# Wage effects of employer-mediated transfers

**Santiago Garriga**
Paris School of Economics

**Dario Tortarolo**
Univ of Nottingham & IFS

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# Motivation (1)

▶ Most governments use firms as intermediaries in the tax-benefit system

  E.g., payroll/income tax withholding; employer-based health insurance; **family transfers**, etc.

  - Sensitive information is revealed and rent opportunities arise (wage effects)
  - General assumption that benefits benefit individuals
  - However, benefits could be incident on employers (e.g., those on benefits could be paid less)

▶ Yet, little evidence on the **economic incidence/wage effects** of benefits

  "Identifying wage effects is a tough order" (Nichols & Rothstein, 2015)

▶ We focus on **employer-mediated transfers/family allowances**,
  which are more widespread than publicly known

# Motivation (2)

**Employer-mediated family allowances around the globe**:

- ▶ **Latin American countries**
    - ▶ Argentina (*Asignaciones Familiares*, 1995-2010 SFC)
    - ▶ Brazil (*Salário Família*)
    - ▶ Chile (*Asignación Familiar*)
    - ▶ Paraguay (*Asignación Familiar*)
    - ▶ Perú (*Asignación Familiar*)

- ▶ **Developed countries**
    - ▶ USA (*Advanced Earned Income Tax Credit*, 1979-2010)
    - ▶ UK (*Working Family Tax Credit*, 1999-2003)
    - ▶ Italy (*Bonus Renzi 80 Euro*)
    - ▶ Switzerland (*Familienzulagen*)

# This paper

*Does it matter how child benefits are paid? Do employers capture part of the transfer when being the remitter?* Yes!

▶ We exploit a **change in the payment system** in ARGENTINA
- <u>Before</u>: disbursed by **employers** (intermediaries)
- <u>After</u>: disbursed by **social security adm** (direct deposit)

▶ **Key**: gradual transition of firms and workers btw 2003-2010
*Switching date was set by the SSA rather than by firms*

▶ **Event study** by <u>switching date</u>: compare monthly wages of employees w/ vs wo/ children <u>within firms</u>

▶ **Data**: Population-wide employer-employee admin data (2003-2010)

# Preview of findings

(1) **The way transfers are disbursed matters (affects the final incidence)**:

- ▶ Monthly wages ↑ when the govt' becomes the remitter
- ▶ <u>Pass-through</u>: employers captured $\sim 6/10\%$ of the transfer by paying lower wages

(2) **Mechanism (preliminary)**: labor demand
Likely, transfer understood as wages under the old system

- ▶ Driven by **new hires** rather than **incumbents**; **small** and **less unionized** firms
- ▶ Exercises that rule out pay equity concerns (bargaining story)

# Related literature

1. Incidence:
   - ▶ Classic result in PF: determined by relative supply-demand elasticities
   - ▶ Taxes: **SSC** [Saez et al QJE'12; Saez et al. AER'19; Bozio et al '19]; **Salience** [Chetty et al AER'09]; **Remittance/compliance costs** [Slemrod NTJ'08; Kopczuk et al AEJ-EP'16]
   - ▶ **In-work subsidies**: **EITC in the U.S.** [Rothstein AER'10; Leigh '10] and **WFTC in the U.K.** [Azmat QE'18; Brewer-Hoynes FS'19]
   - ▶ Other studies: **Price effects of Food Stamps** [Hastings-Washington AEJ-EP'10; Jaravel AERpp'18]; **Health insurance subsidies** [Cabral et al AER'18]

2. Design of welfare programs and social protection:
   $\longrightarrow$ *Unintended consequences of delegating key duties to firms*

   *We focus on child benefits; change in payment system holding other features constant; novel data and research design $+$ mechanisms*

# Outline

1. Setting: FA scheme, reform + staggered roll out

2. Data and empirical strategy

3. Results and robustness checks

4. Mechanisms (labor demand vs supply)

5. Toy model (if time permits)...

# Family Allowances (FA) in Argentina
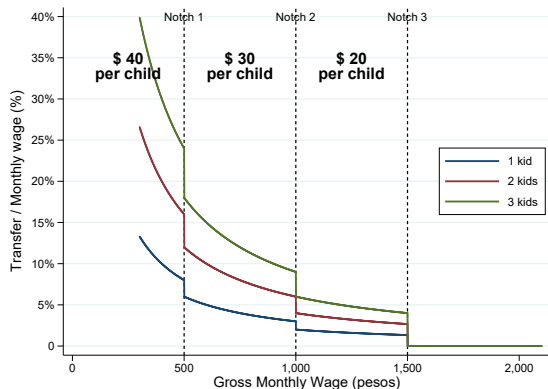


Note: Schedule in place from 1996 to 2004. Then updated.

▶ Child benefit for wage earners
  - Monthly payment that varies by:
    (i) Number of kids < 18 years old
    (ii) Monthly wage (3 brackets)
  - Individually-based; one spouse is entitled

▶ <u>Funding</u>: contributory system based on employer SSC (7.5% devoted to FA)

▶ Adjusted ≈annually due to inflation
  ▸ More   ▸ Wage Distribution   ▸ Macro Context

# The reform: a change in the payment system



**Old system (SFC)**

**Wage**$+$*Transfer*$(\tau^e)$      $SSC-$*Transfer*$(\tau^e)$

Employees      Employers      Government

**New system (SUAF)**

Employees      Employers      Government

**Wage'**      *SSC*

*Transfer*$(\tau^g)$
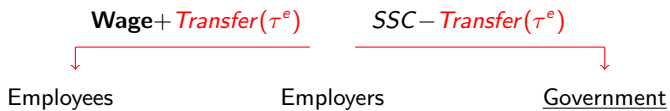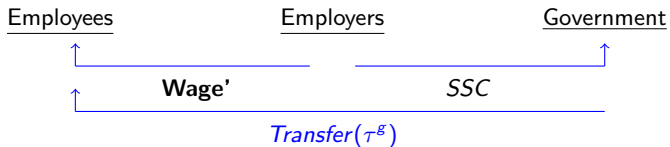
# Staggered roll-out

- ▶ <u>Gradual roll-out</u>: btw Jun-2003 and Jun-2010 (8 years)
  - • Limited capacity to incorporate millions of beneficiaries at once
  - • Important: # beneficiaries and FA spending don't ↓ ▸

- ▶ <u>Incorporation</u>: switching date set by the SSA rather than firms

employers notify workers
form PS.2.61 ▸
(within 10 days)

firms contacted by SSA
docs presented and revised
(about 1-6 months)

