

Inside the Black Box of Child Penalties

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Research question

What is the impact of children on women's and men's labor market outcomes and time use in Mexico?

Motivation

- ▶ Recent emphasis on the child penalties as a **persistent source of wage differentials**, that is modulated by different gender norms and public policies (Kleven et al., 2018, 2019; Laun and Wallenius, 2017; Nix et al., 2019).
- ▶ Evidence focuses on employment patterns across the U.S., several Scandinavian countries and other countries in Western Europe.
- ▶ Developing countries, however, present different challenges to the ability of women to work for pay.
 - ▶ Gender norms tend to be even more traditional in developing countries (Duflo, 2012; Jayachandran, 2014)
 - ▶ Reliance on extended family members is still common (Gong and Van Soest, 2002; Hank and Buber, 2009; Dimova and Wolff, 2011, 2008)
 - ▶ The existence of a large informal sector as a source of flexible jobs (Alcaraz et al., 2008; Maloney, 2004; Juarez et al., 2008) or as a buffer mechanism preventing some mothers from exiting the labor force (Berniell et al., 2019; Maloney, 2004)

Motivation: Meanwhile in Mexico...

- ▶ In Mexico, there are slightly more women aged 18-22 attending higher education than men (UNESCO, 2019; ANUIES data)
- ▶ There are laws that forbid discrimination and harassment in the workplace. However, according to Vela Barba (2018):
 1. The Mexican laws still treat men and women differently (e.g. maternity and paternity leaves, access to daycare).
 2. There is no mechanism for oversight.
 3. Not a single employer was fined for employment discrimination on the basis of gender or harassment during 2013-2017.
 4. 24% of the discrimination complaints to CONAPRED are pregnancy-related (2011-2017).
 5. Only 6 firms were fined for pregnancy-related discrimination out of hundreds of complaints.

Women and work in Mexico

- ▶ Wage gap in urban Mexico decreased 14.2% to 7.8% (1990-2010).
- ▶ Female labor force participation in Mexico is extremely low as compared to countries of similar development: only 43% of Mexican women participate in the labor market (World Bank, 2019), and the ones who work are over-represented in the informal sector.
- ▶ Increase in the role of the unexplained portion of the wage gap (Arceo-Gómez and Campos-Vázquez, 2014)

Hypothesis: this persistent gap is associated with the role of caregiving whose burden falls predominantly on women

This paper

In this paper, we estimate the child penalties in the Mexican context:

- ▶ Using an event study framework and then an instrumental variable approach as a robustness check, we analyze the impacts of children on labor and time use
 - ▶ Our time frame includes pre-pregnancy, pregnancy and postnatal periods
- ▶ We look at the role of the informal sector as both a source of flexibility and a fallback option
- ▶ We also look at the outcomes of other household members

Preview of Findings

1. Strong impact on the labor market outcomes of women:
 - ▶ During pregnancy, women's labor force participation starts falling and, one year after birth, women are 43 percentage points (pp) less likely to participate in the workforce, while men are 4pp more likely to do so.
 - ▶ One year after birth, men have had a 11% increase in their labor income and women see a decrease of 33%.
2. Heterogeneity in the effects of childbearing between formal and informal workers
 - ▶ Women in the informal sector have a >20pp increase in their probability of leaving the workforce, while women in the formal sector have a 5-10pp increase
3. Gender differences in the burden of unpaid labor associated to childbirth
 - ▶ Working women: 20 hours increase; working men: 5 hours increase.
4. Female household members support new mothers: Other working-age women in the household exhibit a 60pp decrease in the probability of working, while other men do not.

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Data

- ▶ The quarterly Mexican Labor Survey (ENOE) is a labor market panel survey, which is based on a rotating sample:
 - ▶ 21,000 households entering the sample in each round of the survey
 - ▶ Each household is included in the sample for five consecutive quarters
 - ▶ **Time use** data for every member of the household >12 years old
 - ▶ Includes informal and unpaid work
 - ▶ Allows us to estimate the child penalties for other female members of the household
 - ▶ Sample is restricted to workers that are at least 4Q in the panel within the age range of 16-64

Event study framework

$$\begin{aligned}
 y_{it} = & \sum_{j \neq -4} \alpha_j^s \cdot 1[t = j] + \sum_k \beta_k^s \cdot 1[age_{it} = k] \\
 & + \sum_{y=2010_{q1}}^{2018_{q4}} \gamma_y^s \cdot 1[date_{it} = y] + \Theta_i + \epsilon_{it}
 \end{aligned} \tag{1}$$

Where:

$s \in \{males, females\}$ is the gender of parent i

β_k^s are the age fixed effects

γ_y^s are the date fixed effects

Θ_i are the individual-level fixed effects

- ▶ As in Kleven et al. (2019), we control non-parametrically for underlying life-cycle trends, and for time trends such as the business cycles.

