

*Discussion of:*

## **Minimum wages and firm outcomes**

Elias Albagli, Sofia Bauducco, Roberto Gillmore & Juan Guerra-Salas

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Alain Pineda<sup>†</sup>

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<sup>†</sup> Banco de México

*The views and conclusions presented in this discussion are exclusively of the author and do not necessarily reflect those of Banco de México or its Board of Governors.*

# Summary of the paper

- Impact of Chile's large, multi-step minimum wage hike ( $\uparrow$  **16.4%** real increase) on wages, employment and worker composition.
- Difference-in-differences estimation using employer-employee matched data:
  - Treatment is defined at the firm level using the share of workers earning up to 1.3 times the minimum wage prior to the new law. Firms with a share above the median (32%) are defined as treated and firms below the median are the control group.
  - Before and after April 2023, when the bill was introduced.
- Main results:
  - $\uparrow$  **4.8%** in wages of treated firms relative to control.
  - $\downarrow$  **5.6%** in employment  $\implies$  Own-wage elasticity (OWE) of **-1.2** (high for existing studies).
  - $\uparrow$  **6%** in the ratio between high and low skilled workers.

- **Data richness:** monthly employer-employee administrative data linkable to education and invoice data.
- **Clear design:** DiD + event study
  - Treatment by share of workers earning up to 1.3 times the minimum wage justified by empirical bunching.
- **Expanded outcomes vs. earlier version:**
  - Heterogeneity by size/sector.
  - Continuous exposure specification.

## Identification: parallel trends & baseline window

- The event study defines comparison around March 2023 (to sidestep anticipation) and excludes months earlier than January 2023 because of previous minimum wage increases.
  - Only Jan-Mar 2023 serve as the pre-period in main plots; **low power for pre-trend checks.**
  - Furthermore, several coefficients in the pre-period both in the main results and robustness checks are statistically different from zero.
- **There is limited evidence in favor of the identifying assumption of parallel trends.**

## Identification: parallel trends & baseline window

### Suggestions:

1. Model the 2022 increments explicitly by adding to the regression a block of controls that captures how outcomes moved around the 2022 hikes *as a function of exposure*. In practice it would mean an estimation of a **joint multi-event, exposure-continuous event study**.
  - The block of 2022 controls “soaks up” any exposure-specific pattern caused by the 2022 hikes, including months leading up to March 2023.
  - After you partial that out, the 2023 lead coefficients are identified off whatever residual differential movement remains.
  - Orthogonalize the 2023 event-study with respect to the 2022 exposure-pattern.
2. Report **joint lead tests and confidence bands** for all  $j < 0$ .

# Identification: parallel trends & baseline window

## Suggestions:

3. **Sector  $\times$  time and size-bin  $\times$  time FE** in the main event study.
  - Treated firms are smaller, lower-sales, higher labor share. Aligning within sector/size helps to purge non-parallel cyclical shocks.
4. Report the event study both firm-weighted (the way it is now) and **worker-weighted** (weights=pre-period employment).
  - Headline effects may overweight small firms. If the negative employment effects are concentrated in small, highly exposed firms, worker-weighted estimates will typically be less negative than firm-weighted. If large firms also adjust substantially, both estimates will look similar. Diagnostic of size-heterogeneous effects.
5. **Robust estimators for staggered/multiple shocks:** Sun-Abraham (interaction-weighted), Borusyak-Jaravel-Spiess imputation.
  - Classical TWFE event studies can be biased when effects vary over time and by exposure intensity.

## Treatment: median split vs. continuous exposure

- This version adds continuous exposure. Good!
- However the main narrative still leans on a treated vs. control split at the median exposure share.

### Suggestions:

1. Make the **continuous specification** the primary.
2. Probe non-linearity using **exposure bins**  $\times$  event time.
  - Bunching around  $1.3 \times$  MW suggests kinked responses.
3. Sensitivity to the **“affected” window**: replicate using  $\leq 1.2\times, \leq 1.25\times, \leq 1.35\times, \leq 1.4\times$  MW windows. Test that effects are not driven by an arbitrary cutoff or mismeasurement near MW.

## Timing & anticipation across steps

- It is argued that April's anticipatory drop is plausible given the start of negotiations in March.
- Anticipation varies across sectors and is not clear in subsequent hikes.

### Suggestions:

1. **Hike-specific event windows.** Estimate separate  $\beta_j$  for each statutory increase so anticipation can differ by hike.
2. **Alternative base months** to show that the April dip isn't an artifact of the chosen base.



- The Stable Unit Treatment Value Assumption (SUTVA) implies that each firm's outcome is unaffected by other firms' treatment. However if workers move from high-exposure (treated) firms to low-exposure (control) firms, then control outcomes do depend on others' treatment.
- This is a violation of SUTVA and can **overstate job losses** if we read the results as net destruction and do not consider the reallocation channel.

## Suggestions:

1. Show the **mobility matrix across exposure bins**: flows from high- to low-exposure firms, within region  $\times$  sector.
2. **Local-market exposure DiD**: define cells as region  $\times$  sector, compute employment-weighted exposure and estimate outcomes for all firms within cell.
  - Measure net effects allowing for within-market reallocation.
3. **Worker-level transition analysis**: where do displaced workers go? This is actually something that is stated as a research question of the paper and is not explored yet.

# Precision, weights, and OWE reporting

- Monthly panel + national policy = strong common shocks and serial correlation. Plain cluster-by-firm standard errors can understate uncertainty.
- The large OWE estimated requires more thorough and careful reporting.

## Suggestions:

1. Report **wild cluster bootstrap standard errors** for all main coefficients/plots.
2. Report **OWE with confidence intervals**, using the Delta method.
3. Present the **heterogeneity in OWE** by exposure and size bins, sector.

More nuanced and conservative discussion of the results.