The Gender Pay Gap in a Highly Regulated Market*

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Abstract

This paper studies gender pay disparities in Mexico's public-school system, a highly regulated labor market with standardized pay schedules and centralized wage setting. Using administrative payroll data from 2016 to 2024, we compare teachers in identical positions within the same school to estimate gender differences in pay for equal work. Comparing teachers of the same age, we find an equal-work wage gap of 0.018 log points. Because women are more often recent entrants than men of the same age, this gap falls to 0.008 log points when we control for seniority. Women's slower progression through a horizontal promotion system accounts for the remainder. The gender gap in total earnings is larger than the equal-work wage gap, at 0.036 log points, because men are more likely to hold multiple positions and because their second positions are relatively better paid. The equal-work wage gap is concentrated among teachers aged 50 and older, and between 2016 and 2024 the gaps in wage rates, total earnings, and multiple-job holding all move against women only among teachers born in 1965–69. We also show that, by about half a year after birth, motherhood reduces women's total earnings and wage rates by 0.05 and 0.04 log points, respectively. It reduces the number of teaching jobs they hold by 0.03, as their second positions end more often and those with one position start another less often.

Keywords: Gender gap, motherhood effects, teacher markets, pay standardization, regulated markets.
JEL Codes: J16, J31, J45, I21, J13.

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1 Introduction

Can gender inequality persist even when pay is standardized? In many organizations, including public-sector employers, wages are governed by centralized schedules that limit the scope for discretionary wage setting. Pay standardization is therefore often viewed as a potential solution to concerns about discrimination—e.g., unequal treatment in evaluations (Cullen and Perez-Truglia, 2023)—and gender differences in pay negotiation (Bertrand, 2011; Biasi and Sarsons, 2021, 2022). Yet studies find gender gaps in pay and earnings under such schedules as well (Ransom and Lambson, 2011; Bolotnyy and Emanuel, 2022; Quintero et al., 2024).

This paper studies gender pay disparities in Mexico's public-school system, a large regulated labor market with standardized salary schedules and centralized wage bargaining. This setting is useful for studying gender inequality for two reasons. First, high-quality administrative data allow us to estimate the gender wage gap for equal work with unusual precision. A central challenge in this type of estimation is that commonly used datasets record only broad occupation codes and therefore risk confounding pay differences for equal work with gender differences in sorting across sub occupations (Strittmatter and Wunsch, 2025)—for example, if male and female physicians are unevenly distributed across specialties such as neurosurgery and general medicine. Second, this setting features a particularly high degree of pay standardization. For example, base wages are uniquely determined by the combination of position and region of work, with no wage brackets of the type commonly found in other systems. If gender gaps persist even in this highly standardized setting, they may point to more deeply rooted sources of inequality.

We use administrative payroll records from 2016 to 2024 covering 10.57 million job-quarter observations in the main equal-work analysis. The data report detailed job codes and school identifiers, which allow us to compare male and female teachers in identical positions within the same schools. To enhance comparability, we focus on generalist teachers in regular primary schools.

We find small but nonzero inequality under pay standardization. For equal work, female teachers

earn 0.018 log points less than comparable men of the same age. Age, however, is an imperfect proxy for seniority in this market. Specifically, between ages 35 and 49, women are about 1.5 times as likely as men to be recent entrants, and recent entrants earn less than incumbents of the same age. When we control for seniority among teachers hired after June 2016, the gap falls to 0.008 log points. Differences in progression rates between women and men through the *Carrera Magisterial* horizontal promotion system account for the remainder.

Gender differences are larger in earnings. Female teachers earn 0.036 log points less in earnings, in part because men are 3.6 percentage points more likely to hold multiple jobs within the public education system. Among teachers holding multiple jobs, the pay differential between first and second positions differs by gender by 0.11 log points, indicating that second positions are relatively more remunerative for men.

The gender gaps differ across birth cohorts. The equal-work wage gap is concentrated among teachers aged 50 and older who were already in service when our data begin. Between 2016 and 2024, the gaps in wage rates for equal work, in total earnings, and in the probability of holding multiple jobs all move against women only among teachers born in 1965–69, while none of them does among teachers born in 1970 or later.

We then study how motherhood shapes women's labor market trajectories in this regulated setting, following recent work on child penalties (Kleven et al., 2019a,b; Berniell et al., 2023; Aguilar-Gomez et al., 2026). We find that, by about half a year after birth, motherhood reduces women's total earnings by 0.05 log points, their wage rates by 0.04 log points, and the number of teaching jobs they hold by 0.03. Around birth, mothers' second positions end more often, and mothers with one position start second positions less often than mothers who have not yet conceived. Among teachers who remain on the payroll, the overall effects on earnings are smaller than those documented for the general population of Mexican mothers (Aguilar-Gomez et al., 2026).