Timeline

SSA Memo (1) ▸
**Incorporation
schedule/plan**

SSA Memo (2) ▸
**Formal
Incorporation**
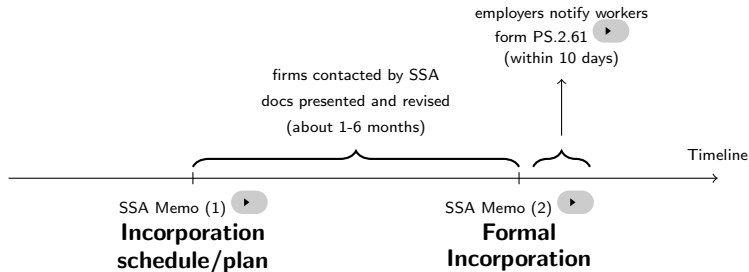
# Staggered roll-out: using E-E microdata  ▸ Macro roll-out
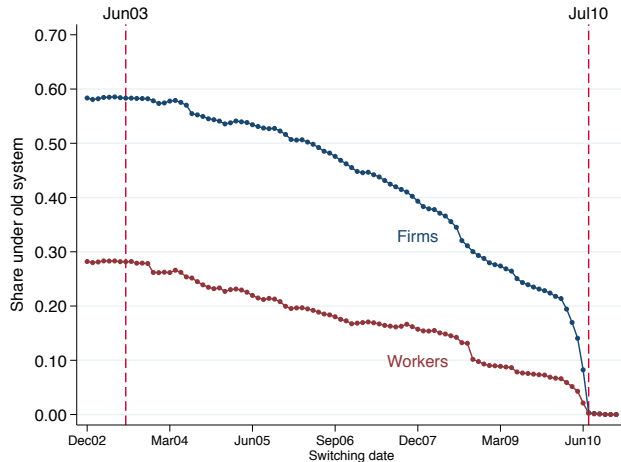


Note: Gradual transition of firms and workers out of the old system.  ▸ Event frequency

# Roll-out by firm size
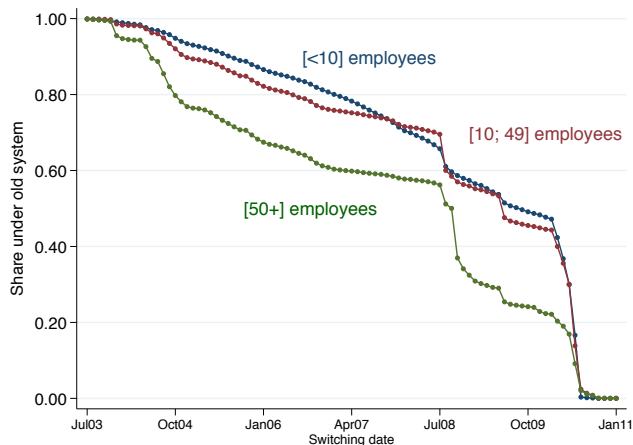


Note: Large firms switched first into the new system (size = N of employees in 2003).
(N firms by group: 86,868 small, 23,159 medium, 5,839 large). ▶ Delinquency rate

# Empirical strategy: event study



*Firm switches*

Wage gap btw T & C
$G_{f,t}^{\bar{w}} = \bar{w}_{f,t}^{T} - \bar{w}_{f,t}^{C}$

Wage gap btw T & C
$G_{f,t}^{\bar{w}} = \bar{w}_{f,t}^{T} - \bar{w}_{f,t}^{C}$

**Before (SFC)**
**Disbursed by employers**

**After (SUAF)**
**Disbursed by govt**

-5  -4  -3  -2  -1  0  1  2  3  4
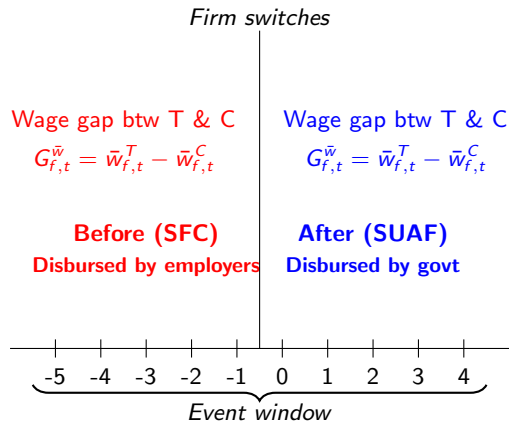
*Event window*

▶ <u>Sample</u>: unbalanced panel of firms
- → paying FA from t=-6 to t=0
- → present in $-6/+6$ months around the event
- → with eligible & non-eligible workers in the window:
  - T: employees w/ children ages [0-17]
  - C: employees wo/ children ages [0-17]
- → collapse data at the firm-month-year level (f,t)

▶ Run a regular event-study specification

$$G_{f,t}^{\bar{w}} = \sum_{j=-13}^{12} \gamma_j \cdot d_{f,t}^{j} + \mu_f + \mu_t + \epsilon_{f,t}$$

# Administrative Data

1. **Employer-employee (SICOSS)** (2003-2010)
   - ▶ E-E panel available since 1995 [**monthly frequency**]
   - ▶ <u>Main vars</u>: monthly pre-tax wage, monthly transfer

2. **Family relationships database**
   - ▶ Links family members (spouse, children); also DOB

3. **Other**: **(a)** Monthly financial situation of employers (Apr'03-Nov'04);
   **(b)** Union's CBA dataset

# First stage: Benefit delivered by employers

Salience: Pay Slip
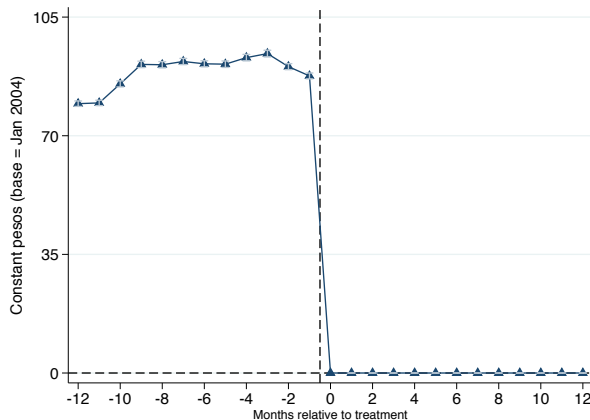


Note: On average, treated workers receive $\sim 90$ pesos more in transfer, paid by employers, than the control group (simple mean difference). About 10% of average monthly wages.