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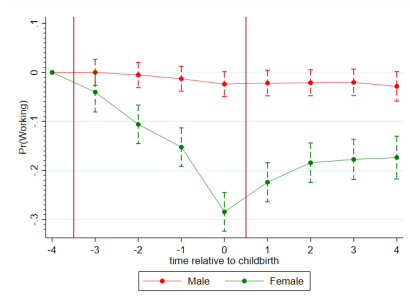
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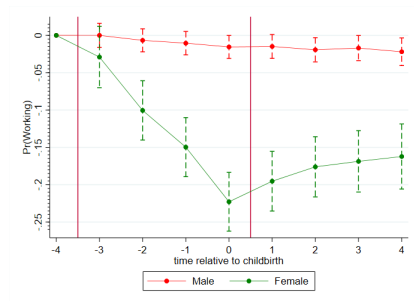
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Extensive Margin: Labor force participation



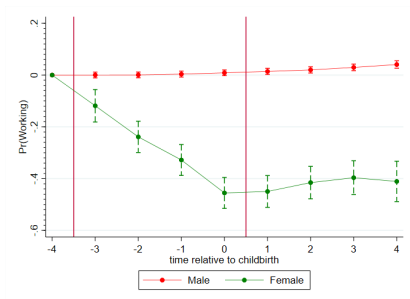
(a) Pr(positive working hours)



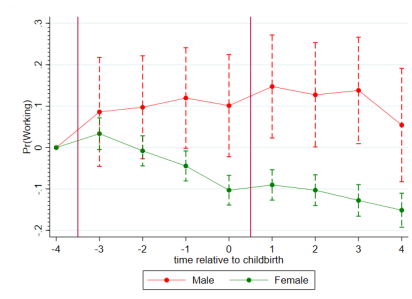
(b) Pr(in the workforce)

- ▶ The effect is smoothed when we incorporate the maternity leave or other paid or unpaid absences of women who remain attached to the workforce. [Table](#)

Extensive Margin: Labor force participation



(c) Active at first

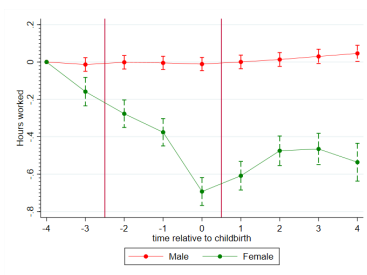


(d) Inactive at first

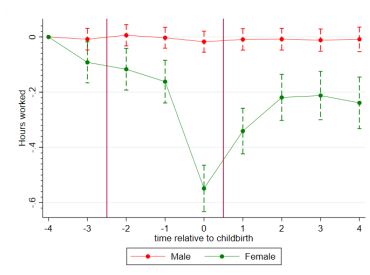
Figure: Impacts of children in the short run on labor force participation

- ▶ Slightly different dynamics between women who leave the workforce and women who were outside before childbirth

Intensive Margin: Hours worked



(a) Active at first

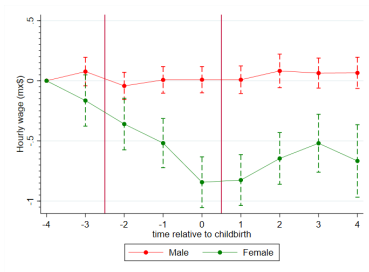


(b) Active always

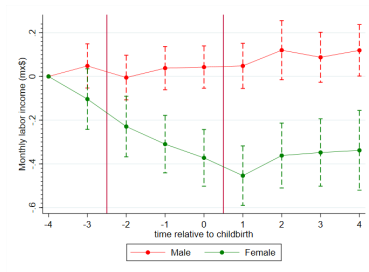
Figure: Impacts of children in the short run on weekly hours worked