Our paper contributes to several literatures. Its primary contribution is to gender economics,

particularly to the study of gender wage gaps (Groshen, 1991; Bayard et al., 2003; Goldin, 2014; Morchio and Moser, 2026) and motherhood effects on labor market outcomes. We first contribute to these strands of literature by providing new evidence from a highly regulated labor market with standardized pay scales and strong job protection, a setting in which gender pay disparities are expected to be limited. Such features are common in public-sector employment across countries. Yet, despite the importance of these labor markets, related evidence in the existing literature remains scarce.[1] In the study of motherhood effects (Felfe, 2012; Pertold-Gebicka et al., 2016; Hotz et al., 2017; Kleven et al., 2019a,b; Le Barbanchon et al., 2021; Berniell et al., 2023; Cortés and Pan, 2023; Azmat et al., 2025; Aguilar-Gomez et al., 2026; Datta Gupta et al., 2026), a close predecessor is Kleven, Landais, and Søgaard (2019b), who use Danish data for 1980–2013 and find that having children lowers women's earnings relative to men's by about 20 percent in the long run, through participation, hours, and wage rates, and that mothers move to the public sector and to family-friendly firms.

Our second contribution to these strands of literature concerns mechanisms. We show how differential gender progression within horizontal promotion systems—in which workers advance through pay steps without changes in job responsibilities—can widen gender wage gaps for equal work. These systems are common in teacher career structures and are also prevalent in many public-sector and, to a lesser extent, private-sector jobs. In the study of gender differences in promotions within organizations (Lazear and Rosen, 1990; Blau and DeVaro, 2007; Bosquet et al., 2019; Bronson and Skogman Thoursie, 2022; Hospido et al., 2022; Cullen and Perez-Truglia, 2023), a close predecessor is Hospido, Laeven, and Lamo (2022), who find that women at the European Central Bank were promoted to a higher salary band less often than men until 2010, when the bank made a public commitment to diversity, and as often as men afterward. Taken together, our results shed light on how gender disparities can persist even in institutional environments designed to promote pay equality.

In contrast to most of the previous literature, we are able to precisely estimate the gender wage

[1] Nielsen et al. (2004) and Duvivier and Narcy (2015) study motherhood effects in the public sector in Denmark and France, respectively, and find smaller effects than those observed in the private sector.

gap for equal work by exploiting highly granular administrative data on job positions and workplaces, together with an institutional setting that permits direct pay comparisons between women and men holding identical positions and performing the same tasks within the same schools. Our finding of smaller gender wage gaps when using more granular data—relative to estimates based on the coarser information typically available in labor force surveys—is consistent with the results of Strittmatter and Wunsch (2025), who in a methodological paper use Swiss administrative data to study the sensitivity of gender pay estimates to the quality of data and methodological choices.

In work focused on the gender earnings gap, Cook et al. (2021), using data on Uber drivers in the United States, document an earnings gap arising from gender differences in driving patterns, including driving speed, accumulated experience, and location choices. Bolotnyy and Emanuel (2022) use administrative data from the Massachusetts Bay Transportation Authority and find that although men and women receive identical hourly wages and perform the same tasks, female bus and train operators earn about 89 cents for every dollar earned by their male counterparts. This gap is entirely driven by differences in workload choices (e.g., women take more unpaid leave and accept fewer overtime shifts).[2] Our findings extend this line of research by studying gender gaps in wage rates, in addition to gaps that arise from differences in hours worked or other labor-supply choices.

We also contribute to the literature on the personnel economics of the state, and particularly to the study of pay standardization systems (Blau and Kahn, 2003; Han, 2020). In recent work, Anderson and Martinez (2026) analyze the effects of the U.S. Classification Act of 1923, which introduced standardized pay grades and position categories in the federal civil service and mandated equal pay for equal work between women and men. They find negative effects on women's pay, as women were more likely to be downgraded to lower-paying positions following the reform. Closest to our setting, Biasi and Sarsons (2022) study Wisconsin public school teachers after a 2011 reform allowed districts to set pay outside collectively bargained schedules. Women and men with the same experience and

[2]See also Cortés and Pan (2019), who show that gaps in earnings widen when jobs reward long hours and women face constraints on working them.

credentials earned the same under the schedules, and women earned 0.8 percent less than comparable men five years after the collective agreements expired.

Finally, we contribute to the literature on teacher labor markets (Falch, 2010; Ransom and Sims, 2010; Estrada, 2019; Bates et al., 2025; Bobba et al., 2026) by documenting and explaining gender disparities within this occupation. Empirical evidence on gender wage gaps among teachers is largely drawn from the United States and relies on less granular data (Ransom and Lambson, 2011; Fox et al., 2019; Quintero et al., 2024).