# Wage effects: 12 months

**(a) Average wage levels**
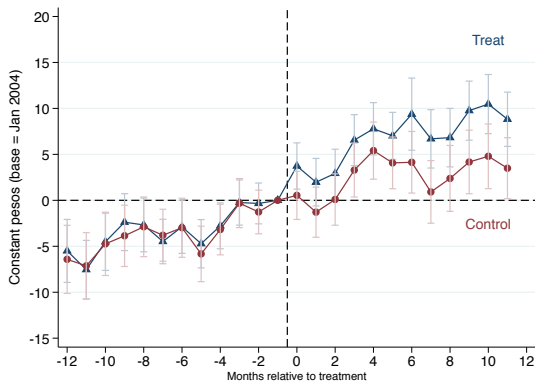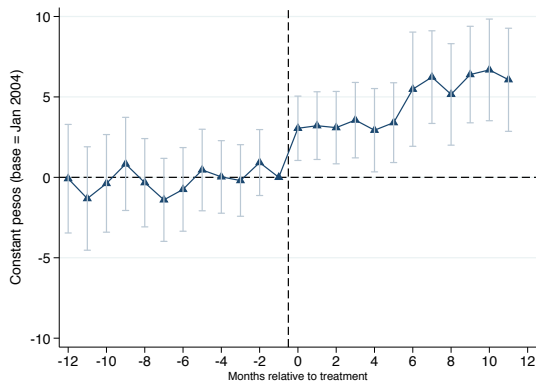
**(b) Average wage gap**



Note: Mean wage of workers w/ kids increased by $\sim 6$ pesos, relative to workers wo/ kids, after firms switched to new system (pre Aug'08). $G_{f,t}^{\bar{w}} = \sum_{j=-13}^{12} \gamma_j \cdot d_{f,t}^j + \mu_f + \mu_t + \epsilon_{f,t}$ ▸ p25 vs p75

# Wage effects: 24 months

**(a) Average wage levels**
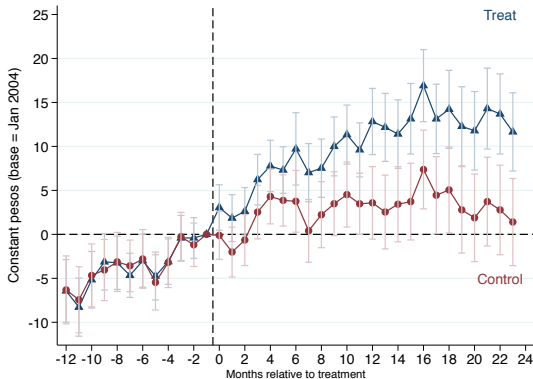
**(b) Average wage gap**
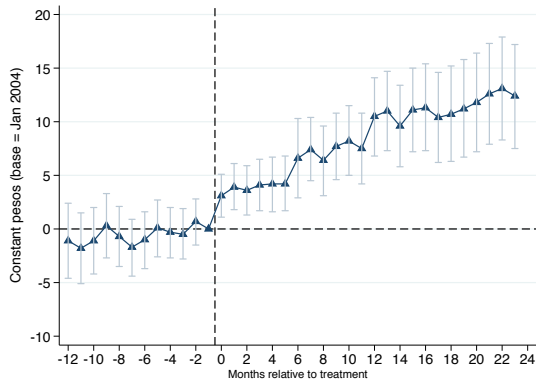


Note: Mean wage of workers w/ kids increased by $\sim 12$ pesos, relative to workers wo/ kids, after firms switched to new system (pre Aug'08). $G^{\bar{w}}_{f,t} = \sum_{j=-13}^{12} \gamma_j \cdot d^j_{f,t} + \mu_f + \mu_t + \epsilon_{f,t}$ ▸ Composition

# Pass-through rate

| | All post periods [0;11] (1) | Last 6 periods [6;11] (2) | Last period [11] (3) |
|---|---|---|---|
| **Reduced form** | | | |
| Δ monthly wage | 4.69*** | 5.93*** | 5.73*** |
| (in pesos) | (1.21) | (1.52) | (1.88) |
| | | | |
| **First stage** | | | |
| Δ transfer ($\tau^e$) | -94.13*** | -95.28*** | -93.94*** |
| (in pesos) | (0.35) | (0.37) | (0.38) |
| | | | |
| **2sls** | | | |
| $\frac{\Delta wage}{\Delta transfer(\tau^e)}$ | -0.05*** | -0.06*** | -0.06*** |
| | (0.01) | (0.02) | (0.02) |
| | | | |
| Number of firms | 26,226 | 26,226 | 26,226 |
| Observations | 2,285,705 | 2,128,349 | 1,998,351 |
| Avg wage at t-1 | 871 | 871 | 871 |

Note: Standard errors clustered at the firm level in parentheses.

$G_{f,t}^w = \beta_1 Window_{f,t} + \beta_2 \cdot Window_{f,t} \cdot Post_{f,t} + \beta_3(1 - Window_{f,t}) \cdot Post_{f,t} + \mu_f + \mu_t + \epsilon_{f,t}$,

where *Window* is an indicator for the *event window*. ▸ Robustness Checks ▸ Dynamic window

# Potential Mechanisms

$\rightarrow$ Anecdotal/survey evidence on **misperception** of transfers

**Labor demand story?**

▶ Employers exploit confusion of the old regime and capture part of the transfer
   - $\rightarrow$ Result driven by **new hires** rather than **incumbents**
   - $\rightarrow$ Result driven by **small** and **incorporated** firms
   - $\rightarrow$ Wage effect larger for **less unionized** firms

**Bargaining story?** unlikely

▶ Confused employees bargain more aggressively after the event (pay equity concerns)
   - $\rightarrow$ Ruled out by **immediate effect at t=0** and **new hires**
   - $\rightarrow$ Also effect broken by **firm exposure** is not U-shaped

# Anecdotal evidence about recipient's perception

1. Quote from a book on social security:

   *"… the old system (SFC) blurred the image of the State as responsible for it. (…) The roles are confused. People consider that these benefits integrate their salary and that employers are responsible for them. They even ignore that it is the State that pays for the benefit …"*

   CIESS (2007). *"Políticas de Protección familiar, Régimen de Asignaciones Familiares y principales planes sociales en la República Argentina"*

2. SSA phone survey (2018)

   Who is the responsible of paying the transfer (FA)?

   | Answers | |
   |---|---|
   | **A.** Government | 35.4% |
   | **B.** Employer | 8.6% |
   | **C.** Other | 4.0% |
   | **D.** Don't know | 52.0% |

   Source: Based on a SSA report (Cruces, 2019).

