Filling the Gaps: Childcare Laws for Women's Economic Empowerment

By S Anukriti, Lelys Dinarte-Diaz, Maria Montoya-Aguirre, and Alena Sakhonchik[*]

The gendered division of caregiving responsibilities, especially childcare, compromises women's economic empowerment. Globally, women spend almost three times more time on unpaid caregiving than men (Hanna et al., 2023) and discriminatory gender norms related to unpaid care restrict women's ability to participate in the paid economy.[1] Access to childcare services can, therefore, be a key enabler of women's participation in paid work. Previous research has shown that the provision of childcare services can improve maternal labor market outcomes both in high-income (Olivetti and Petrongolo, 2017) and low- and medium-income countries (Halim, Perova and Reynolds, 2023). Yet, this literature is based on small scale childcare programs and does not provide evidence on the effects of high-level "governance" of childcare provision.

We provide global evidence on how legislation that governs the availability, affordability, and quality of center-based childcare services affects women's labor market outcomes. Understanding the effects of childcare regulation is especially important because unequal treatment of women and men by the law is the most salient, pervasive, and persistent form of gender discrimination. Women are most severely penalized when it comes to laws related to having children and getting paid, and legal gender equality is positively correlated with women's outcomes on the labor market (Hyland, Djankov and Goldberg, 2020).

The effect of childcare laws on female labor force participation (FLFP) is, *a priori*, unclear. On the one hand, the availability of childcare services can enable women to reallocate their time from unpaid care activities at home to paid market work, increase their working hours, productivity, and income, and influence the type of employment. Women may also take advantage of work opportunities in the childcare industry to increase their LFP. On the other hand, women's willingness to take up childcare services will depend on the cost of these services relative to their potential labor market income, which in turn depends on the structure of the economy and labor market conditions, among other things.

The willingness to use formal childcare services and the potential for childcare regulation to impact FLFP also depend on the strength of social norms related to gender roles, and on the quality of childcare.[2] Although existing studies on the impact of childcare quality on women's labor market outcomes are mostly qualitative in nature, they suggest that low quality discourages families from taking up childcare services (Halim, Perova and Reynolds, 2023).

[1] Women's care burden can reduce their participation in the labor force by 12 percent, and can lead to a 7.5 percent loss in global income (OECD, 2019).

[2] According to Wave 7 of the World Values Survey, respectively 42 and 51 percent of respondents globally agree or strongly agree with the statements: "A preschool child suffers with a working mother" and "On the whole, family life suffers when a woman works full time."

I. Data

We sourced data on childcare laws from the Women, Business, and the Law (WBL) database (World Bank, 2024), which documents laws affecting women's economic participation across 190 countries in seven regions of the world. The dataset covers laws regulating the supply of and the demand for center-based childcare services for children under age three, and includes law enactment and commencement dates and indicators for accessibility, affordability, and quality of childcare.[3]

Figure 1 shows the evolution of childcare regulations in the 190 countries covered by the WBL data. The number of countries enacting such laws increased sharply since the 1990s, from 13 in 1991 to 144 in 2022. By 2022, only 46 countries had yet to enact a childcare law. While most regulations focus on childcare availability, as shown in figure Panel B of Figure 1, by 2022, only 75 and 62 countries had addressed affordability and quality, respectively.

We also use the ILOEST global dataset of annual country-level labor force indicators (ILO, 2024).[4] This dataset includes LFP, employment, and unemployment rates by country, sex, and age group from 1991 to 2022. Data on LFP among prime-age couples (both aged 25-54) with children under age six are available for 2004–2022.

II. Empirical Strategy

To identify the effects of childcare laws on women's labor market outcomes, we utilize a staggered synthetic difference-in-difference (DID) estimation strategy (Arkhangelsky et al., 2021; Porreca, 2022) for an estimation sample of 155 countries for which we have labor market data during 1991-2022.[5] Synthetic DID estimation

[3]See Appendix A.A1 and the WBL website for more details on the 2024 WBL methodology and data.

[4]The ILO modeled estimates series combines reported data with imputations derived from ILO's econometric models, ensuring a balanced dataset for consistent regional and global aggregates.

