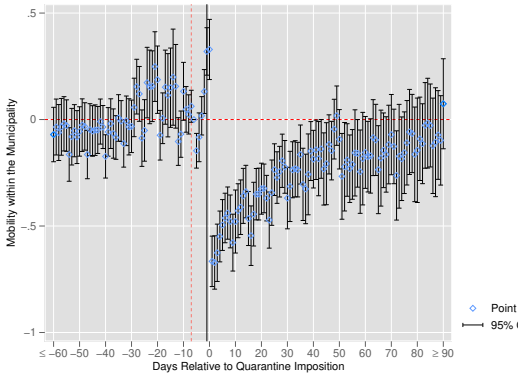
| | Calls (1) | Reporting (2) | Shelters (3) |
|---|---|---|---|
| post-COVID | 5.107*** | -0.0606*** | 0.0329 |
| | (0.447) | (0.0218) | (0.107) |
| Lock-down | 5.571*** | -0.342*** | 0.0436 |
| | (1.001) | (0.0533) | (0.0767) |
| Constant | 3.252*** | 1.457*** | 3.395*** |
| | (0.253) | (0.0121) | (0.0924) |
| Observations | 7,612 | 220,748 | 4,576 |
| $R^2$ | 0.158 | 0.000 | 0.000 |

Calls refers to distress calls to the police family violence hotline (monthly). Reporting refers to crime reports for intra-family violence (weekly). Shelters refers to residence in DV shelters (daily). All outcomes are measured per 100,000 population.

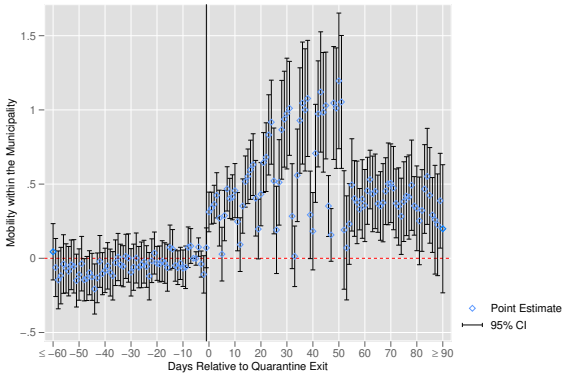
*** p<0.01, ** p<0.05, * p<0.1

Back

# Event Studies: Mobility within the Municipality




(a) lockdown Entry



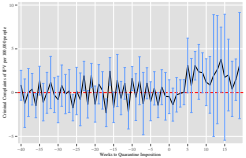

(b) lockdown Exit

Figure 17: lockdown Imposition and Movement Patterns

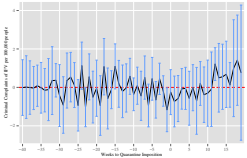
Back

# Testing Mobility as a Mechanism – DV Reporting

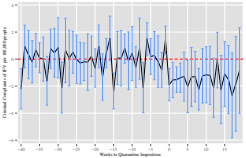
## Panel A: Reporting to Police – Lockdown Entry



(a) Low Movement Change

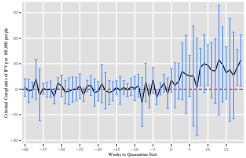


(b) Mid Movement Change

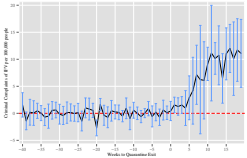


(c) High Movement Change

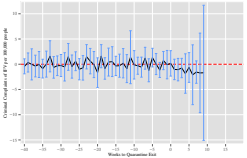
## Panel B: Distress Calls –Lockdown Exit



(d) Low Movement Change



(e) Mid Movement Change

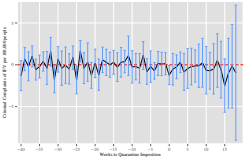


(f) High Movement Change

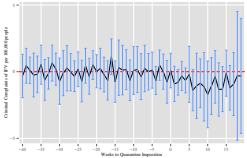
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# Testing Employment as a Mechanism – DV Reporting

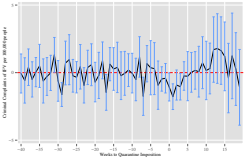
Panel A: Reporting to Police – Lockdown Entry



(a) Low Vulnerability

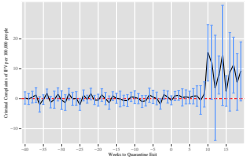


(b) Mid Vulnerability

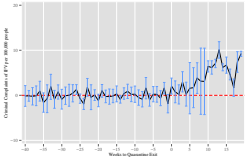


(c) High Vulnerability

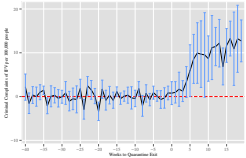
Panel B: Distress Calls –Lockdown Exit



(d) Low Vulnerability



(e) Mid Vulnerability

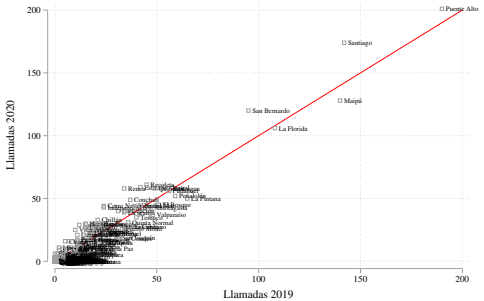


(f) High Vulnerability

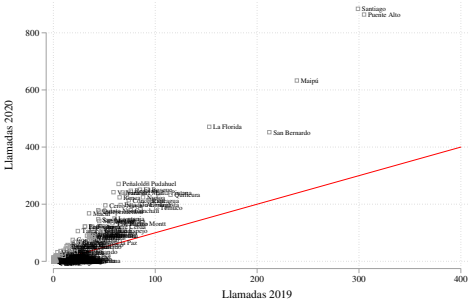
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# Descriptive: Change in Distress Calls are Pervasive Nation-wide