# Wage effects: new hires vs incumbents
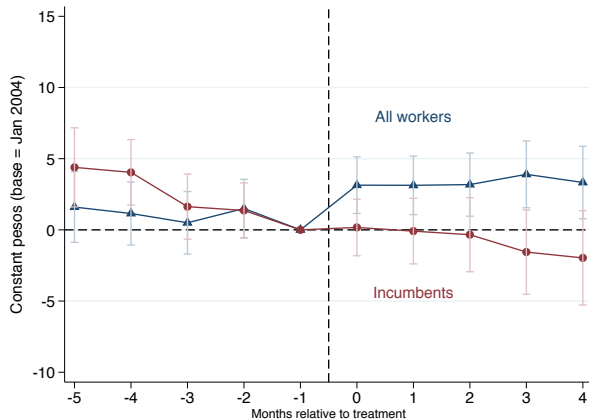


Note: incumbents: workers present -7/+7 months around the event. The difference between lines captures the wage effect on new hires. $G_{f,t}^{\bar{w}} = \sum_{j=-6}^{5} \gamma_j \cdot d_{f,t}^{j} + \mu_f + \mu_t + \epsilon_{f,t}$

# Wage effects: By size and type of business



**(a) Small vs Non-small firms**
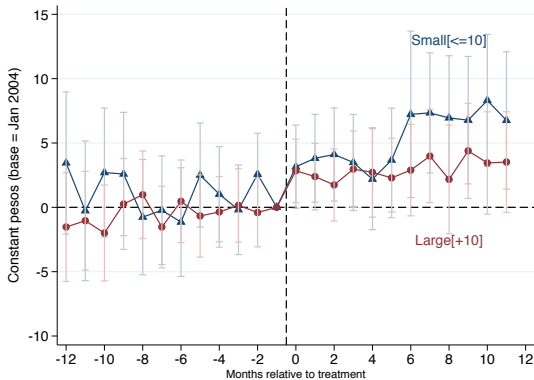
**(b) Incorporated vs Unincorporated**
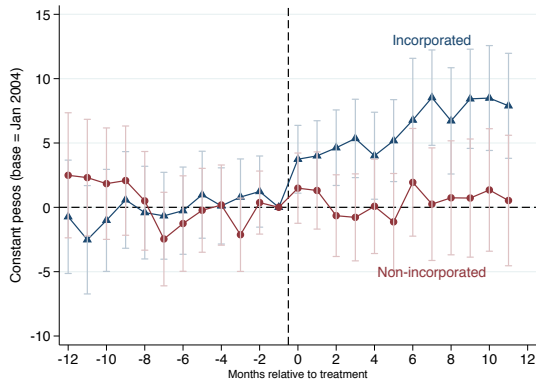
Note: Firm size is the average number of employees from t-12 to t-1.

# Unionization: Pass-through by firms' share of unionized workers
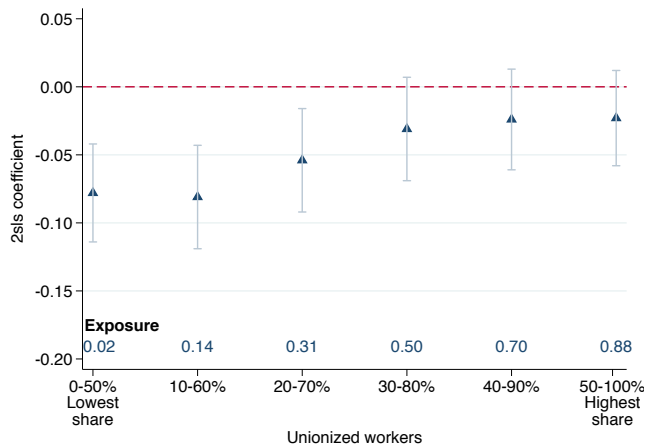


Note: Each dot refers to a separate regression. Wage effects are greater in less unionized firms.

## Potential Mechanisms

→ Anecdotal/survey evidence on **misperception** of transfers

**Labor demand story?**

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   → Result driven by **new hires** rather than **incumbents**
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**Bargaining story?** unlikely

▶ Confused employees bargain more aggressively after the event (pay equity concerns)
   → Ruled out by **immediate effect at t=0** and **new hires**
   → Also effect broken by **firm exposure** is not U-shaped

# Horizontal equity? Pass-through by firm exposure to FA · Exposure Density
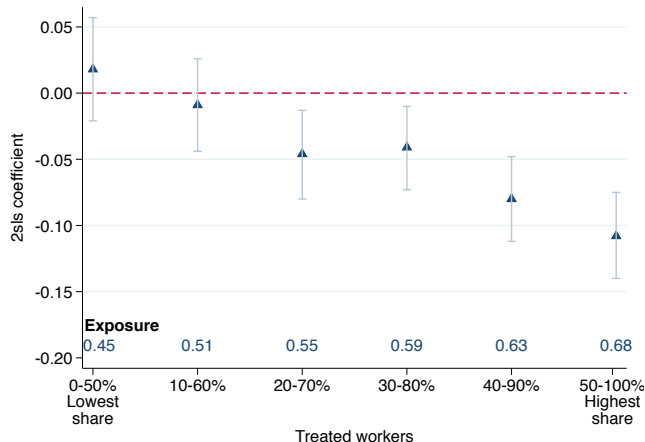


Note: Each dot refers to a separate regression. Wage effects are greater
when firms have a higher share of employees receiving child benefits.

## Conclusions

- **The way transfers are disbursed matters (affects the final incidence)**
  (i.e., benefits are not captured dollar-for-dollar by workers)

- $\Delta$ in the remittance system (from employers to the govt):
  - Wages $\uparrow$ after firms switch to the government-based system
  - Pass-through: employers capture $\sim 6/10\%$ of the transfer by paying lower wages
  - Labor demand mechanisms seem to be at play

- These results raise concerns about the use of firms as intermediaries to disburse benefits
  - Less salient schemes may lead to capture by employers
  - Welfare improving reform from workers' point of view

# Theoretical framework (if time permits)

Simple model to rationalize our findings (based on Gruber 1997):

$$L^s = L^s(\tilde{w}) = L^s(w(1 + (1-q)\tau^e)) \tag{1}$$

$$L^d = L^d(w) \tag{2}$$

where $\tilde{w}$: **perceived wage** as fx of true wage (w); $q$: **perception parameter**; $\tau^e$: **transfer delivered by employers**, with $\tau^e = \bar{\tau} - \tau^g$

▶ **q=1**: perfect perception $\longrightarrow$ perceived wage equals the true wage $\tilde{w}_1 = w$
▶ **q=0**: full misperception $\longrightarrow$ perceived wage includes the transfer
    $\tilde{w}_0 = w(1 + \tau^e)$