- ▶ Men potentially compensate with an increase in 1.7 to 1.9 hours one year after birth ($p < 0.05$)

Impacts of children in the short run on income



(a) Hourly wage



(b) Monthly income

- One year after birth, men have had a 11% ($p < 0.05$) increase in their labor income and women see a decrease of 33% ($p < 0.01$)

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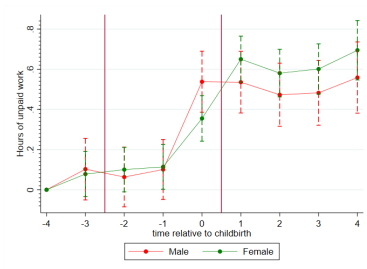
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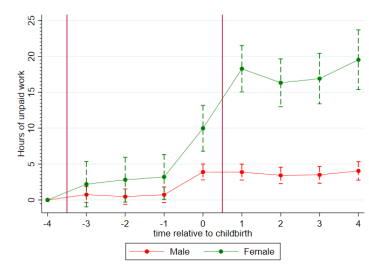
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Impacts of children in the short run unpaid labor



(c) Percentage change



(d) Absolute change

- ▶ Unlike other outcomes, the effect on unpaid labor happens after birth
- ▶ 16 hours increase in the unpaid labor gap between men and women after having children
- ▶ 10 hours increase if they do not leave the labor force Graph

Child penalty on other household members

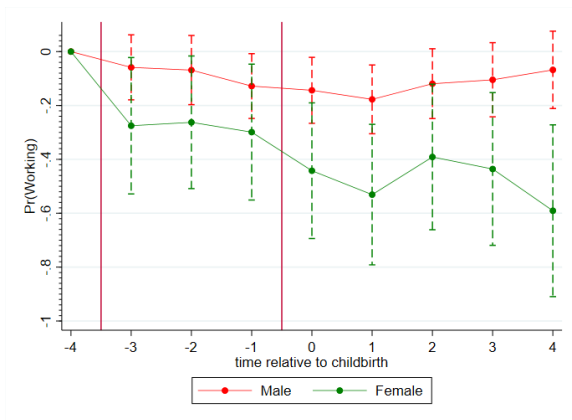


Figure: Effect of children of the heads of household on other household members

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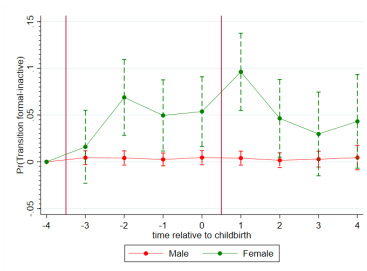
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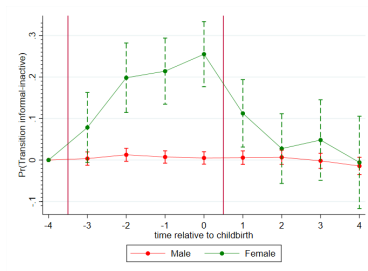
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Workforce exit after childbirth



(a) Formal



(b) Informal

Figure: Impacts of children in the short run on the probability of leaving the workforce

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Quantile regressions: Wage

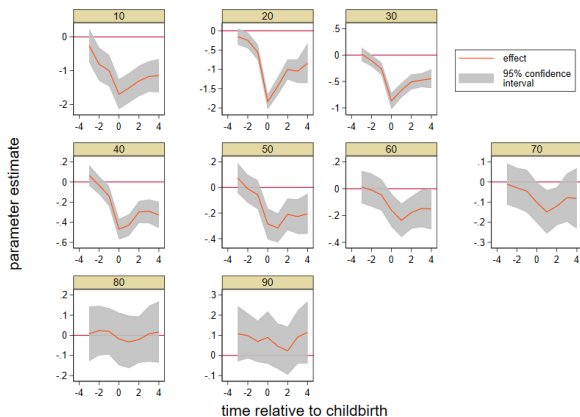


Figure: Quantile regression of the impact of children on women's hours worked.