The remainder of the paper is organized as follows. Section 2 describes wage setting, promotion, and hiring in Mexico's public education system. Section 3 describes the data. Section 4 presents estimates of the gender gaps in pay for equal work and in total earnings. Section 5 analyzes the role of horizontal promotions and the age profiles of the gaps. Section 6 examines the effects of motherhood on earnings, wage rates, and the number of teaching jobs. Section 7 concludes.

2 Institutional Setting

2.1 Wage Setting

In Mexico, state governments operate primary schools, while the federal government regulates the system and finances a large share of public education spending. There are approximately 87,000 public primary schools, serving more than 11 million students and employing around 500,000 teachers. Private schools account for around 10% of total primary enrollment (Secretaría de Educación Pública, 2025). Primary education spans six years and relies mainly on generalist teachers, who are responsible for one class, alongside a smaller number of specialist teachers such as arts and physical-education instructors.

Compensation in public basic education is highly structured. Each teaching position follows a wage schedule whose three main elements are a base salary, a horizontal-promotion category, and allowances. Base salary is determined by the position, the economic zone of the school, and the

state salary table. Schools in more marginalized zones pay higher base wages, and there are typically two economic zones per state. Horizontal promotions raise pay without changing job responsibilities and follow centralized rules. There are multiple allowances, including notably those related to tenure and locality characteristics. Thus, teachers in the same position and school face the same basic pay rules, while horizontal promotion categories and allowances remain potential sources of residual pay differences.

The system allows teachers to have multiple positions. This is more common in lower secondary education, where part-time hour-based contracts are standard, but it also occurs in primary education, which is the focus of our study. The primary-school day is short, at about 4.5 hours, and many schools operate separate morning and afternoon shifts. As a result, a teacher may simultaneously hold one position in the morning shift and another in the afternoon shift. This creates scope for differences in total earnings that need not mirror differences in pay for a given job.

Wage increases are negotiated centrally with the participation of the national teachers' union together with the federal education and finance authorities and state education secretariats (Estrada, 2019). Public-school teaching in Mexico is relatively well paid. Using the Mexican Labor Force Survey (ENOE) as a benchmark, Table B.1 in Appendix B shows that female and male public primary-school teachers earn 0.054 and 0.045 log points more per month than comparable workers in private schools, respectively, and 0.080 and 0.077 log points more in hourly wages. Relative to other salaried university-educated workers, their hourly wages are also higher. The better pay of public school teachers in Mexico, compared to other university-educated workers, stands in contrast to the norm in much of Latin America (Elacqua et al., 2018).

2.2 Promotion and Hiring

Our sample spans 2016 to 2024, a period in which three policy layers matter for interpreting pay progression. First, many teachers continue to receive salary increments earned under the earlier *Carrera*

Magisterial (CM) system, even though that program formally ended before our sample begins. Second, the *Servicio Profesional Docente* (SPD) governed hiring and promotion during the first part of our sample. Third, since 2019 those rules have been replaced by the *Sistema para la Carrera de las Maestras y los Maestros* (SICAMM). For our purposes, the key point is that horizontal promotions are mediated by formal policy regimes rather than by decentralized school-level bargaining.

CM, in place from 1992 to 2014, managed horizontal promotions through a national incentive system with six pay categories and sizable salary increments. Except in the first two rounds, when teachers entered the program without a formal assessment, advancement depended on a score that combined criteria such as seniority, educational attainment, test performance, professional-development participation, principal and peer assessments, and student achievement (Santibanez et al., 2007). Eligibility required an open-ended contract and a minimum seniority that depended on the teacher's degree, and participation was voluntary. Although CM ended in 2014, the salary benefits earned under the program remained in place. This is why CM categories remain relevant in our sample and in the decomposition of the equal-work wage gap.

Under SPD, horizontal promotions were determined through national evaluations that combined an exam with teaching evidence graded by certified evaluators. As with CM, salary benefits earned under the program remained in place after its termination. SICAMM also relies on national evaluations, which consider teachers' seniority, highest degree earned, preparation as measured through teacher testing, and participation in professional development courses. Table B.2 in the Appendix summarizes the three horizontal-promotion regimes relevant to our analysis.

Access to additional teaching positions followed a different evolution. Prior to 2008, state education ministries and the teachers union effectively controlled those decisions, with substantial discretion and limited transparency. The 2008 *Alianza por la Calidad de la Educación* (ACE) reform introduced national competitive examinations for hiring, but their use was not mandatory (Estrada, 2019). A more consequential change came with the 2013 SPD reform, which mandated competitive examinations for

hiring in basic education (Bedoya, de Hoyos, and Estrada, 2026). SPD was repealed in 2019 and replaced by SICAMM, which continues to rely on national evaluations for access to additional teaching positions.