# Theoretical framework (if time permits)

Totally differentiating supply and demand, and rearranging terms we get:

$$\frac{dln(w)}{dln(1+\tau^e)}\bigg|_{\bar{\tau}=\tau^e+\tau^g \; , \; \bar{q}=q} = \frac{\eta^s \cdot (1-q) \cdot \left[\frac{(1+\tau^e)}{(1+(1-q)\tau^e)}\right]}{\eta^d - \eta^s} \qquad (3)$$

Extreme cases:

▶ **q=1**, perfect understanding $\longrightarrow \frac{dln(w)}{dln(1+\tau^e)} = 0$   **standard incidence result**

▶ **q=0**, full misperception $\longrightarrow \frac{dln(w)}{dln(1+\tau^e)} = \frac{\eta^s}{\eta^d - \eta^s} < 0$   **wage effects!!**

# Change in perception ($q$)

- $\Delta$ in the remitter $\longrightarrow$ $\Delta$ the information content to employees $\longrightarrow$ $\Delta$ scheme's perception ($q$), therefore on final incidence.

$$\left.\frac{dln(w)}{dln(1+\tau^e)}\right|_{\bar{\tau}=\tau^e+\tau^g} = \frac{(1+\eta^{(1-q)}) \cdot \eta^s \cdot (1-q) \cdot \left[\frac{(1+\tau^e)}{(1+(1-q)\tau^e)}\right]}{\eta^d - \eta^s} \qquad (4)$$

with $\eta^{(1-q)} = \frac{\partial(1-q)}{\partial \tau^e} \cdot \frac{\tau^e}{(1-q)} > 0 \longrightarrow$ *misperception elasticity* i.e., how much $(1-q)$ changes as the money disbursed by employers increases (reinforces the main effect)

# Workers' composition



**(a) Levels**
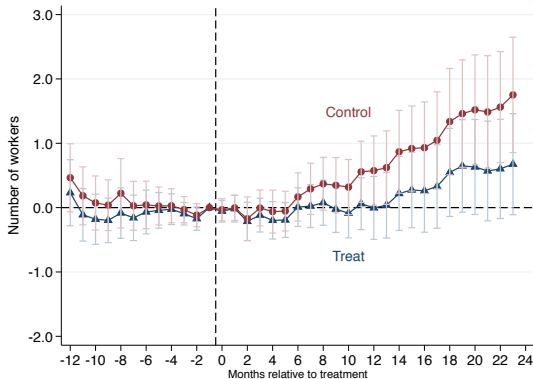
**(b) Difference**
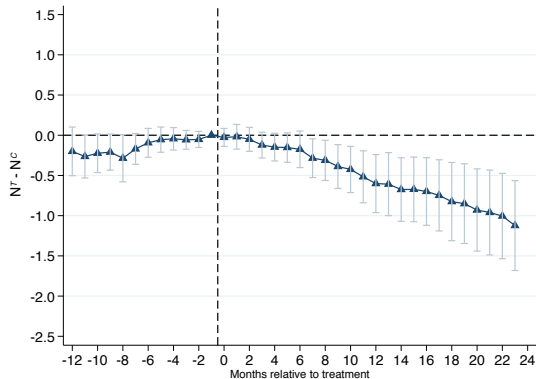
Note: Workers' composition stable at the beginning and then favors workers without children.

$$G_{f,t}^{N} = \sum_{j=-13}^{14} \gamma_j \cdot d_{f,t}^{j} + \mu_f + \mu_t + \epsilon_{f,t}$$

# Total employment
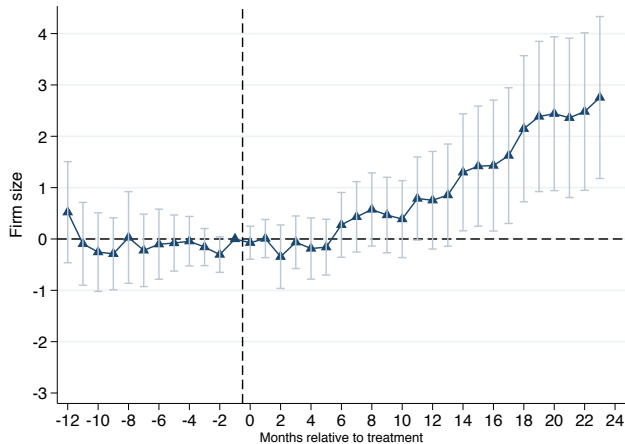


Note: Firms size increases in the long-run (driven by workers wo/ children). $N_{f,t} = \sum_{j=-13}^{14} \gamma_j \cdot d_{f,t}^j + \mu_f + \mu_t + \epsilon_{f,t}$

# Transfer saliency in payslip  ▸ Go back



Paid by employers (SFC)

Paid by govt (SUAF)

# Inflation and Indexing ▸ Back FA
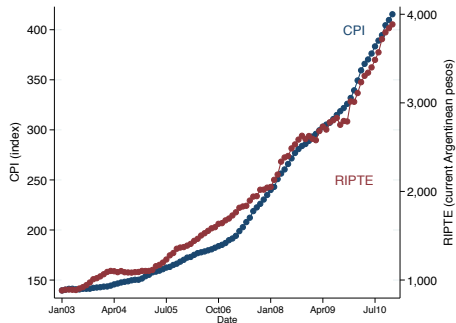


(a) **Persistent inflation**  (b) **Evolution of FA brackets and MW**
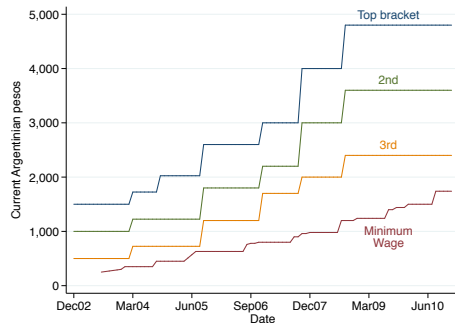
Notes: (a) CPI denotes consumer price index; RIPTE index is the average monthly wage of registered workers (in current pesos). (b) FA brackets are adjusted roughly once per year, with some gaps.