[5]During this time period, 117 countries enacted a childcare law and 38 countries did not. See Appendix A.A2 and Figure F.1 for more details on the estimation

Figure 1. Childcare law enactment
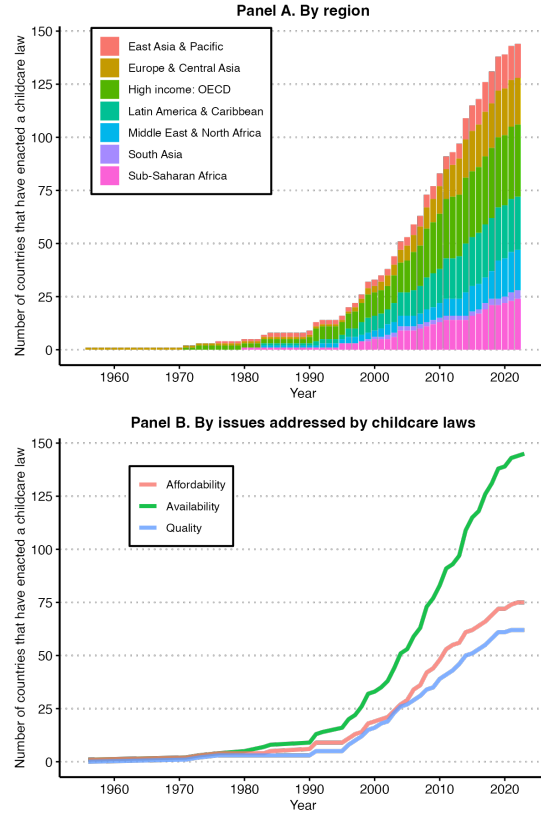
Note: Panel A shows the number of countries enacting childcare laws by year, with colors indicating different world regions. Panel B shows the number of laws enacted that regulate childcare availability, affordability, and/or quality. Data is sourced from the World Bank's WBL database. Variable definitions are in Appendix A.A1.

identifies the average treatment effect by estimating a weighted two-way fixed effects regression that places more weight on units that, on average, are similar in terms of their past to the treated units, and emphasizes periods that are, on average, similar to the treated periods. Specifically, we estimate the following equation:

(1)
$$\left(\hat{\tau}, \hat{\mu}, \hat{\alpha}, \hat{\beta}\right) = \arg \min_{\tau,\mu,\alpha,\beta}$$
$$\left\{ \sum_{c=1}^{N} \sum_{t=1}^{T} \left(Y_{ct} - \mu - \alpha_c - \beta_t - W_{ct}\tau\right)^2 \hat{\omega}_c^{\text{sd}} \hat{\lambda}_t^{\text{sd}} \right\}$$

where Y_{ct} corresponds to the outcome of interest, e.g., FLFP rate, for country c sample.

in year t. Country- and year-fixed effects are denoted by α_c and β_t; W_{ct} represents the treatment variable, which equals one after the year of law enactment (or commencement) and equals zero otherwise. For each treatment cohort, we begin by identifying unit weights, $\hat{\omega}_{sd}$, that match the pre-treatment outcome trends of the untreated countries with those of the treated countries. Then we compute time weights, $\hat{\lambda}_{sd}$, so that the weighted average of pre-treatment years matches the post-treatment average. Standard errors are constructed using a jackknife procedure. The parameter $\hat{\tau}$ captures the average treatment effect of enacting a childcare law on our outcomes of interest.

We also conduct an alternative stacked DID estimation (Wing, Freedman and Hollingsworth, 2024) to examine the dynamic effects of childcare law enactment using an event-study specification. Note that while the synthetic DID estimator only uses never-treated units as controls, the stacked DID also uses not-yet-treated units. Additionally, while the synthetic DID estimation recovers parallel trends by construction, we use stacked DID to explicitly show parallel pre-trends in the unweighted regression.[6]

III. Results

Table 1 presents the estimated effects of childcare law enactment or commencement on women's labor market outcomes ($\hat{\tau}$) using specification (1). Childcare law enactment increases FLFP rate by 1.41 percentage points (pp), or by 2.2 percent relative to the average FLFP rate in countries where a childcare law has not been enacted during our study period (64.63 percent). The effect of law commencement is similar (1.38 pp or 2.1 percent) to the effect of law enactment. The effects on FLFP are similar for the subsample of women aged 25-54 living in a household with a spouse or a partner and with at least one child under age six—the effects of enactment and commencement, respectively, are 2.6 and 2.2 percent relative to countries where no childcare law has

been enacted. The increase in FLFP also translates into an increase in the fraction of women aged 25 and above who are working (by 1.8 to 2 percent compared to the countries without childcare laws), although the coefficients in columns 5-6 are statistically insignificant at conventional levels. Moreover, conditional on being in the labor force, there is no significant effect of the laws on female unemployment rate among women aged 25 and above. These findings suggest that women entering the labor force in response to the childcare laws are successful in gaining employment.[7]

Our estimated effects of childcare law enactment on FLFP are smaller than those of other childcare interventions documented in prior literature (Halim, Perova and Reynolds, 2023).[8] This is expected, as childcare regulation often precedes service provision, and legislation does not always ensure effective implementation.