3 Data and Sample Construction

Our main source of data is the *Fondo de Aportaciones para la Nómina Educativa* (FONE), a quarterly administrative payroll dataset for public education personnel. FONE is assembled by SEP using information reported by state education ministries. The data cover public education personnel paid with federal funds, excluding those based in Mexico City. Teachers paid directly from state-government payrolls are not included in the data; according to Bedoya, de Hoyos, and Estrada (2026), they account for roughly 14 percent of teachers. The analysis should therefore be interpreted as covering the federally funded public-school workforce outside Mexico City.

FONE records quarterly pay, an individual identifier, position code, school identifier, economic zone, and CM pay category. A key advantage of the data is its unusually detailed classification of teaching positions. FONE distinguishes more than 100 teacher codes, including 11 separate categories for teachers in regular primary schools. This granularity is essential for our equal-work analysis, which compares men and women in narrowly defined positions within the same schools.

Our main analysis focuses on generalist teachers in regular primary schools. This restriction is intended to keep comparisons as close as possible in terms of job content and compensation rules. We exclude pre-school teachers because the occupation is overwhelmingly female (94.32% women), lower-secondary teachers because hour-based contracts are standard at that level and pay per job varies with contracted hours, specialist teachers within regular primary schools because their duties differ from those of generalist classroom teachers, and teachers in alternative settings such as special education and bilingual or indigenous schools because both job content and workforce composition differ systematically. Since teachers may hold multiple positions, the teacher-level earnings analysis

aggregates all public teaching positions held by teachers in the main sample.

We use data from 2016Q2 to 2024Q1 and restrict the sample to teachers aged 22 to 65 with at least one generalist primary-school job. Using school identifiers, we merge FONE to the national catalog of education centers to recover school characteristics, and we add locality characteristics from CONEVAL. The merge rates are high, at 99.9% of observations for the school catalog and 99.0% for locality data. We also merge the payroll records to the results of the SPD performance evaluations of the 2015–2016 and 2017–2018 school years. Minor data-cleaning exclusions, such as invalid personal identifiers and extremely sparse job-quarter cells, affect less than 0.01% of observations.[3]

FONE does not record when teachers entered the public school system, so we measure seniority within the panel and classify teachers by entry status. *Incumbents* already held a generalist primary-school position in 2016Q2, the first quarter of our data, so their seniority is left-censored. *New hires* first appear on any FONE payroll after 2016Q2 and enter at the base CM level, so we observe their seniority exactly, as quarters since they first held a generalist primary-school position. Two smaller groups also enter our sample after 2016Q2 but have prior service. *Entrants with prior service* hold a CM category above the base level, which they could only have earned by 2014, and *switchers* held another position on the FONE payroll in 2016Q2. Incumbents, new hires, and the two smaller groups account for 81, 15, and 5 percent of job-quarters, respectively. New hires enter at a median age of 26, and 74 percent of them are women, compared with 67 percent of all teachers.

The job-quarter sample used for the equal-work wage-gap analysis contains 10.57 million observations. The teacher-quarter sample used for total earnings and multiple-job outcomes contains about 9.43 million observations, depending on the outcome. Table 1 summarizes these data in three panels. Panel A reports job-quarter statistics for generalist primary-school positions, and Panel B reports teacher-quarter statistics aggregated across all teaching positions held in the quarter. Panel C reports statistics for the other teaching jobs of the teacher-quarters in Panel B, i.e., their teaching positions on

[3]We also drop the few positions recorded at CM levels 7BC and 9A–9E, which account for 0.3 percent of generalist primary-school positions in 2016Q2 and less than 0.1 percent from 2019 onward.

the FONE payroll other than the main job, which is the highest-paid generalist primary-school position.

Panel A shows that the teaching workforce in our sample is predominantly female, with women accounting for about two thirds of job-quarter observations. Female teachers are younger on average, earn less, and are less likely to work in rural, poorer, and more distant localities or in the afternoon shift. Panel B shows that men are more likely than women to hold multiple teaching positions within the public education system, which is relevant for the distinction between job-level pay gaps and teacher-level earnings gaps. Panel C shows that teachers' other teaching jobs are mostly full-time generalist primary-school positions, and that men's are more often in lower secondary schools.