# GDP and Employment `▸ Back FA`
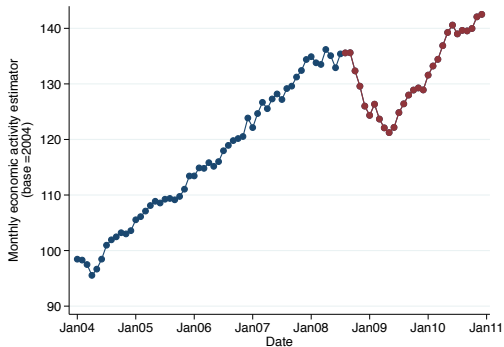


(c) **Economic activity (EMAE)**       (d) **Private employment**
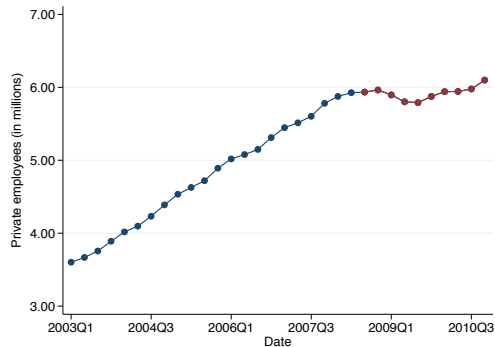
Notes: (a) large drop in economic activity from August 2008 onwards;
(b) stabilization of employment in the third quarter of 2008.

# Distribution of monthly wages ▸ Back FA
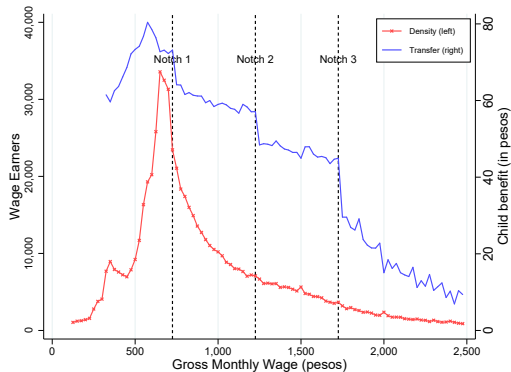


Note: figure corresponds to May'04; employees w/ kids working for 12 months.
Notch 1 is located at p40, Notch 2 is located at p70, Notch 3 is located at p80.

# Macro roll-out (official budget information)
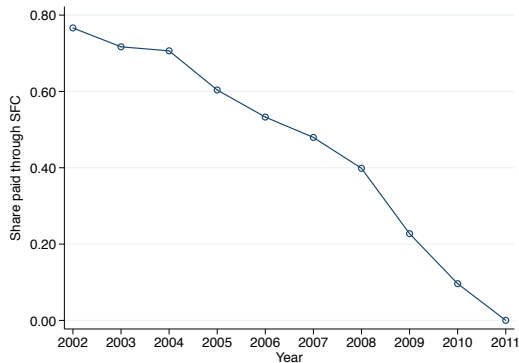


Note: gradual decline in the share of FA paid through the old system (SFC).
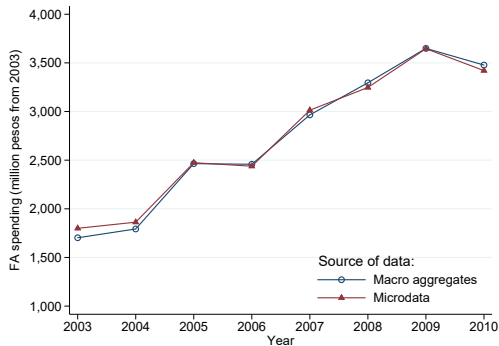
(e) **FA spending (micro vs macro)**
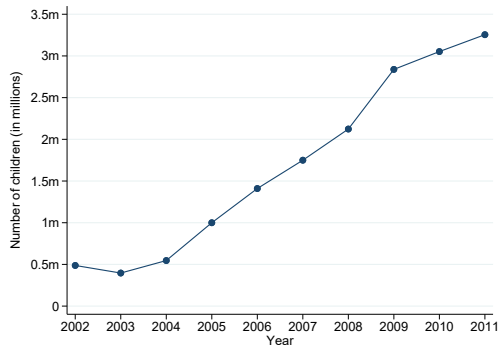
(f) **Beneficiaries (number of children)**

Notes: (a) increase in FA spending over time; replicate macro aggregates using micro-data.
(b) N children receiving the transfer increases (economy booming + formalization).

# Incorporation schedule: memo (1)

**(a) Memo (body text)**

*Resolución N° 333/2005*[1]

*Cronograma de inclusión de empleadores al Sistema Único de Asignaciones Familiares. A.N.Se.S.*

**Artículo 1°—** Apruébase el cronograma de inclusión al Sistema Único de Asignaciones Familiares (S.U.A.F.) respecto de los empleadores que se encuentran detallados en el Anexo que forma parte integrante de la presente, y que obligatoriamente serán incluidos formalmente al Sistema Único de Asignaciones Familiares en forma paulatina hasta el mes devengado diciembre de 2005.

**Artículo 2°—** La Gerencia de Prestaciones notificará fehacientemente a los empleadores referenciados en el artículo 1° de la presente sobre los requisitos que deberán cumplir y la documentación que deberán presentar ante la Unidad de Atención Integral/Área Central de esta Administración Nacional de la Seguridad Social, a los efectos de quedar incluidos formalmente en el Sistema Único de Asignaciones Familiares.

**(b) Memo annex (with employer identifiers)**

**ANSES** — Ministerio de Trabajo, Empleo y Seguridad Social

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"2005 – AÑO DE HOMENAJE A ANTONIO BERNI"

ANEXO

| | |
|---|---|
| 20-05047024-6 | JUAN NESTOR NARCISO |
| 20-07924169-6 | BORDA PAULINO APARICIO |
| 20-14131275-9 | WINGEYER HUGO DANIEL |
| 20-17071721-0 | BALLARIO JORGE ALBERTO |
| 20-17639159-7 | FRIGERIO FERNANDO DANILO |
| 20-20195515-8 | CIPOLLONE RAUL ALBERTO |
| 20-22126363-5 | RUIZ DIAZ EULOGIO ANTONIO |
| 23-05243056-9 | MOROSI RICARDO EDER |
| 23-14940864-9 | ROJAS RICARDO ALFONSO |
| 27-13881818-2 | HULZANQUI PATRICIA CARMEN |
| 27-22127177-2 | GONZALEZ MARIELA ALEJANDRA |
| 30-57189536-2 | LINEA 22 SOCIEDAD ANONIMA |
| 30-63872707-9 | GREEN S A |
| 30-65464085-4 | SE NE MI  SRL |
| 30-66760328-1 | ASOCIACION COOPERADORA HOSPITAL MUNICIPAL |