In Table 2, we examine whether certain attributes of childcare regulation are more or less effective in influencing women's labor market outcomes. We create separate indicators for whether the law regulates availability, affordability, and quality of childcare, and instead of W_{ct}, we add these indicators one by one in specification (1). All three attributes have a positive influence on FLFP, with affordability having the largest impact, both among the sample of all women as well as for those with at least one child under age six. Moreover, almost all coefficients in columns 1-6 are statistically significant, except for the effect of childcare quality regulation among nuclear households with young children. Households with young children, especially those without extended family members to assist with childcare, may prioritize accessibility and cost due to the immediate demands of childcare, whereas the broader population might be more responsive to quality improvements that enhance child development

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[6]See Appendix A.A3 for more details.

[7]We show in Appendix A.A4 that our results are not driven by any specific country.

[8]For example, childcare provision effects on FLFP range from 11 percent in urban China (Du and Dong, 2013) to 37 percent in Colombia (Attanasio and Vera-Hernandez, 2004).

TABLE 1—CHILDCARE LAWS AND WOMEN'S LABOR MARKET OUTCOMES

	FLFP rate				% of women working		Female unemployment rate	
	All		Children < 6					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Law enactment	1.41 [0.060]		1.584 [0.018]		1.071 [0.111]		-0.35 [0.408]	
Law commencement		1.384 [0.064]		1.333 [0.041]		0.989 [0.145]		-0.314 [0.462]
Observations	4960	4928	2242	2242	4960	4928	4960	4928
Never-treated $\bar{y}$	64.63	64.63	61.24	61.24	55.98	55.98	6.39	6.39

Note: Each column represents a different synthetic DID regression. The outcomes are: FLFP rate among women aged 25–54 (columns 1–4), share of female population (aged 25 and above) that is working (columns 5–6), and female unemployment rate among women aged 25 and above (columns 7–8). The female unemployment rate is the fraction of the female labor force that is without work but available for and seeking employment. In columns 3–4, the sample is restricted to women aged 25-54 living in a household with a spouse or a partner and with at least one child under age six. *P*-values are presented in brackets. Sample sizes vary across columns due to differences in data availability for each outcome and treatment timing which changes the selection of control units in the synthetic DID estimation. The mean outcomes for never-treated countries are reported in the last row.

outcomes. The three attributes also have a large impact on the fraction of women working (by up to 3.2 percent compared to the countries without childcare laws) but no effect on female unemployment rate.

FIGURE 2. DYNAMIC EFFECTS OF CHILD-CARE LAWS ON FEMALE LABOR FORCE PARTICIPATION
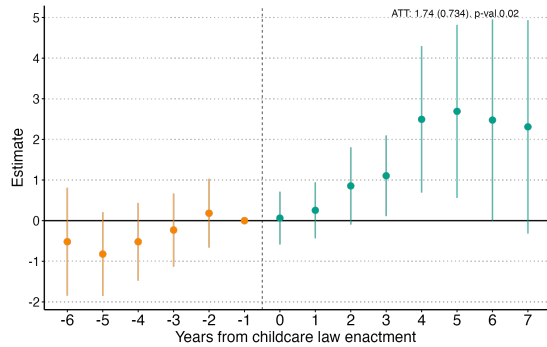
Note: The figure presents the coefficient estimates of the effect of childcare law enactment on FLFP rate based on the stacked event-study specification A1. The bars represent 95 percent confidence intervals. Standard errors are clustered at the country level.

Lastly, in Figure 2, we examine the dynamic effects of childcare law enactment on FLFP using specification (A1). The coefficient estimates for the years prior to the enactment of the laws are not significantly different from zero and exhibit no discernible differential pre-trends, supporting the parallel trends assumption underlying our DID estimation strategy. Moreover, the treat-

ment effect of law enactment on FLFP increases over time. In fact, the effects are almost zero during and one year after the year of enactment likely because the law becomes effective, on average, one year after enactment in our sample countries. Then, starting in the second year after the enactment, the estimated effect on FLFP is close to 1 pp and increases up to 2.7 pp five years after the enactment. This increase in effect over time can be explained by the fact that once the law has been enacted, its adoption by firms and its dissemination to women may take place in a gradual manner.