Table 1: Descriptive Statistics

	Female				Male			
	Mean	SD	P10	P90	Mean	SD	P10	P90
A. Generalist primary jobs								
Wage per job	48,843	21,371	30,276	70,824	51,494	24,110	31,278	76,823
Age	39.53	10.00	27.00	54.00	42.02	10.39	28.00	56.00
CM low pay category	78.93	40.78	0.00	100.00	73.85	43.95	0.00	100.00
CM top pay category	0.89	9.39	0.00	0.00	1.36	11.59	0.00	0.00
High-pay economic zone	30.15	45.89	0.00	100.00	32.66	46.90	0.00	100.00
Full-time (%)	100.00	0.00	100.00	100.00	100.00	0.00	100.00	100.00
Rural (%)	28.24	45.02	0.00	100.00	36.87	48.25	0.00	100.00
Locality marginalization	-0.70	0.71	-1.28	0.21	-0.55	0.77	-1.26	0.42
Distance to state capital (kms.)	94.40	104.84	5.38	226.20	103.04	92.65	7.43	230.11
Homicide rate (per 1,000)	0.07	0.10	0.00	0.18	0.07	0.10	0.00	0.18
Morning shift (%)	81.24	39.04	0.00	100.00	77.49	41.77	0.00	100.00
SPD high pay category	1.75	13.10	0.00	0.00	1.04	10.13	0.00	0.00
Obs.	6,864,616				3,702,781			
B. Teachers								
Total earnings	54,396	28,405	32,812	84,938	59,756	34,178	34,241	99,668
Has another teaching job (%)	10.89	31.16	0.00	100.00	15.44	36.13	0.00	100.00
No. of teaching jobs	1.12	0.38	1.00	2.00	1.18	0.50	1.00	2.00
No. of jobs	1.15	0.42	1.00	2.00	1.24	0.55	1.00	2.00
Obs.	6,206,555				3,230,525			
C. Other teaching jobs								
Wage per job	35,664	24,899	3,717	64,323	37,992	26,287	4,591	67,374
Full-time (%)	89.12	31.14	0.00	100.00	82.95	37.60	0.00	100.00
Weekly hours if paid by the hour	5.71	5.36	2.00	12.00	5.16	4.89	1.00	12.00
Same school as main job (%)	14.79	35.50	0.00	100.00	13.51	34.18	0.00	100.00
Generalist primary position (%)	88.79	31.55	0.00	100.00	82.57	37.93	0.00	100.00
Lower secondary school (%)	8.27	27.54	0.00	0.00	14.20	34.91	0.00	100.00
Other school levels (%)	3.20	17.60	0.00	0.00	3.50	18.39	0.00	0.00
Morning shift (%)	54.15	49.83	0.00	100.00	56.29	49.60	0.00	100.00
Obs.	770,269				596,432			

Notes: Panel A reports job-quarter statistics for the generalist primary-school positions in the sample of Table 2. Panel B reports teacher-quarter statistics aggregated across all teaching positions held in the quarter. Panel C reports statistics for the other teaching jobs of the teacher-quarters in Panel B, i.e., their teaching positions in the public FONE payroll files other than the main job, which is the highest-paid generalist primary-school position or, for the 407 teacher-quarters with no such position in the quarter, an hourly position. Teaching positions exclude, among others, school directors and preschool and special-education classroom teachers. Full-time positions are appointments by shift (*plazas*), and the others are paid by the hour, with weekly hours from the position code. Same school means the same school code as the main job, and school levels come from the national catalog of education centers. Wage variables are quarterly amounts in constant pesos of December 2015, deflated with the national consumer price index (INPC), and percentage variables are reported on a 0–100 scale. Distance to the state capital is missing for 137,803 job-quarters in Panel A.

4 Gender Pay Gaps

4.1 Gender Wage Gap for Equal Work

We begin our analysis by estimating the gender wage gap for equal work using the following specification,

$$ln(wage_{ist}) = \beta_0 + \beta_1 Female_i + \Phi\, X_{ist} + \delta_s + \gamma_t + U_{ist} \tag{1}$$

where $wage_{ist}$ is the quarterly pay of teacher i working in school s in quarter t, $Female_i$ is an indicator for whether teacher i is female, X_{ist} includes age controls, δ_s are school fixed effects, and γ_t are quarter fixed effects. The parameter of interest, β_1, captures the average pay difference between female and male teachers conditional on these controls. Because the analysis is restricted to teachers in the generalist primary-school position, and our richest specification compares teachers within the same schools and quarters, the estimates capture gender differences in pay for equal work within this specific position rather than across different teaching positions. Standard errors are clustered at the teacher level. Since teachers may hold multiple positions, the unit of observation in this subsection is the job-quarter.

Table 2 reports the estimates. Our baseline specification is Column 4, which includes quarter fixed effects, age controls, and school fixed effects. In that specification, female teachers earn 0.018 log points less than male teachers of the same age. The progression across columns is nevertheless informative. The raw gap is 0.051 log points, changes little after adding quarter fixed effects, and narrows to 0.023 once we control for age, reflecting that women in the sample are younger on average. School characteristics, including locality and student composition, affect teachers' school choices (Bobba et al., 2026), and some of these features are also reflected in compensation (see Section 2). Adding school fixed effects therefore provides a tighter within-school comparison and further reduces the estimate slightly. Even in this highly regulated setting, however, a nonzero equal-work gap remains. Section 4.2 shows that about half of this gap reflects differences in seniority that age does not capture.