# Scheduled vs observed incorporation (micro-data)
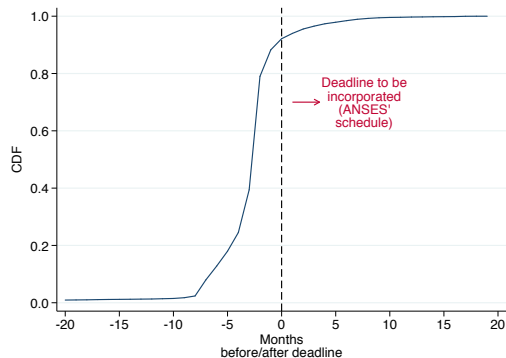


- ▶ We digitized 50+ schedule plans: ∼60K firms with their "internal deadline"
- ▶ Compare *internal* deadline with the *effective* incorporation date
- ▶ **Take away**: high compliance
  - ∼ 90% of firms incorporated before internal deadline

# Formal approval: memo (2)  ▸ Go back

### (a) Memo (body text)



### (b) Memo annex (with employer identifiers)
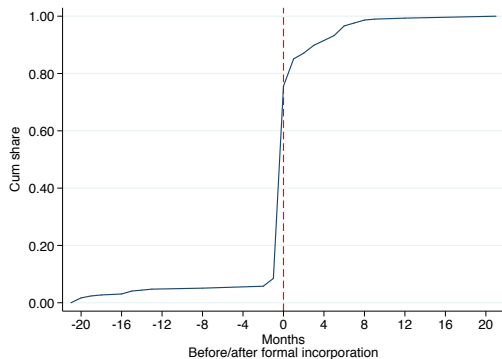
- ▶ Hard to track universe of approval memos
- ▶ We make public queries on a random sample of 300 firms to check the formal incorporation date (see next slide)
- ▶ Compare *formal* vs *observed* dates
- ▶ **Take away**: high compliance
  $\sim 80\%$ incorporated right at the formal approval date
  No incentives to delay: can't *compensate* paid transfers

# App to query formal incorporation dates ▸ Go back

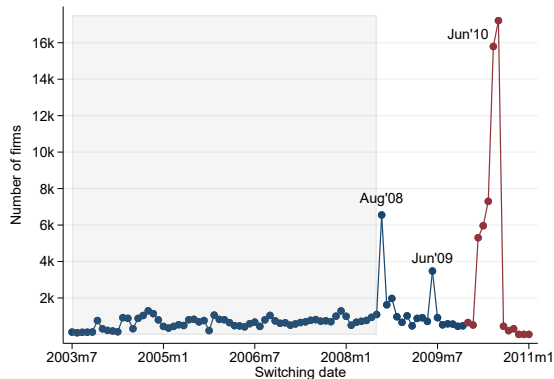## Notification to employees (affidavit) ▸ Go back



- ▶ Within ten days after the switch, firms must inform their workers about the new payment mechanism of family allowances
- ▶ Employer and employees must sign this affidavit acknowledging the change
- ▶ The affidavit + change in pay slips, make the policy change more salient

# Event frequency

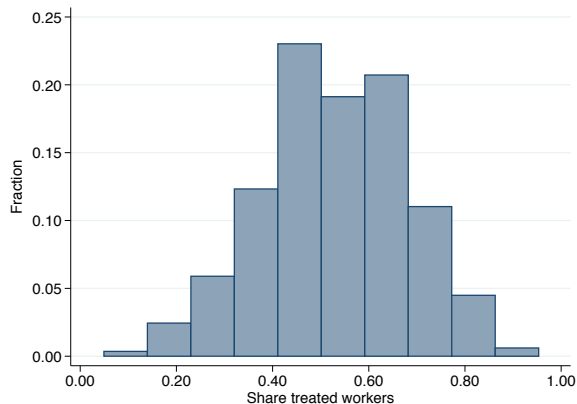

**(a) Excluding 2010**
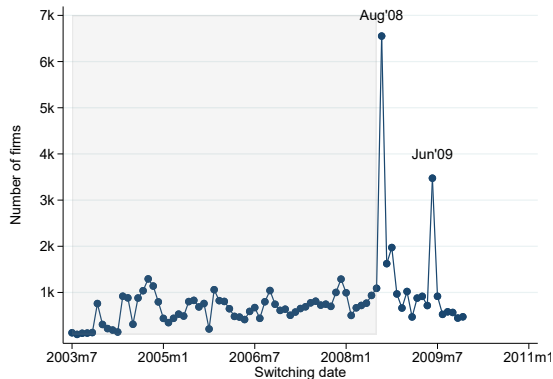
**(b) Full period**

Note: massive incorporation in Aug'08 (Recession), Jun'09, Mar-Jul'10.

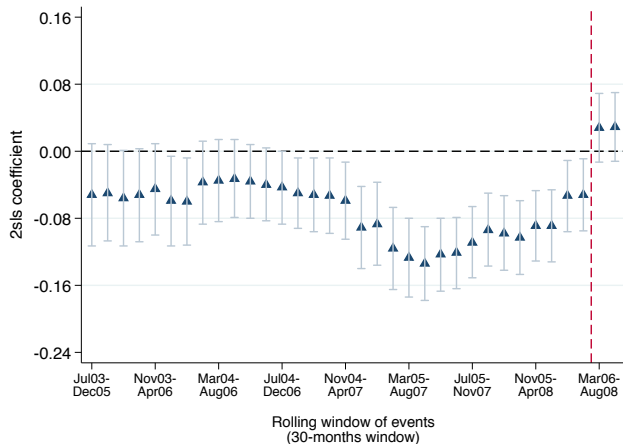# Distribution of firm exposure to family allowances



Note: exposure defined as the within-firm share of workers with children.  `▸ Go back`

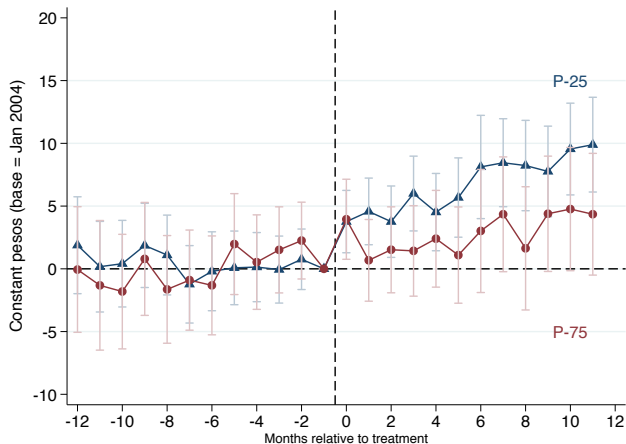# Dynamic effects: rolling window of events <span>▸ Go back</span>



Note: Each dot refers to a different regression with a *rolling* window of events. <span>▸ Go macro context</span>
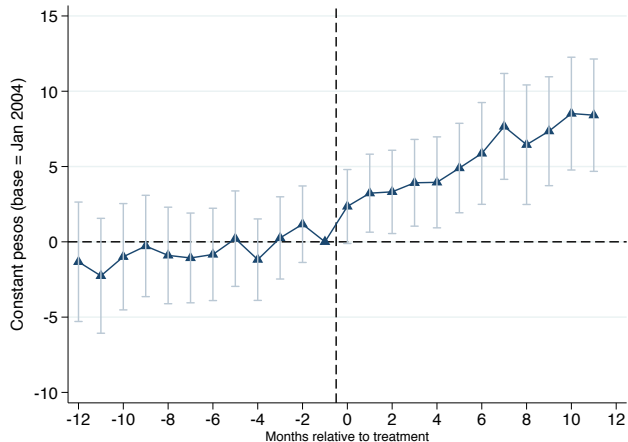
# Wage effects: $\Delta$ $p25$ and $p75$ ▸ Go back



Note: Increase in wage is larger for workers located at the bottom of the distribution ($p25$);
likely more treated due to the progressive transfer scheme.