Figure 20: Llamadas a #149 a Nivel Comunal – 2019 vs 2020



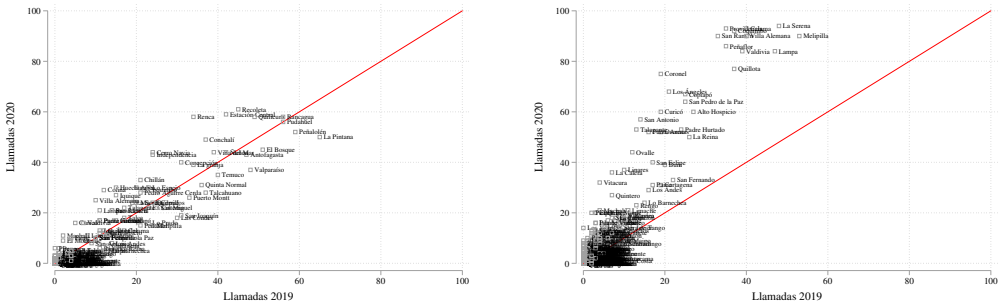

(a) Enero y Febrero (pre-Cuarentenas): Todas




(b) Abril–Junio (post-Cuarentenas): Todas

# Descriptive: Change in Distress Calls are Pervasive Nation-wide

Figure 22: Llamadas a #149 a Nivel Comunal – 2019 vs 2020

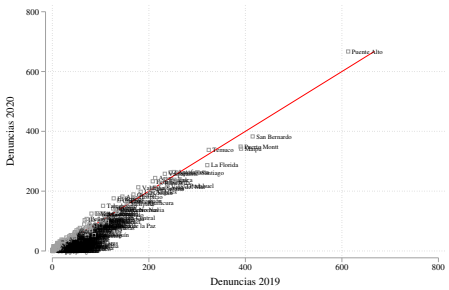



(a) Enero y Febrero (pre): $< 100$ Llamadas

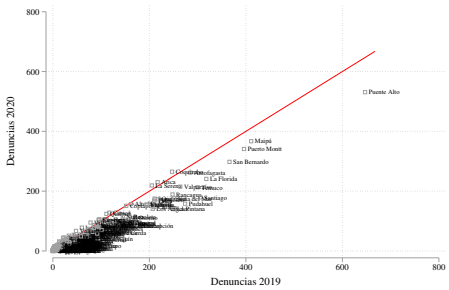
(b) Abril–Junio (post) $< 100$ Llamadas

# Descriptive: Change in Criminal Complaints Vary by Municipality

Figure 24: Denuncias a Carabineros por Violencia Intrafamiliar a Nivel Comunal



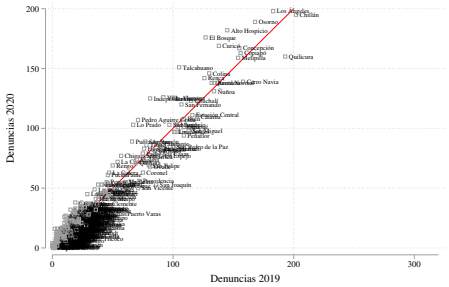

(a) Enero y Febrero (pre-Cuarentenas): Todas



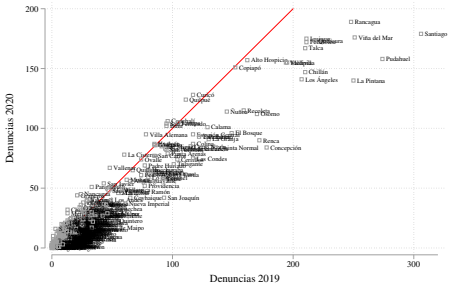

(b) Abril y Mayo (post-Cuarentenas): Todas

# Descriptive: Change in Criminal Complaints Vary by Municipality

Figure 26: Denuncias a Carabineros por Violencia Intrafamiliar a Nivel Comunal




(a) Enero y Febrero (pre): $< 200$ Denuncias




(b) Abril y Mayo (post) $< 200$ Denuncias

Table 6: Cambios En Incidencia de Llamadas y Denuncias a Nivel Nacional y Regional: Febrero