IV. Conclusion

Our findings demonstrate that enacting and implementing childcare laws significantly increase FLFP, driven by improved access to and affordability and quality of childcare services. Unlike prior studies that examine correlations, to the best of our knowledge, this paper provides the first causal estimates of the effects of childcare laws–and their attributes related to accessibility, affordability, and quality– on women's labor market outcomes across countries. Our results highlight the role of legislative changes in improving women's access to childcare and provide consequential lessons on how childcare laws can offer instrumental returns in other dimensions of gender equality and economic development.

TABLE 2—CHILDCARE LAW ATTRIBUTES AND WOMEN'S LABOR MARKET OUTCOMES

| | FLFP rate | | | | | | % of women working | | | Female unemployment rate | | |
| | All | | | Children < 6 | | | | | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Availability	1.410 [0.060]			1.584 [0.018]			1.071 [0.111]			-0.350 [0.408]		
Affordability		2.690 [0.001]			2.245 [0.007]			1.541 [0.008]			-0.214 [0.722]	
Quality			1.848 [0.038]			0.579 [0.519]			1.614 [0.021]			-0.513 [0.388]
Observations	4960	5216	5376	2242	2717	2774	4960	5216	5376	4960	5216	5376
Never-treated $\bar{y}$	64.63	59.76	62.10	61.24	55.87	57.51	55.98	50.58	50.67	6.39	7.56	7.26

Note: Each column represents a different synthetic DID regression. The outcomes are: FLFP rate among women aged 25–54 (columns 1–4), share of female population (aged 25 and above) that is working (columns 5–6), and female unemployment rate among women aged 25 and above (columns 7–8). The female unemployment rate is the fraction of the female labor force that is without work but available for and seeking employment. In columns 3–4, the sample is restricted to women aged 25-54 living in a household with a spouse or a partner and with at least one child under age six. P-values are presented in brackets. Sample sizes vary across columns due to differences in a) data availability for each outcome and b) treatment timing which changes the selection of control units in the synthetic DID estimation. The mean outcomes for never-treated countries are reported in the last row.

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ONLINE APPENDIX

A1.   Variable definitions

CHILDCARE LAWS

The World Bank's WBL database collects information on the legal and policy environment pertaining to women's economic participation and opportunity. Data collection builds on established WBL methodology and expertise and relies on the review and assessment of official laws and regulations, and contributions of lawyers, judges, civil society representatives and public officials.

Both federal and local legislation applicable to a country's main business city are considered. For federal systems, where the provision of childcare is not established at the national level, legislation applicable to the main business city is explored. Non-binding documents and instruments—typically referred to as policy notes, national strategies, guidelines, recommendations, declarations, and opinions—are not considered for the purposes of this paper. Official ministerial websites specifying or explaining certain regulatory aspects covered within the established three-pillar framework are cited in limited circumstances. More information on the 2024 WBL dataset and the methodology are available on the WBL website.

The WBL database maps current legal and regulatory measures adopted by each country to ensure or strengthen three pillars of childcare: availability, affordability, and quality. The definition of each pillar and the variables included in each are defined as follows:

- **Childcare availability:** the childcare law expands access to childcare by supporting different types of childcare provision and its convenience. A score of 1 is assigned if the law establishes the provision of childcare services for children ages 0 to 2 years in center-based settings (nurseries, day cares, creches, or formal preschools) by at least one of the following:

  - Does the law establish the provision of childcare services by the government?
  - Does the law establish the provision of childcare services by private centers?
  - Does the law establish the provision of childcare services by employers?
  - Where the law establishes the provision of childcare services by employers, is it conditional on the number of employees regardless of gender?

  A score of 0 is assigned if the law does not establish any provision of center-based childcare services. A score of 0 is also assigned if the law establishes childcare provision solely through a direct government mandate for employers, contingent on the number of female employees.

- **Childcare affordability:** the childcare regulation improves childcare service provision, especially for low-income or vulnerable families through government financial or tax support to parents, private childcare centers, or employers. A score of 1 is assigned if the law establishes at least one of the following types of government support:

  - Does the law establish any form of financial support to families for childcare services?
  - Does the law establish tax incentives to families for childcare services?

– Does the law establish any form of financial support to private childcare centers?

– Does the law establish tax incentives to private childcare centers?

– Does the law establish any form of financial support to employers for providing or supporting childcare services for their employees?

– Does the law establish tax incentives to employers for providing or supporting childcare services for their employees?

A score of 0 is assigned if: the law does not establish any form of support for families specifically for using childcare services; the law establishes that the government may provide support without specifying entitlement conditions; parents receive government support that is not specifically designated for using childcare services; the law does not establish any form of support for nonstate childcare providers; there are tax benefits with no explicit reference to childcare services; among others.