As an external benchmark, Table B.4 in Appendix B reports survey-based estimates from the

ENOE. The hourly gender wage gap among primary-school teachers is -0.036 log points in public schools and -0.144 in private schools, with a similar public-private difference for monthly wages. Although these survey estimates are not directly comparable to the administrative estimates, the public-private contrast is consistent with the view that pay standardization substantially compresses gender wage gaps.

Table 2: Gender Wage Gap for Equal Work

	(1)	(2)	(3)	(4)
Female	-0.051***	-0.054***	-0.023***	-0.018***
	(0.001)	(0.001)	(0.001)	(0.001)
Obs.	10,567,397	10,567,397	10,567,397	10,567,397
Quarter FE		X	X	X
Age FE			X	X
School FE				X

Notes: The dataset for this estimation includes information on Mexican teachers aged 22 to 65 from the second quarter of 2016 to the first quarter of 2024, excluding the State of Ciudad de Mexico. Controls include quarter FE, age FE (five-year age bins), and school FE; column 4 also controls for the municipal homicide rate and the locality marginalization index. Observations with ages below 22 (standard bachelor's in education age) and where the national identifier (CURP) was incorrect, leading to misidentification of sex or negative age, were excluded. Additionally, observations with negative values were excluded for estimations with logarithmic dependent variables. Standard errors clustered at the teacher level are reported in parentheses. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

4.2 Age versus Seniority

Our baseline specification controls for age, but pay depends on seniority, and the two diverge more for women than for men. Figure 1 plots the share of job-quarters held by teachers who entered after 2016Q2, by age and gender. Women are more likely than men to be recent entrants at every age below 60. The difference is largest between ages 35 and 49, where the share is about 1.5 times as high for women (14.1 versus 9.6 percent at ages 35–39). Recent entrants earn 0.30 log points less than incumbents of the same age in the same school. As a result, the gender gap in our baseline specification includes part of this difference.

In Table 3, we replace age with seniority. Column 1 reproduces the baseline estimate of -0.018. Adding fixed effects for the four entry-status groups reduces the gap to -0.011 (column 2). Column

3, our preferred specification, controls for exact seniority among new hires and for age within each of the three groups whose seniority is censored. The gap falls to −0.008 log points, less than half of the baseline. The estimate barely moves when we also control for age among new hires (column 4) or for the number of quarters a teacher has spent off the payroll since entry (column 5). It also barely moves when we count as new hires only teachers who enter from 2017 onward at age 35 or younger, the group least likely to include teachers returning from leave (column 6). The estimate is the same, −0.008, when we replace school fixed effects with school-by-entry-status fixed effects, so that women are compared with men of the same entry status in the same school, and when we also add quarter-by-entry-status fixed effects.

Among new hires, for whom we measure seniority exactly, women earn more than men (Panel B). Specifically, women earn 0.016 log points more than men with the same seniority in the same school (column 2), and 0.024 log points more among teachers with continuous spells of at least three years (column 4), a restriction that keeps about two thirds of both men and women. When we condition on age instead of seniority, the estimate falls to 0.002 (column 1).

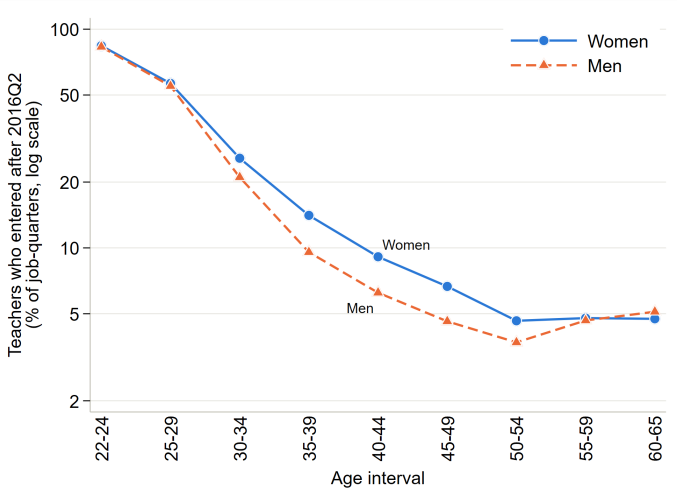
The remaining gap comes from incumbents, whose seniority we cannot measure. Within this group, women earn more than men between ages 25 and 39 and less at older ages, and the gap against women is largest at ages 50–59 (Figure 2, Panel C). Section 5.2 examines whether this pattern reflects aging or differences across birth cohorts.