| | Llamadas #149 | | | Denuncias Carabineros | | | Denuncias Fiscalía | | |
|---|---|---|---|---|---|---|---|---|---|
| Area | 2019 | 2020 | Cambio | 2019 | 2020 | Cambio | 2019 | 2020 | Cambio |
| Total Nacional | 1236 | 1369 | 10,8% | 7518 | 7992 | 6,3% | 11470 | 10940 | -4,6% |
| Por Región | | | | | | | | | |
| Región Tarapacá | 11 | 19 | 72,7% | 200 | 221 | 10,5% | 243 | 263 | 8,2% |
| Región Antofagasta | 38 | 30 | -21,1% | 219 | 233 | 6,4% | 371 | 366 | -1,3% |
| Región Atacama | 9 | 11 | 22,2% | 124 | 126 | 1,6% | 248 | 236 | -4,8% |
| Región Coquimbo | 20 | 29 | 45,0% | 340 | 366 | 7,6% | 406 | 445 | 9,6% |
| Región Valparaíso | 95 | 103 | 8,4% | 674 | 796 | 18,1% | 1036 | 1201 | 15,9% |
| Región O'Higgins | 49 | 48 | -2,0% | 432 | 447 | 3,5% | 814 | 824 | 1,2% |
| Región Maule | 31 | 28 | -9,7% | 483 | 528 | 9,3% | 716 | 702 | -2,0% |
| Región Bío Bío | 52 | 70 | 34,6% | 609 | 652 | 7,1% | 833 | 812 | -2,5% |
| Región Araucanía | 26 | 31 | 19,2% | 473 | 561 | 18,6% | 548 | 554 | 1,1% |
| Región Los Lagos | 36 | 27 | -25,0% | 469 | 457 | -2,6% | 572 | 623 | 8,9% |
| Región Aysén | 2 | 4 | 100,0% | 44 | 49 | 11,4% | 59 | 76 | 28,8% |
| Región Magallanes | 6 | 7 | 16,7% | 36 | 64 | 77,8% | 58 | 97 | 67,2% |
| Región Metropolitana | 822 | 917 | 11,6% | 2887 | 2903 | 0,6% | 4861 | 4013 | -17,4% |
| Región Los Ríos | 10 | 9 | -10,0% | 197 | 228 | 15,7% | 249 | 253 | 1,6% |
| Región Arica y Parinacota | 13 | 15 | 15,4% | 109 | 127 | 16,5% | 184 | 187 | 1,6% |
| Región Ñuble | 16 | 21 | 31,3% | 222 | 234 | 5,4% | 272 | 288 | 5,9% |

Table 7: Cambios En Incidencia de Llamadas y Denuncias a Nivel Nacional y Regional: Marzo

| | Llamadas #149 | | | Denuncias Carabineros | | | Denuncias Fiscalía | | |
|---|---|---|---|---|---|---|---|---|---|
| Area | 2019 | 2020 | Cambio | 2019 | 2020 | Cambio | 2019 | 2020 | Cambio |
| Total Nacional | 1393 | 1772 | 27,2% | 8605 | 7783 | -9,6% | 12158 | 10288 | -15,4% |
| Por Región | | | | | | | | | |
| Región Tarapacá | 24 | 18 | -25,0% | 198 | 211 | 6,6% | 228 | 297 | 30,3% |
| Región Antofagasta | 32 | 41 | 28,1% | 262 | 226 | -13,7% | 422 | 389 | -7,8% |
| Región Atacama | 12 | 18 | 50,0% | 124 | 165 | 33,1% | 246 | 298 | 21,1% |
| Región Coquimbo | 30 | 53 | 76,7% | 342 | 390 | 14,0% | 446 | 429 | -3,8% |
| Región Valparaíso | 103 | 145 | 40,8% | 774 | 684 | -11,6% | 1121 | 1068 | -4,7% |
| Región O'Higgins | 55 | 54 | -1,8% | 440 | 430 | -2,3% | 778 | 713 | -8,4% |
| Región Maule | 31 | 44 | 41,9% | 505 | 494 | -2,2% | 689 | 675 | -2,0% |
| Región Bío Bío | 71 | 84 | 18,3% | 737 | 582 | -21,0% | 874 | 708 | -19,0% |
| Región Araucanía | 41 | 35 | -14,6% | 524 | 524 | 0,0% | 533 | 562 | 5,4% |
| Región Los Lagos | 39 | 39 | 0,0% | 468 | 516 | 10,3% | 564 | 552 | -2,1% |
| Región Aysén | 7 | 10 | 42,9% | 51 | 41 | -19,6% | 76 | 69 | -9,2% |
| Región Magallanes | 4 | 2 | -50,0% | 70 | 58 | -17,1% | 94 | 79 | -16,0% |
| Región Metropolitana | 885 | 1169 | 32,1% | 3521 | 2863 | -18,7% | 5358 | 3752 | -30,0% |
| Región Los Ríos | 20 | 14 | -30,0% | 222 | 215 | -3,2% | 245 | 230 | -6,1% |
| Región Arica y Parinacota | 15 | 23 | 53,3% | 121 | 148 | 22,3% | 194 | 192 | -1,0% |
| Región Ñuble | 24 | 23 | -4,2% | 246 | 236 | -4,1% | 290 | 275 | -5,2% |

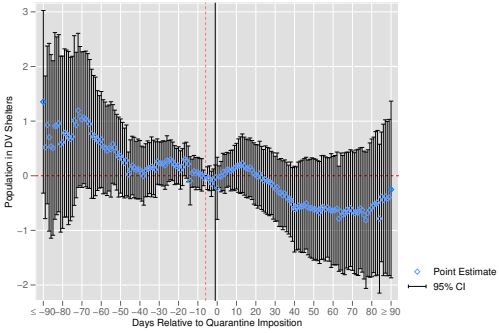
Table 8: Cambios En Incidencia de Llamadas y Denuncias a Nivel Nacional y Regional: Abril