- **Childcare quality:** the childcare regulation ensures a safe environment for children, contributes to healthier nutrition and school readiness, and promotes uptake. A score of 1 is assigned if the law mandates quality requirements for public or private center-based childcare, covering the following parameters:

    – Does the law establish caregiver-to-child ratio in childcare centers (public or private)?

    – Does the law establish maximum group size in childcare centers (public or private)?

    – Does the law establish workforce quality standards in childcare centers (public or private)?

    – Does the law establish mandatory periodic inspection of childcare centers (public or private) by authorized bodies?

    – Does the law establish a mandatory periodic reporting by childcare centers (public or private) to authorized bodies?

A score of 0 is assigned if there are no laws mandating quality standards for the provision of center-based childcare services. A score of 0 is also assigned if the law does not mandates all quality parameters. Furthermore, a score of 0 is assigned if the law recommends but does not require compliance with all the quality parameters.

<div align="center">Labor market outcomes</div>

- **Female labor force participation rate:** The percentage of women aged 25 to 54 who are in the labor force (i.e., either employed or unemployed).

- **Female labor force participation rate for women living with children under age six:** The percentage of prime-age women (aged 25 to 54) who live with a prime-age partner in a household with at least one child aged six or younger and are in the labor force (either employed or unemployed).

- **% of women working:** The fraction of women aged 25 and older who are working.

- **Female unemployment rate:** The fraction of the female labor force aged 25 and older that is without work but available for and seeking employment.

Table T.1 presents summary statistics for the main sample used to estimate the effects of childcare law enactment on FLFP rates among women aged 25–54. This estimation sample is a balanced yearly panel for 155 countries over the 1991 to 2022 time period. Figure F.1 illustrates the temporal variation in childcare law enactment within the estimation sample, while Figure F.2 depicts the variation in childcare law commencement.

The sample varies depending on the treatment variable used in the estimations. For the analysis in Table 2, which focuses on specific components of childcare laws, such as affordability or quality, the sample includes 163 and 168 countries, respectively. These sample sizes are larger than those in the estimation of the effects of laws that regulate the availability of childcare in general. This is because fewer countries have enacted laws regulating childcare affordability or quality compared to those addressing childcare availability overall, allowing more countries to serve as "clean" controls. Figures F.3 and F.4 illustrate this distinction.

TABLE T.1—SUMMARY STATISTICS FOR THE ESTIMATION SAMPLE

	Obs.	Mean	SD	Median	Min	Max
Has a childcare law	4960	0.75	0.43	1	0	1
Law regulates childcare availability	4960	0.76	0.43	1	0	1
Law regulates childcare affordability	4960	0.39	0.49	0	0	1
Law regulates childcare quality	4960	0.34	0.47	0	0	1
FLFP among women aged 25–54	4960	64.44	19.31	68.50	5.13	96.36
FLFP among women aged 25–54 with children < 6	2940	58.49	20.03	61.01	4.02	96.34
% of women working (age 25 and above)	4960	50.39	17.27	51.14	3.54	91.64
Female unemployment rate (age 25 and above)	4960	7.40	6.16	5.43	0.07	37.87