Quantile regressions: Paid work

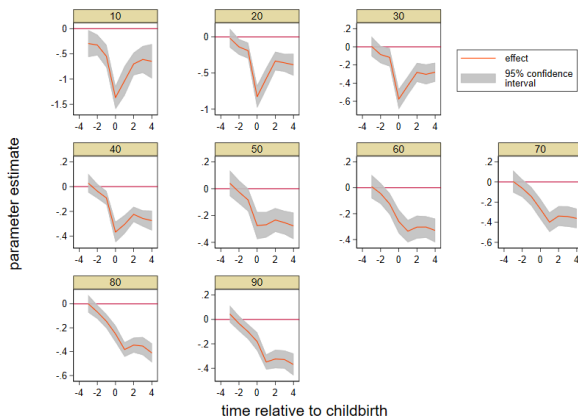


Figure: Quantile regression of the impact of children on women's hours worked.

Quantile regressions: Unpaid work

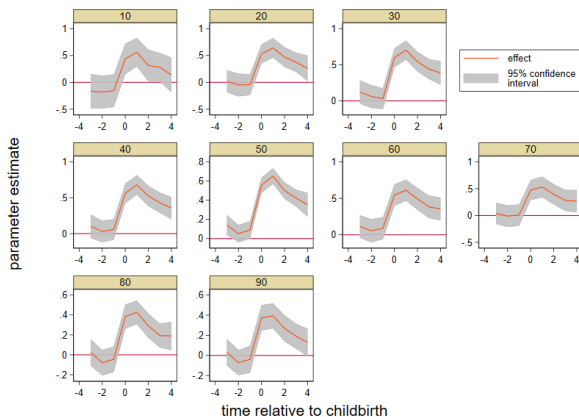


Figure: Quantile regression of the impact of children on women's hours of unpaid work.

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Instrumental variable strategy

- ▶ In the sex ratio's literature, demographers have long documented how some parents hold a preference for having children of both sexes (Ben-Porath and Welch, 1976; Gini, 1951), but also how there is a **stronger preference for having a second child after their first offspring is a daughter** (Almond et al., 2013).
- ▶ In the case of Mexico, Cruces and Galiani (2007) show estimates of sex preferences for couples who have two children of the same gender.
 - ▶ Women who had two girls had a 4.3–4.6 pp higher probability of having a third child, while women who had two boys had a 2.5–2.8 pp higher probability of having a third child, which shows a bias in the preference for boys.

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Robustness check: Instrumental Variable Strategy and Assumptions

Instrument: Conditional on having one child, we define $female_1 = 1$ if the first child is a daughter. Hence we define the Z the following way:

$$X^T = [t_{-4} \quad t_{-3} \quad t_{-2} \quad t_{-1} \quad t_0 \quad t_{+1} \quad t_{+2} \quad t_{+3} \quad t_{+4}]$$

$$Z^T = [t_{-4} * female_1 \quad \dots \quad t_0 * female_1 \quad \dots t_{+4} * female_1]$$

Where $t_j = 1$ at calendar time t is equal to relative time j with respect to birth

1. **Relevance:** Conditional on having one child, if that child is a daughter, the probability of having a second child increases in 1 pp
2. **Exclusion restriction:** Since children's sex is randomly determined, having a daughter as a first child should increase the probability of having a second child in a way that is unrelated to unobservable factors that influence parents' labor market outcomes (Cools et al., 2017).

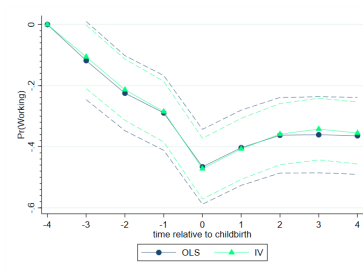
First Stage

	(1)
	Birth in panel
Has daughter at first	0.0104*** (0.000486)
Observations	601,101
R^2	0.022
F(1, 601035)	454.16

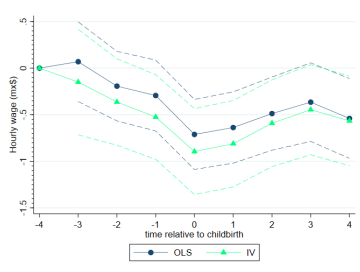
Standard errors in parentheses
 *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table: Fixed effects linear probability model for the probability of having a second child. Includes only parents with one child at the beginning of the panel