| | Llamadas #149 | | | Denuncias Carabineros | | | Denuncias Fiscalía | | |
|---|---|---|---|---|---|---|---|---|---|
| Area | 2019 | 2020 | Cambio | 2019 | 2020 | Cambio | 2019 | 2020 | Cambio |
| Total Nacional | 1150 | 3307 | 187,6% | 7807 | 6065 | -22,3% | 12082 | 8083 | -33,1% |
| Por Región | | | | | | | | | |
| Región Tarapacá | 22 | 44 | 100,0% | 209 | 160 | -23,4% | 306 | 221 | -27,8% |
| Región Antofagasta | 35 | 76 | 117,1% | 224 | 219 | -2,2% | 382 | 406 | 6,3% |
| Región Atacama | 7 | 19 | 171,4% | 140 | 136 | -2,9% | 231 | 251 | 8,7% |
| Región Coquimbo | 24 | 63 | 162,5% | 344 | 337 | -2,0% | 450 | 348 | -22,7% |
| Región Valparaíso | 93 | 285 | 206,5% | 741 | 600 | -19,0% | 1187 | 912 | -23,2% |
| Región O'Higgins | 37 | 91 | 145,9% | 407 | 360 | -11,5% | 829 | 534 | -35,6% |
| Región Maule | 25 | 86 | 244,0% | 456 | 377 | -17,3% | 708 | 497 | -29,8% |
| Región Bío Bío | 49 | 180 | 267,3% | 629 | 481 | -23,5% | 894 | 571 | -36,1% |
| Región Araucanía | 32 | 95 | 196,9% | 508 | 351 | -30,9% | 557 | 404 | -27,5% |
| Región Los Lagos | 29 | 74 | 155,2% | 477 | 345 | -27,7% | 667 | 529 | -20,7% |
| Región Aysén | 2 | 5 | 150,0% | 46 | 43 | -6,5% | 79 | 53 | -32,9% |
| Región Magallanes | 2 | 15 | 650,0% | 55 | 49 | -10,9% | 92 | 59 | -35,9% |
| Región Metropolitana | 764 | 2150 | 181,4% | 3057 | 2177 | -28,8% | 5047 | 2793 | -44,7% |
| Región Los Ríos | 11 | 37 | 236,4% | 176 | 167 | -5,1% | 230 | 192 | -16,5% |
| Región Arica y Parinacota | 3 | 35 | 1066,7% | 99 | 84 | -15,2% | 187 | 134 | -28,3% |
| Región Ñuble | 15 | 52 | 246,7% | 239 | 179 | -25,1% | 236 | 179 | -24,2% |

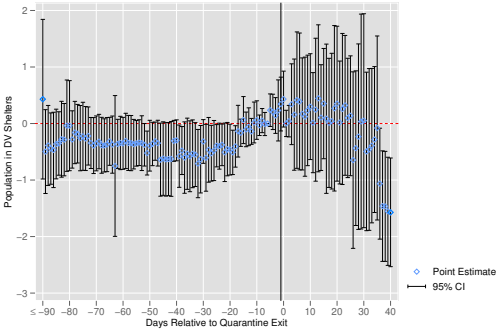
Table 9: Cambios En Incidencia de Llamadas y Denuncias a Nivel Nacional y Regional: Mayo

| | Llamadas #149 | | | Denuncias Carabineros | | | Denuncias Fiscalía | | |
|---|---|---|---|---|---|---|---|---|---|
| Area | 2019 | 2020 | Cambio | 2019 | 2020 | Cambio | 2019 | 2020 | Cambio |
| Total Nacional | 1135 | 4705 | 314,5% | 8148 | 6820 | -16,3% | 11951 | 10276 | -14,0% |
| Por Región | | | | | | | | | |
| Región Tarapacá | 18 | 87 | 383,3% | 195 | 174 | -10,8% | 256 | 254 | -0,8% |
| Región Antofagasta | 33 | 126 | 281,8% | 234 | 221 | -5,6% | 405 | 425 | 4,9% |
| Región Atacama | 8 | 38 | 375,0% | 141 | 134 | -5,0% | 248 | 227 | -8,5% |
| Región Coquimbo | 20 | 85 | 325,0% | 319 | 417 | 30,7% | 448 | 523 | 16,7% |
| Región Valparaíso | 84 | 380 | 352,4% | 803 | 674 | -16,1% | 1248 | 1136 | -9,0% |
| Región O'Higgins | 47 | 138 | 193,6% | 402 | 408 | 1,5% | 745 | 698 | -6,3% |
| Región Maule | 27 | 103 | 281,5% | 478 | 429 | -10,3% | 645 | 661 | 2,5% |
| Región Bío Bío | 74 | 242 | 227,0% | 713 | 626 | -12,2% | 834 | 779 | -6,6% |
| Región Araucanía | 41 | 116 | 182,9% | 537 | 457 | -14,9% | 659 | 526 | -20,2% |
| Región Los Lagos | 32 | 85 | 165,6% | 568 | 507 | -10,7% | 660 | 569 | -13,8% |
| Región Aysén | 3 | 8 | 166,7% | 41 | 44 | 7,3% | 86 | 67 | -22,1% |
| Región Magallanes | 8 | 26 | 225,0% | 71 | 48 | -32,4% | 109 | 95 | -12,8% |
| Región Metropolitana | 707 | 3137 | 343,7% | 3088 | 2148 | -30,4% | 4907 | 3659 | -25,4% |
| Región Los Ríos | 12 | 43 | 258,3% | 221 | 204 | -7,7% | 269 | 238 | -11,5% |
| Región Arica y Parinacota | 15 | 37 | 146,7% | 128 | 115 | -10,2% | 179 | 191 | 6,7% |
| Región Ñuble | 6 | 54 | 800,0% | 209 | 214 | 2,4% | 253 | 228 | -9,9% |