Note: The tables show the number of observations, the mean, the standard deviation (SD), the median, and the minimum and the maximum values for each variable in our estimation sample. Each observation represents one country in a given year. The data on childcare laws are from the World Bank's 2024 WBL database and labor market indicators come from ILO's ILOEST and GEND databases.
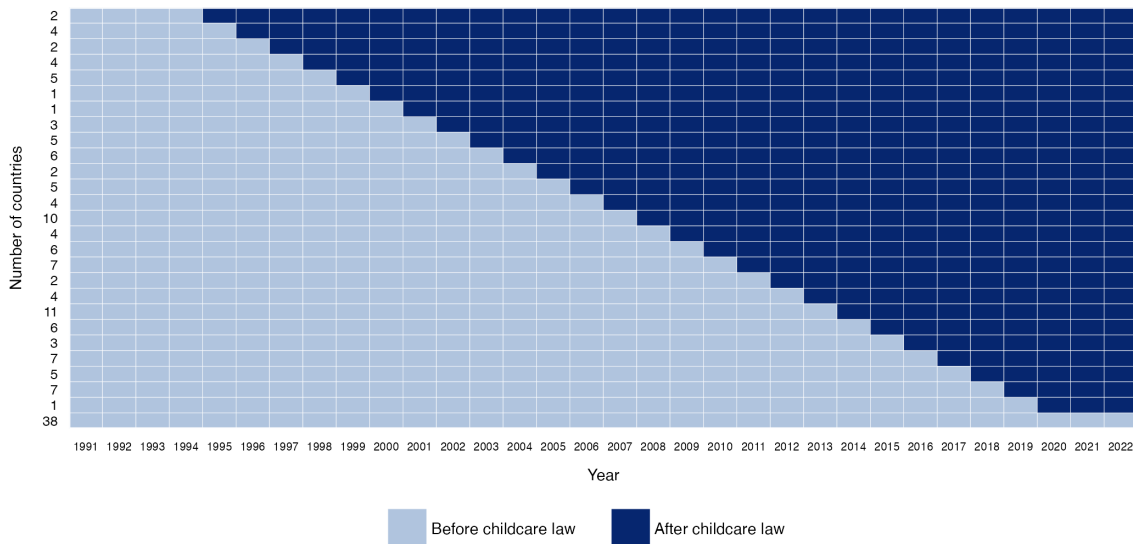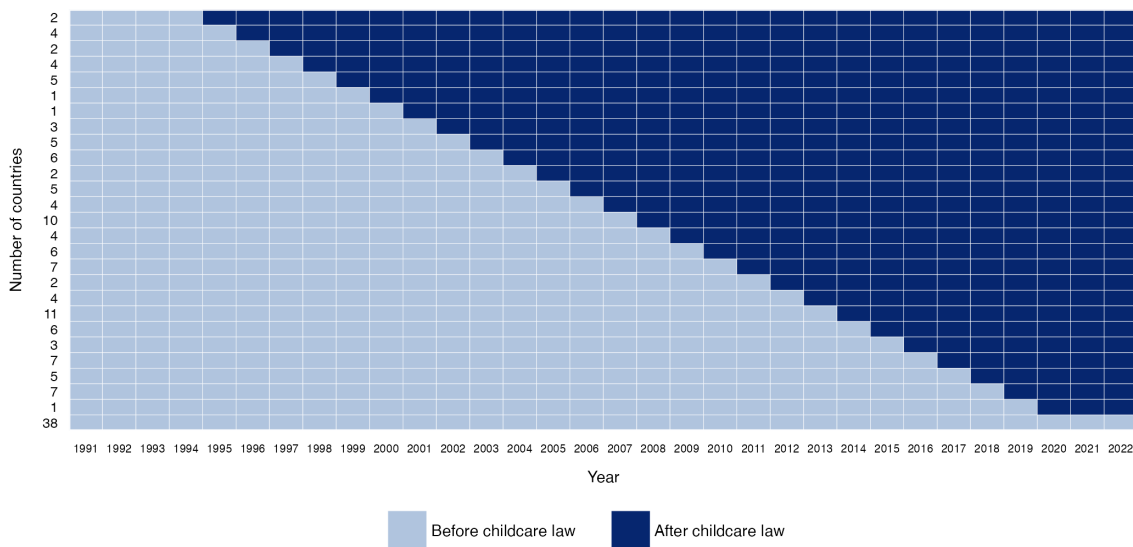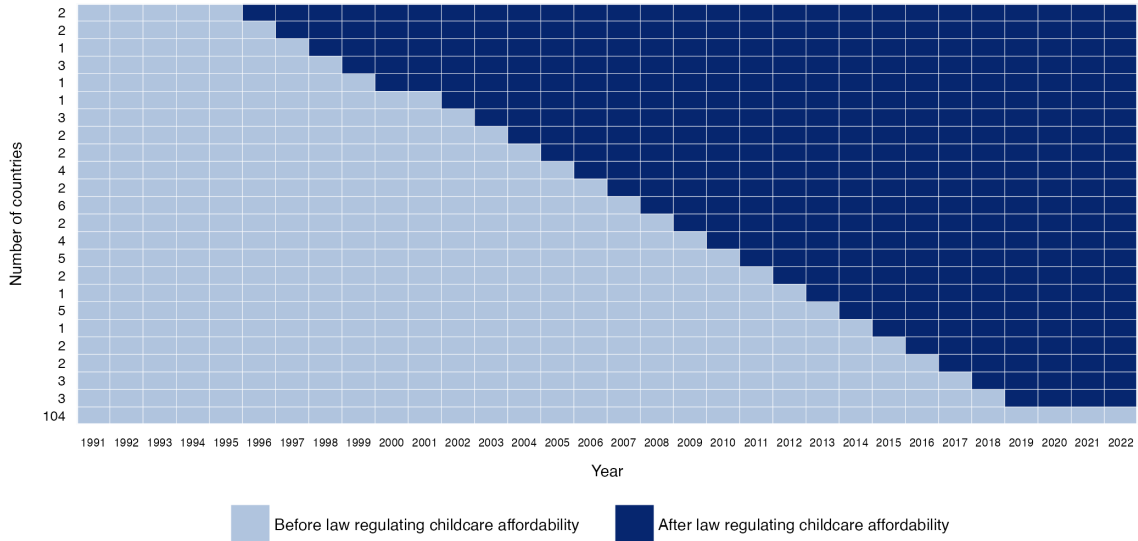
Note: This figure shows the temporal variation in the enactment of childcare laws across the 155 countries in our estimation sample. The x-axis represents the year, while the y-axis indicates the number of countries enacting a childcare law in that year. The color coding shows whether the observation corresponds to before or after the enactment of the law. In this context, the enactment of a childcare law corresponds to whether it regulates childcare availability. For temporal variations in the regulation of childcare affordability and quality, refer to Figures F.3 and F.4.