# Wage effects: Balanced panel <span>▸ Go back</span>
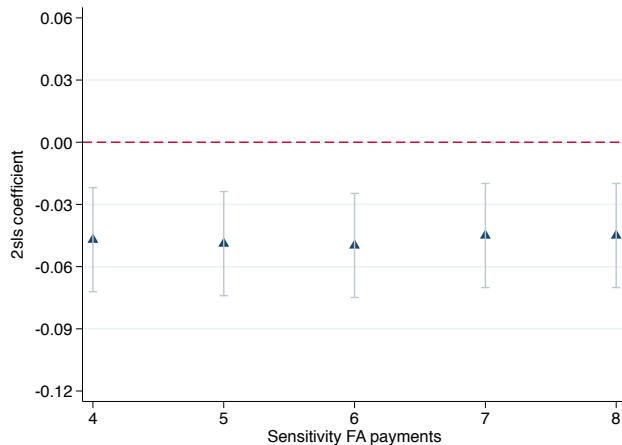


Note: Results remain unchanged for a balanced panel of firms present in the 96 months of data.
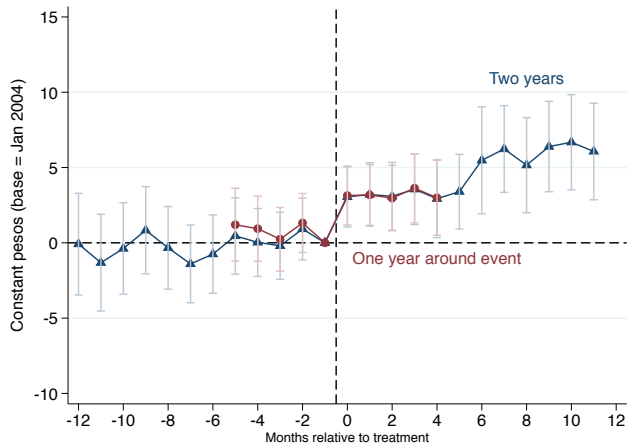
# Sensitivity to months of transfer payments (2SLS)



Note: The result is very stable when we vary the sample of firms based on the number of months they were paying family allowances right before the event. We consider firms paying at least 4, 5, 6, 7, and 8 months.
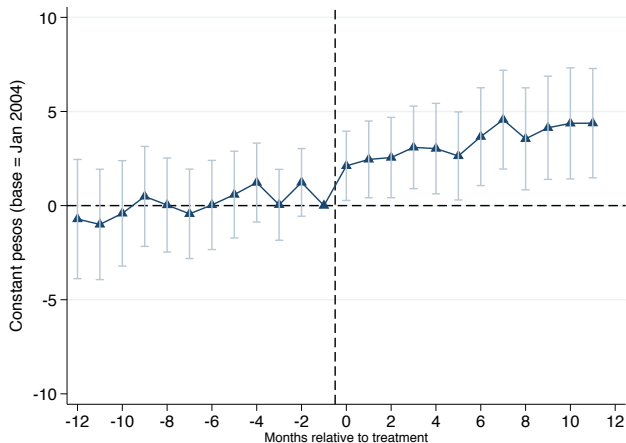
# Sensitivity to the event window  ▸ Go back



Note: Results remain unchanged when we use a time window of 6 months before and after the event instead of 12 months.

# Alternative treatment group definition



Note: Results remain unchanged when using a treatment group with workers that are fully treated during the period 2003-2010 (with children ages less than 18 years old during the whole roll-out period).
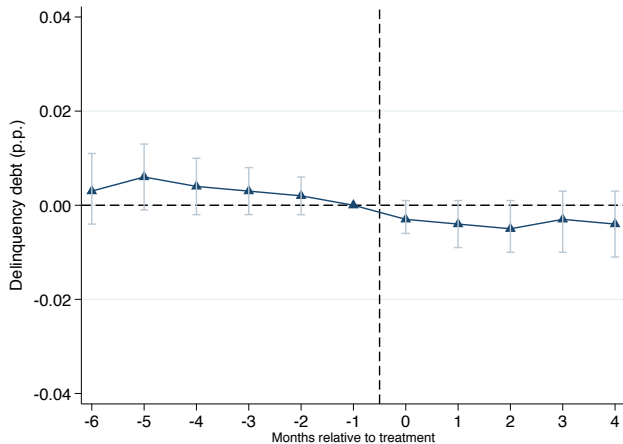
# Wage effects under alternative specifications (including controls)
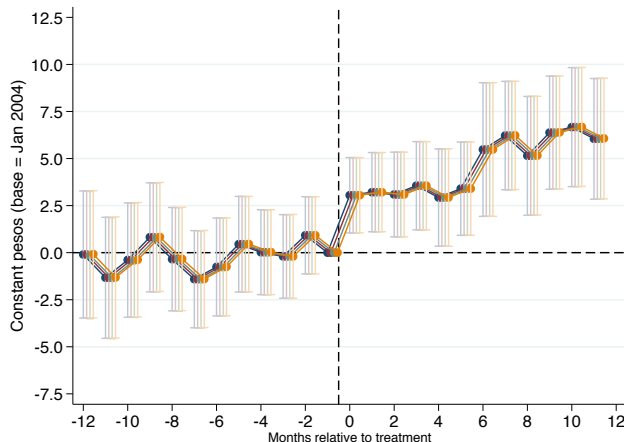
Note: Event-study estimates for the main specification (blue); controlling for firm size (green);
controlling for the gap in the number of T and C workers (orange).

# Delinquency rates: past due debt (90+ days) ▸ Go back



Note: firms switching btw Oct'03 and Jul'04 and in 2005 (N=10,481).