# Event Studies: Government-run Domestic Violence Shelters




(a) lockdown Entry

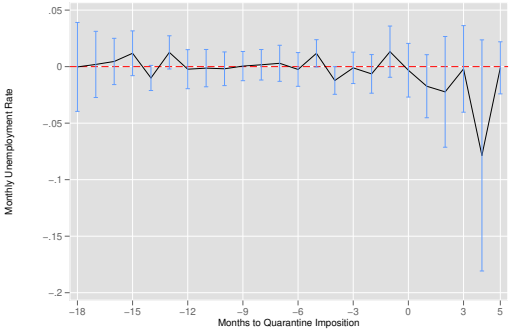



(b) lockdown Exit

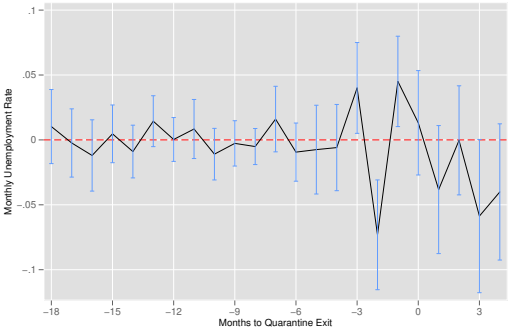
Figure 28: lockdown Imposition and Removal and Residents in DV Shelters

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# $DID_M$ Estimates: Unemployment Rates




(a) lockdown Entry

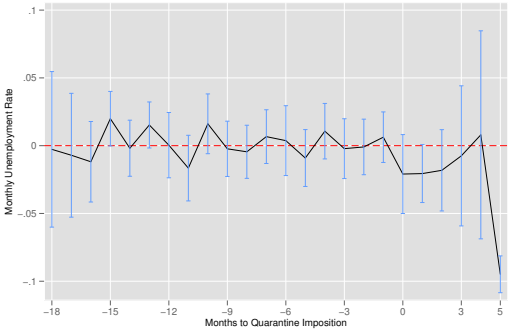



(b) lockdown Exit

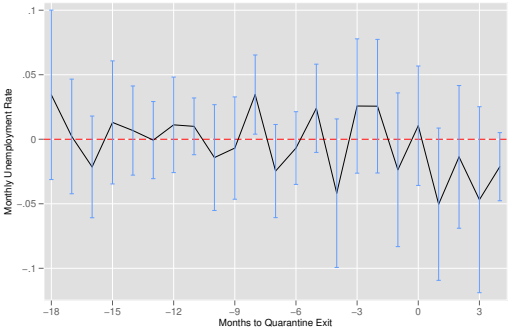
Figure 29: lockdown Imposition and Removal and Estimated Unemployment Rates

Similar patterns for Women Men

# $DID_M$ Estimates: Labour Force Participation




(a) lockdown Entry

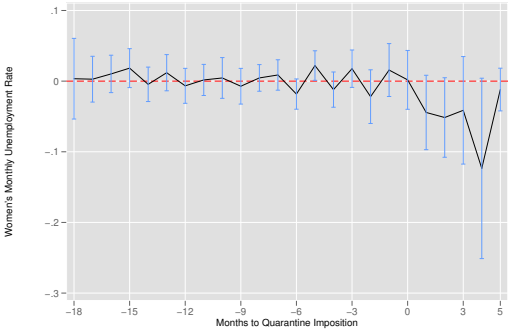



(b) lockdown Exit

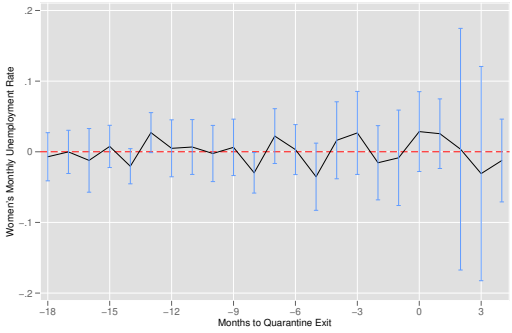
Figure 30: lockdown Imposition and Removal and Estimated Labour Force Participation Rates

Observed patterns for Women Men

# $DID_M$ Estimates: Unemployment Rates (Women)




(a) lockdown Entry

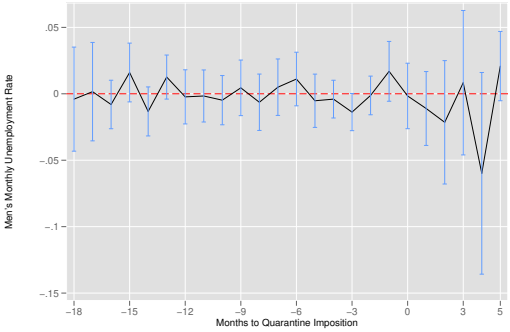



(b) lockdown Exit

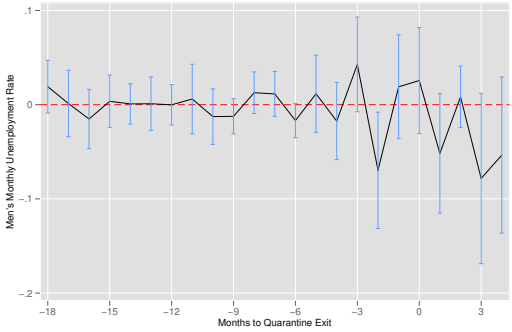
Figure 31: lockdown Imposition and Removal and Estimated Unemployment Rates (Women)