IV strategy: impact of the second child



(a) LFP

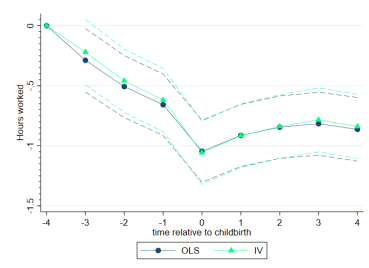


(b) Hourly wage

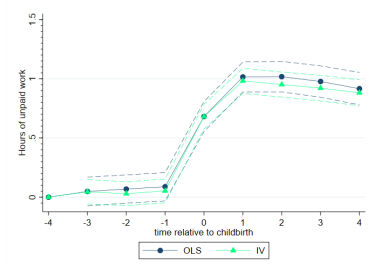
Figure: IV and OLS estimates for the impact of the second child on labor force participation

Go to [IV Table](#).

IV strategy: impact of the second child



(a) Paid work



(b) Unpaid work

Figure: Impacts of children in the short run on weekly hours worked

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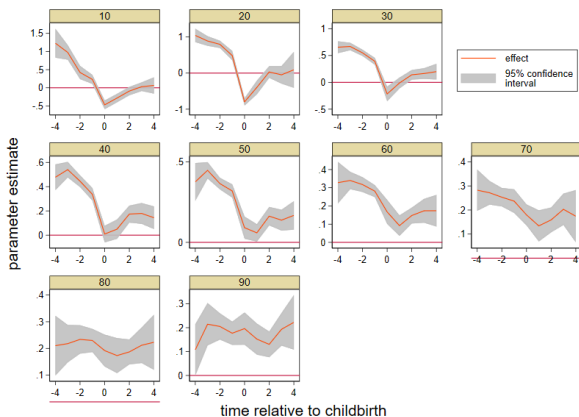


Figure: Quantile regressions of the impact of children on women's hourly wage. Women who do not have kids in panel included as control group.

Quantile regressions: Paid work

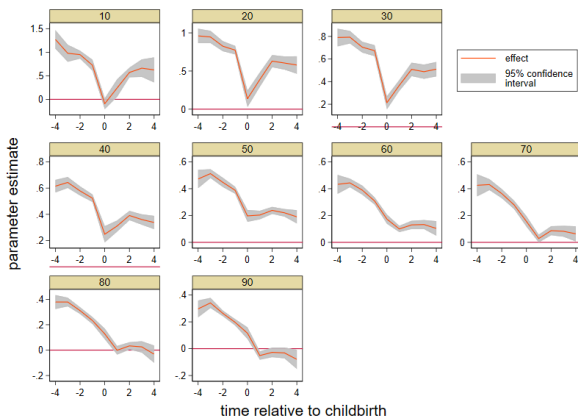


Figure: Quantile regression of the impact of children on women's hours worked. Women who do not have kids in panel included as control group.

Quantile regressions: Unpaid work

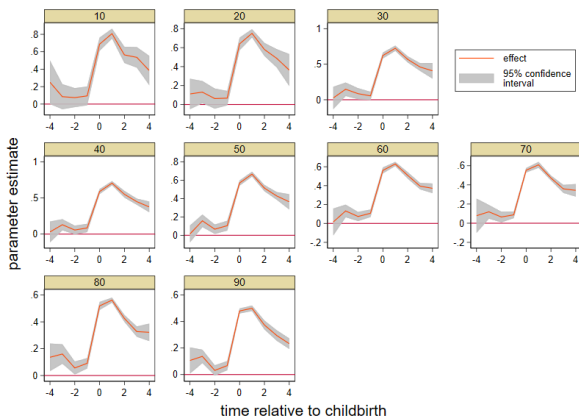


Figure: Quantile regression of the impact of children on women's hours of unpaid work. Women who do not have kids in panel included as control group.

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- ▶ All results show that women do experience a child penalty in the Mexican labor force:
 - ▶ At the extensive margin
 - ▶ At the intensive margin
 - ▶ A decline in wages and labor income
- ▶ Women: more likelihood to leave the labor force from the informal sector. More research needed to disentangle voluntary from involuntary exit
- ▶ Men: more likelihood to enter and remain in the labor force
- ▶ The wide gap in unpaid hours and care is a potential factor in further delaying the recovery of all labor market outcomes for women
- ▶ This study provides further evidence that once women have children the balancing act of market work and home responsibilities becomes more challenging
 - ▶ Policy relevance: motivation to improve child care services and take policy actions to foster change in gender roles

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