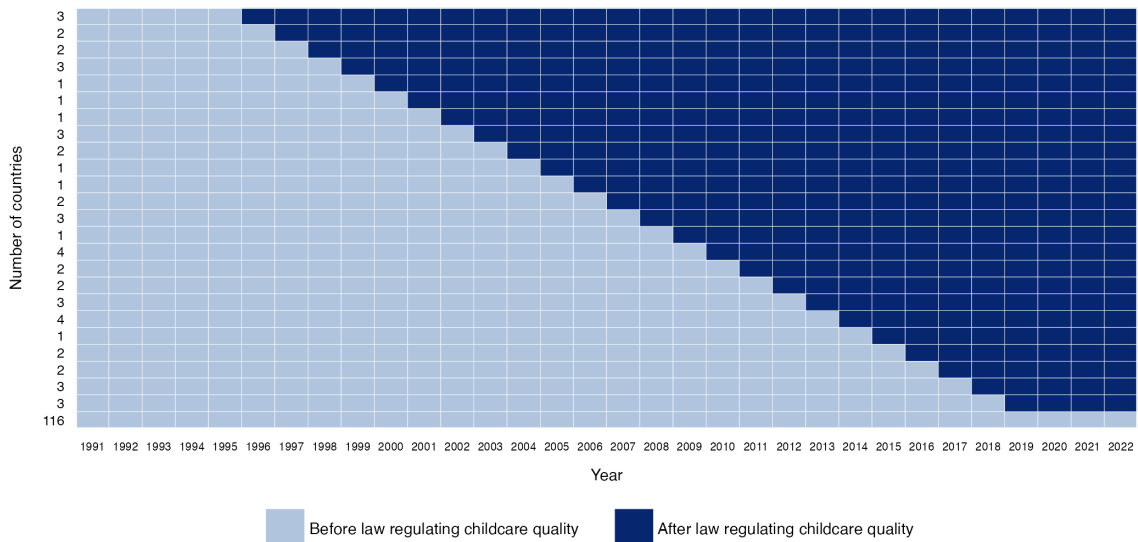FIGURE F.2. TEMPORAL VARIATION IN CHILDCARE LAW COMMENCEMENT IN THE ESTIMATION SAMPLE

Note: The figure demonstrates the temporal variation in childcare law commencement for the 154 countries in our estimation sample. The x-axis shows the year and the y-axis displays the number of countries that have the variation represented by that row. The color indicates whether the observation is before or after the law commencement.

FIGURE F.3. TEMPORAL VARIATION IN THE REGULATION OF CHILDCARE AFFORDABILITY IN THE ESTIMATION SAMPLE

Note: This figure shows the temporal variation in the regulation of childcare affordability for 163 countries in our estimation sample. The x-axis represents the year, while the y-axis indicates the number of countries enacting a law that regulates affordability of childcare in that year. The color coding shows whether the observation corresponds to before or after the enactment (or update) of the law regulating childcare affordability.

FIGURE F.4. TEMPORAL VARIATION IN THE REGULATION OF CHILDCARE QUALITY IN THE ESTIMATION SAMPLE

Note: This figure shows the temporal variation in the regulation of childcare quality for 168 countries in our estimation sample. The x-axis represents the year, while the y-axis indicates the number of countries enacting a law that regulates quality of childcare in that year. The color coding shows whether the observation corresponds to before or after the enactment (or update) of the law regulating childcare quality.