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# $DID_M$ Estimates: Unemployment Rates (Men)




(a) lockdown Entry

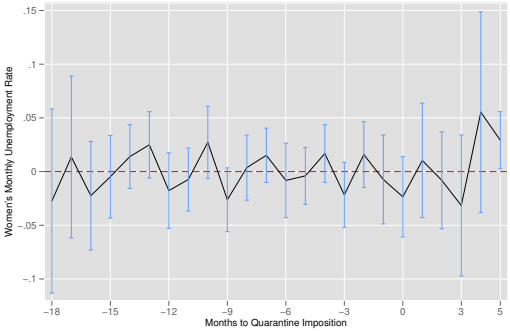



(b) lockdown Exit

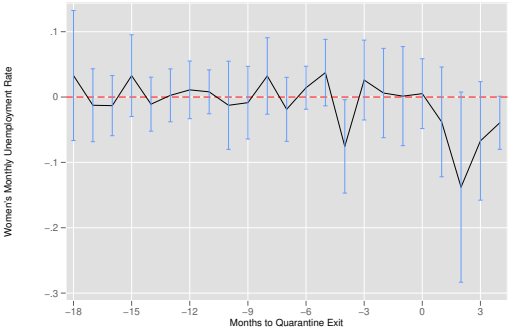
Figure 32: lockdown Imposition and Removal and Estimated Unemployment Rates (Men)

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# $DID_M$ Estimates: LFP Rates (Women)




(a) lockdown Entry

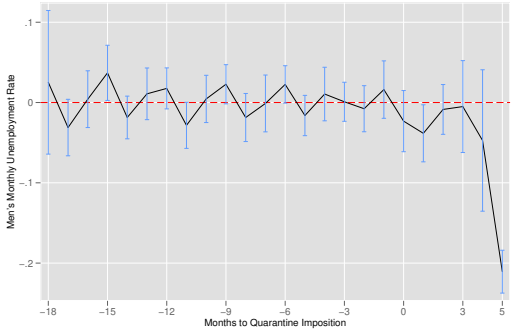



(b) lockdown Exit

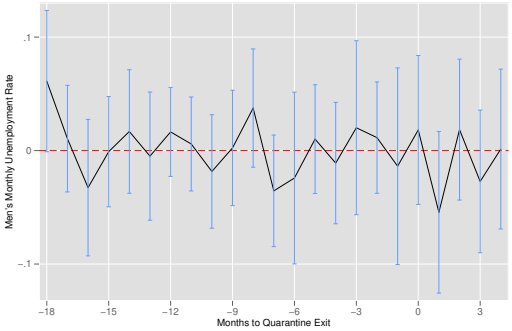
Figure 33: lockdown Imposition and Removal and Estimated LFP (Women)

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# $DID_M$ Estimates: LFP (Men)




(a) lockdown Entry




(b) lockdown Exit

Figure 34: lockdown Imposition and Removal and Estimated LFP Rate (Men)

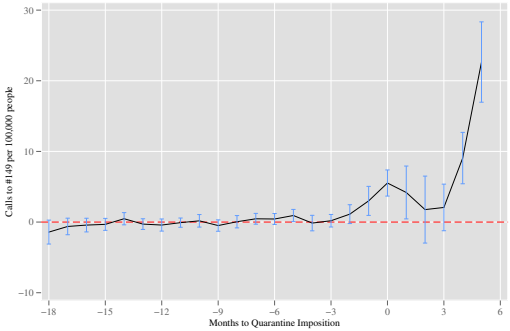
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# Appendices – Removing Municipalities which Enter lockdowns Two Times

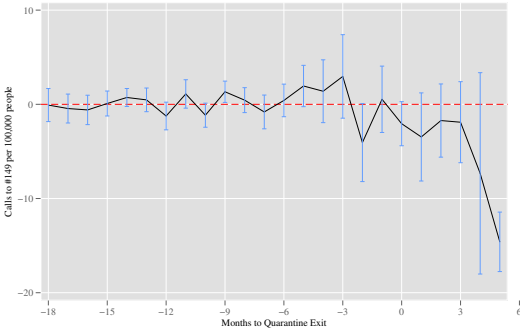
Table 10: Municipalities that have entered, exited, and entered again

| Municipality | Region | Population | Days In | Days Out |
|---|---|---|---|---|
| Independencia | Metropolitan | 89,493 | 8 | 20 |
| Las Condes | Metropolitan | 290,869 | 23 | 27 |
| Lo Barnechea | Metropolitan | 115,313 | 19 | 31 |
| Providencia | Metropolitan | 155,166 | 19 | 31 |
| Vitacura | Metropolitan | 89,085 | 19 | 31 |
| Antofagasta | II (North) | 406,362 | 25 | 24 |
| Mejillones | II (North) | 12,403 | 25 | 24 |
| Arica | XV (North) | 406,362 | 30 | 59 |
| Hualpén | VIII (South) | 14,833 | 12 | 132 |
| San Pedro de la Paz | VIII (South) | 153,562 | 12 | 142 |
| Lonquimay | IX (South) | 10,981 | 15 | 110 |
| Temuco | IX (South) | 298,974 | 34 | 182 |
| Padre de las Casas | IX (South) | 98,459 | 21 | 195 |
| Chillán | XVI (South) | 182,622 | 25 | 130 |
| Chillán Viejo | XVI (South) | 36,553 | 25 | 130 |