Table 3: Gender Wage Gap for Equal Work: Age versus Seniority

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: All teachers						
Female	-0.018***	-0.011***	-0.008***	-0.008***	-0.007***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs.	10,567,397	10,567,397	10,567,397	10,567,397	10,567,397	10,567,397
Age FE	X	X		X		
Entry-status FE		X				
Seniority FE			X	X	X	
Seniority FE, strict						X
Quarters off payroll FE					X	
Panel B: New hires						
	All spells		Continuous spells			
Female	0.002	0.016***	0.013***	0.024***		
	(0.003)	(0.003)	(0.003)	(0.003)		
Obs.	1,551,679	1,551,679	1,269,111	1,269,111		
Age FE	X		X			
Seniority FE		X		X		

Notes: The dependent variable is the log of quarterly pay in a generalist primary-school position. All columns include quarter and school fixed effects and control for the municipal homicide rate and the locality marginalization index, as in Table 2, column 4. Age FE are five-year age bins. Teachers belong to one of four entry-status groups: incumbents, on the FONE payroll in 2016Q2; new hires, who first appear on any FONE payroll after 2016Q2 at the base CM level; entrants with prior service, who first appear after 2016Q2 at a higher CM level; and switchers, who held another FONE position in 2016Q2. Seniority FE are quarters since entry for new hires and age bins interacted with entry status for the other groups. Column 5 adds fixed effects for the number of quarters off every FONE payroll since entry (0, 1, 2, 3–4, 5–8, 9 or more); 2019Q3, 2021Q1, and 2022Q2, when several states are missing from the data, are not counted. Column 6 counts as new hires only teachers who enter from 2017Q1 onward at age 35 or younger and treats other entrants as censored. Panel B restricts the sample to new hires, so school fixed effects are estimated within this group. Continuous spells have no quarter off the payroll and either last at least 12 quarters or are still under way in 2024Q1. Standard errors clustered at the teacher level are reported in parentheses. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

Figure 1: Recent Entrants by Age and Gender



Notes: The figure plots, for each five-year age bin, the share of job-quarters held by teachers who first appear in a generalist primary-school position after 2016Q2 (new hires, entrants with prior service, and switchers), separately for women and men. The vertical axis is on a log scale. Sample as in Table 2.

4.3 Gender Earnings Gap

As Table 1 suggests, men are more likely than women to hold multiple teaching jobs, which may widen earnings gaps relative to wage-rate gaps. Table 4 formalizes this distinction. Panel A reports the gender gap in the probability of holding more than one teaching job, and Panel B reports the corresponding gap in total quarterly earnings using one observation per teacher-quarter and aggregating earnings across all teaching positions held in the quarter.

In Panel A, men are 4.6 percentage points more likely than women to hold more than one teaching job in the raw data and 3.7 percentage points more likely after controlling for age and the main school of employment. In Panel B, the raw gender gap in total earnings is 0.078 log points, and the specification with quarter fixed effects, age controls, and main-school fixed effects yields an estimate of 0.045 log points (column 4). With the seniority controls of Section 4.2 instead of age, the multiple-job gap is 3.6 percentage points and the earnings gap is 0.036 log points (column 5). Thus, the earnings gap is substantially larger than the equal-work wage gap, consistent with differences in access to additional

positions. Figure A.1 in Appendix A shows that the gaps in wage rates, total earnings, and number of jobs are stable over time.

Table 4: Gender Gaps in Employment Intensity and Total Earnings

	(1)	(2)	(3)	(4)	(5)
Panel A: More than 1 job					
Female	-0.046***	-0.045***	-0.030***	-0.037***	-0.036***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs.	9,426,534	9,426,534	9,426,534	9,426,534	9,426,426
Panel B: Total earnings					
Female	-0.078***	-0.080***	-0.044***	-0.045***	-0.036***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs.	9,426,270	9,426,270	9,426,270	9,426,270	9,426,270
Quarter FE		X	X	X	X
Age FE			X	X	
Seniority FE					X
School FE				X	X

Notes: The dataset for this estimation includes information on Mexican teachers aged 22 to 65 from the second quarter of 2016 to the first quarter of 2024, excluding the State of Ciudad de Mexico. Controls include quarter FE, teacher's age FE and school FE. Column 5 replaces age FE with the seniority FE of Table 3, which are quarters since entry for new hires and age bins interacted with entry status for the other groups. Observations with ages below 22 (standard bachelor's in education age) and where the national identifier (CURP) was incorrect, leading to misidentification of sex or negative age, were excluded. Additionally, observations with negative values were excluded for estimations with logarithmic dependent variables. Standard errors clustered at the teacher level are reported in parentheses. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

Local safety may be one reason why women hold fewer additional positions. We interact gender with the homicide rate of the municipality of the teacher's main school (Table B.3 in the Appendix). Where homicides are more frequent, women are less likely to hold a second position and men slightly more likely. Specifically, the gender gap in holding more than one job grows from 2.8 percentage points in municipalities with no homicides to 4.5 percentage points at the 90th percentile of the homicide rate. The pattern is similar when violence is measured by homicides of women.