To estimate a stacked DID regression, we construct a separate dataset for each feasible sub-experiment, corresponding to each year of law enactment (or commencement). Each sub-experiment dataset includes observations for countries that enact the law in year k: periods $t \geq k$ are treated units, while periods $t < k$ are part of the control group. Additionally, all observations from countries that never enact a childcare law (*never-treated*) are included as controls, as well as observations from $t < k$ for countries that enact their childcare law after year k (*not-yet-treated*). Then, these datasets are stacked to form one single dataset that is used to estimate a weighted stacked regression following Wing, Freedman and Hollingsworth (2024).

We estimate a weighted event-study version of the two-way fixed effects model with indicators for different periods before and after the enactment of the law using the following regression specification:

$$(A1) \qquad Y_{ct} = \theta + \sum_{k=-6}^{7} \gamma_k W_{c,t+k} + \phi_c + \omega_t + \epsilon_{ct}$$

where $k = 0$ is the year of enactment in country c and $W_{c,t+k}$ equals one if $k >= 0$. The γ_k coefficients capture the evolution of the outcome Y_{ct} before and after the enactment of the childcare law over a 14-year period in countries where the law has been enacted relative to countries where the law has not yet been enacted.

A4. Leave-one-out estimation

To assess whether our results are influenced by any specific country, we conduct a "leave-one-out" analysis in which the main specification is estimated 155 times, excluding one country from the sample in each iteration. The results from this robustness check are presented in Figure F.5 and show that the estimates remain consistently stable across these iterations.

FIGURE F.5. CHILDCARE LAW ENACTMENT AND FEMALE LABOR FORCE PARTICIPATION: ROBUSTNESS CHECK
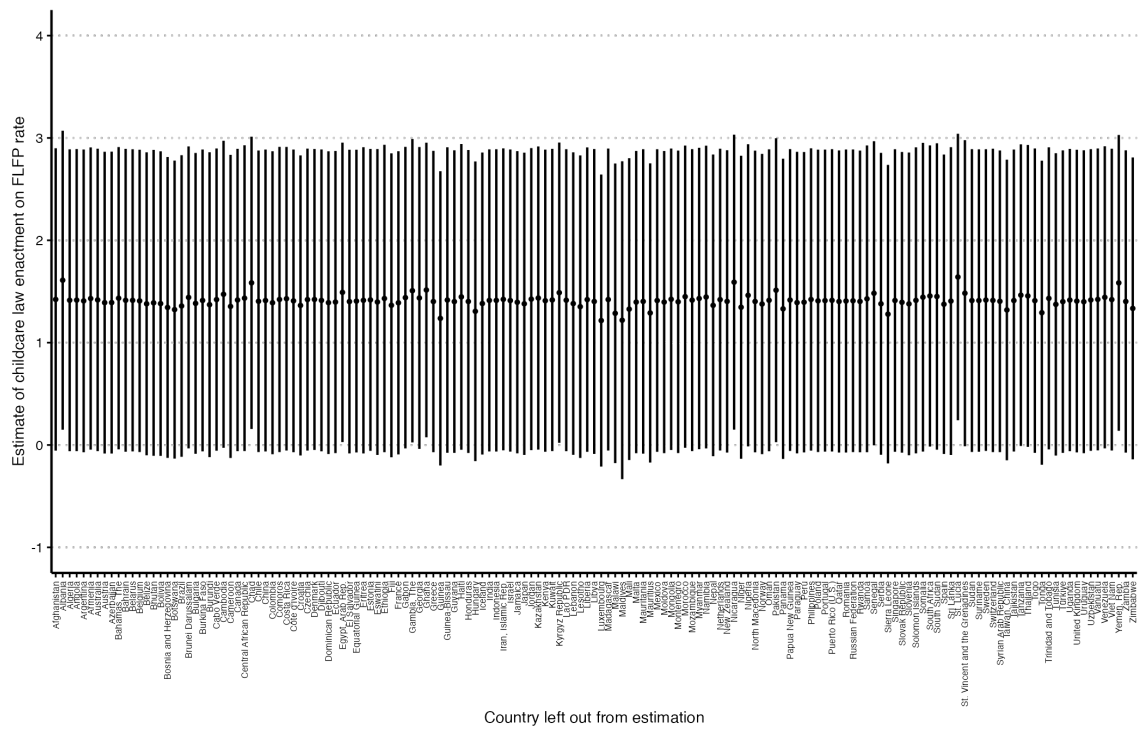
Note: The plot displays the estimates and the 95 percent confidence intervals from a synthetic DID estimation of the effect of childcare law enactment on the FLFP rate among women aged 25–54. The specification outlined in equation (1) is estimated 155 times, with one country excluded from the sample in each iteration. The excluded country is indicated on the x-axis.