# $DID_M$ Estimates: Distress Calls



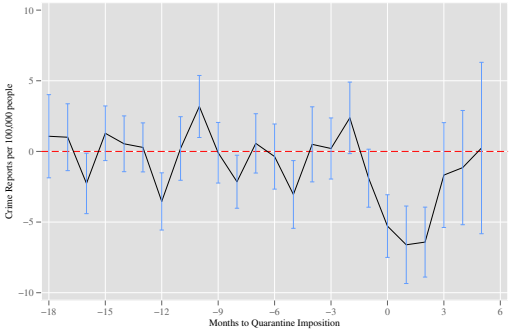

(a) lockdown Entry



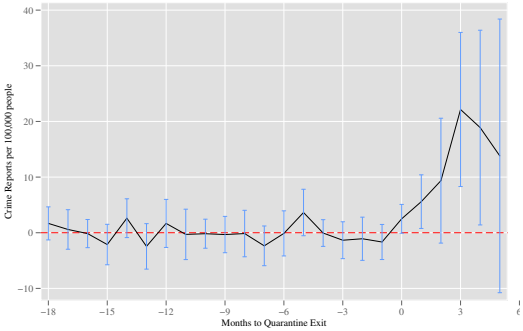

(b) lockdown Exit

Figure 35: lockdown Imposition and Removal and Distress Calls to Police DV Hotline (#149)

# $DID_M$ Estimates: Crime Reporting




(a) lockdown Entry

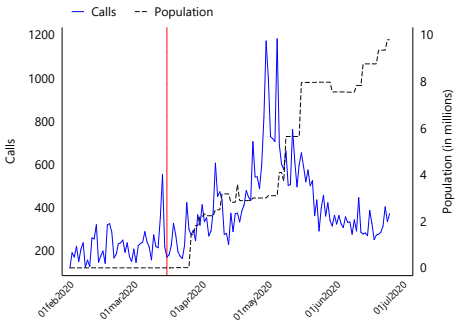



(b) lockdown Exit

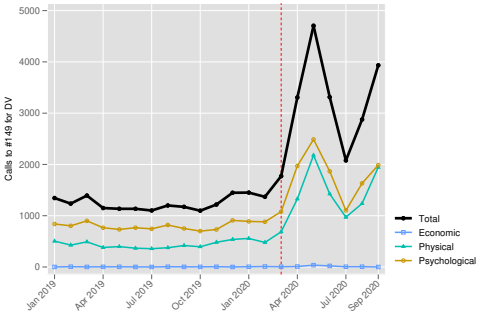
Figure 36: lockdown Imposition and Removal and Formal Crime Reporting of VIF to Police

# Descriptive: Distress Calls To DV Helplines Increase With Pandemic Onset

Figure 37: Trends in Calls to Ministry and Police DV Hotlines




(a) Calls to Ministry DV Hotline

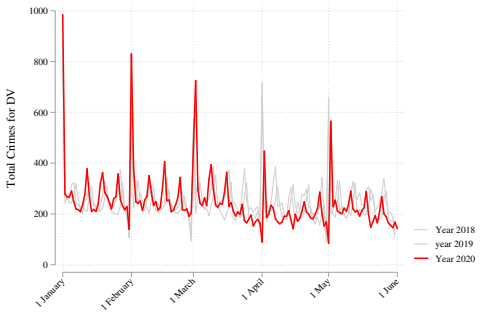



(b) Calls to Police DV Hotline

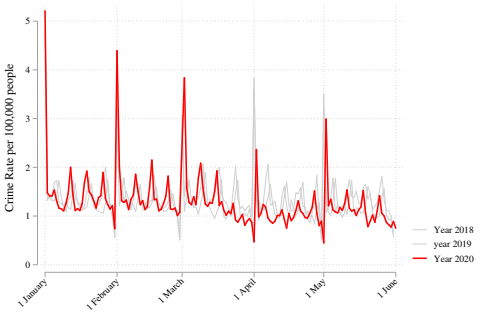
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# Descriptive: DV Criminal Complaints to the Police Decrease with Pandemic Onset

Figure 39: Criminal Complaints for Intra-Family Violence




(a) Total Crimes

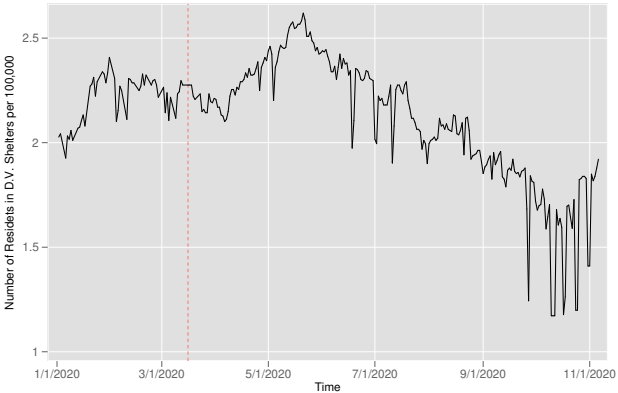



(b) Rate per 100,000 Inhabitants

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# Descriptive: Use of Women's Shelters Increases With Pandemic Onset

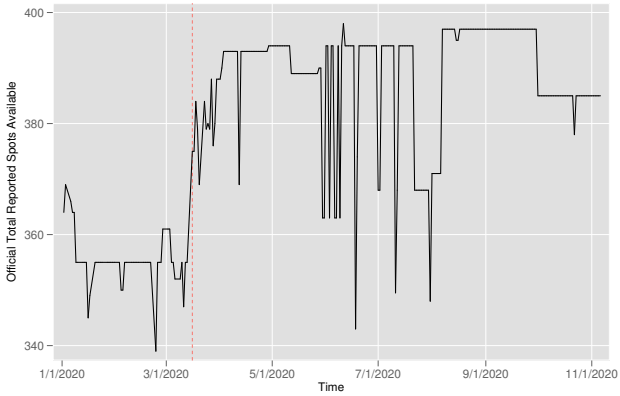
Figure 41: National Trends- DV Shelter Residents




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# Descriptive: Supply Trends- Shelter Places

Figure 42: National Trends of Official Available Spots in DV Shelters (2020)

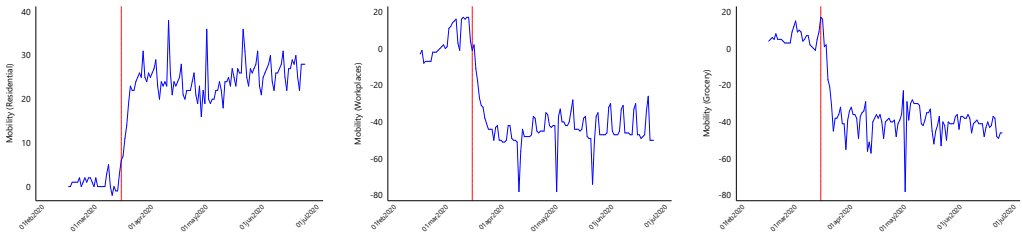



Temporal daily spikes on a small number of days owe to reporting gaps

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# Sharp Drop in Mobility Coincident With Pandemic Onset

Figure 43: COVID-19 and Changes in Movement Patterns



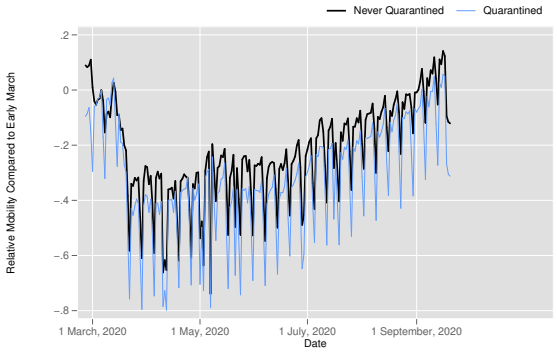

(a) Residential (b) Workplaces (c) Grocery

We observe mobility by day at the third-level administrative division (municipality).

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# Descriptive: Mobility under Lockdown

Figure 45: Average Changes in Mobility in Lockdown and Non-lockdown Areas

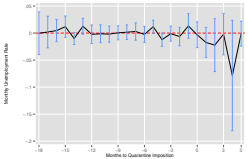



Baseline is set at 0 on March 6, 2020. All dates are proportional changes compared to this date (-1 is a 100% decrease)

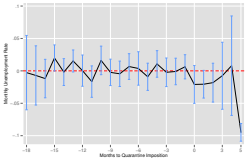
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# $DID_M$ Estimates: Labour Market Outcomes

Panel A: Lockdown Entry

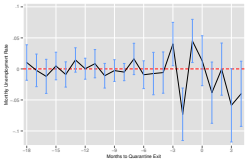



(a) Unemployment

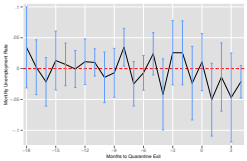



(b) LFP

Panel B: Lockdown Exit




(c) Unemployment




(d) LFP

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# Estimating Dynamic Impacts of Lockdown Entry and Exit

Event study on a municipality-time panel:

$$\text{Domestic Violence}_{st} = \alpha + \sum_{j=K}^{L} \beta_{-j} \Delta \text{Lockdown Entry}_{s,t-j} + \lambda_s + \mu_t + X'_{st}\theta + \eta_{st}.$$

- $K$ leads and $L$ lags to the event of lockdown (0 to 1)
- Exit sample is restricted to entrants
- In entry sample a municipality graduates out once it exits lockdown
- To avoid endogenous lag length, samples include all time periods for municipalities that change status

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# Allowing for Treatment Effect Heterogeneity

de Chaisemartin & D'Haultfoeuille (2020). $Q_{s,t}$ is lockdown status of municipality $s$ in time $t$.

$$DID_{+,t} = \sum_{s:Q_{s,t}=1,Q_{s,t-1}=0} \frac{N_{s,t}}{N_{(1,0),t}}(DV_{s,t}-DV_{s,t-1}) \quad - \sum_{s:Q_{s,t}=Q_{s,t-1}=0} \frac{N_{s,t}}{N_{(0,0),t}}(DV_{s,t}-DV_{s,t-1})$$

Take change in mean outcomes in $t-1$ to $t$ among switchers at t relative to non-switchers at t. The estimator is this weighted average over all periods $DID_M$ :

$$DID_M = \sum_{t=2}^{T} \frac{N_{(1,0),t}}{N} DID_{+,t},$$

Lags and leads produce dynamic effects and placebos

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