Multiple-job holding is not the only margin through which earnings diverge. Men's second positions may also be relatively better paid. To examine this, Table 5 studies the within-teacher log

wage difference between the first and second teaching positions among teachers holding at least two jobs in a quarter. Specifically, we construct,

$$\Delta \ln w_{it} \equiv \ln w_{1,it} - \ln w_{2,it},$$

where $w_{1,it}$ and $w_{2,it}$ denote trimmed quarterly earnings in the teacher's first and second teaching positions, respectively. Teaching positions are ranked within each teacher-quarter according to a deterministic ordering that prioritizes core positions and, within those, higher earnings. This ensures that the first position corresponds to the teacher's main job and the second position corresponds to the next highest-ranked job.

We estimate regressions of the form,

$$\Delta \ln w_{it} = \alpha + \beta \, Female_i + X_{it}'\gamma + \delta_s + \lambda_t + \varepsilon_{it},$$

where $Female_i$ is an indicator for female teachers, X_{it} includes age controls, δ_s are school fixed effects corresponding to the main job, and λ_t are quarter fixed effects.

A positive coefficient on $Female_i$ means that women's second positions pay less relative to their first positions than men's second positions do. The coefficient is 0.148 log points without controls (column 1) and 0.113 log points with quarter fixed effects, age controls, school fixed effects, and location characteristics (column 4). In plain terms, second positions are relatively less remunerative for women than for men. Appendix Table B.5 reports complementary results by number of jobs held.

Table B.6 in Appendix B shows that, in constant pesos of December 2015, women's first positions pay 2,115 pesos a quarter less than men's, and their second positions 4,244 pesos less (Panel C). When we re-estimate column 4 of Table 5 without the teacher-quarters in which one position replaces another within the quarter, the coefficient on $Female_i$ is 0.106 log points, and 0.087 when the first position is the one in a morning-shift school (Table B.7 in Appendix B, Panel A, columns 1 and 3). Within cells

of entry status, seniority group, municipality, and quarter, women's quarterly hazards of starting and ending a second position are 0.62 and 7.25 percent, compared with 0.84 and 5.99 percent for men (Table B.8 in Appendix B).[4]

Taken together, these results show that men are more likely than women to hold multiple teaching jobs and that men's second positions pay relatively more than women's when the first position is the higher-paid one or the one in a morning-shift school.

Table 5: Gender Gaps in the Wage Differential Between First and Second Teaching Positions

	(1)	(2)	(3)	(4)
Female	0.148***	0.144***	0.096***	0.113***
	(0.004)	(0.004)	(0.004)	(0.004)
Obs.	1,035,210	1,035,210	1,035,210	1,035,210
Quarter FE		X	X	X
Age			X	X
School FE				X
Location characteristics				X

Notes: The dependent variable is the within-teacher log wage differential between the first and second teaching positions in a given quarter, defined as $\Delta \ln w_{it} = \ln w_{1,it} - \ln w_{2,it}$, where wages correspond to trimmed log quarterly earnings. Teaching positions are ranked within each teacher-quarter according to core status and earnings, so that the first position corresponds to the teacher's main job. A positive coefficient on Female indicates that the female-male wage differential is larger in second positions relative to first positions. Column (1) reports the raw difference; column (2) adds quarter fixed effects, column (3) age fixed effects, and column (4) school fixed effects and location characteristics. The sample includes teachers holding at least two teaching positions in a given quarter. Standard errors clustered at the teacher level are reported in parentheses. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

5 What Explains the Gender Pay Gap?

This section presents two exercises that help interpret the results in Section 4. We first ask how much of the equal-work wage gap is associated with differential progression through horizontal promotion systems. We then examine whether the age profiles of the wage, earnings, and multiple-job gaps reflect aging or differences across birth cohorts. The first exercise is mainly descriptive; the second motivates the direct analysis of motherhood in Section 6.

[4] In 2017Q2–2023Q1, within cells, the end hazard of women who never appear in FONE's list of personnel on maternity leave in 2015Q1–2024Q1 exceeds men's by 1.28 percentage points, compared with 1.18 for all women.

5.1 The Role of Horizontal Promotion Systems

Horizontal promotions are a natural candidate mechanism because, as discussed in Section 2.2, they raise pay within the same teaching position. To assess their role, Table 6 augments our baseline specification (column 1) and our preferred specification (column 5) with controls for CM and SPD pay categories. These estimates should be interpreted as descriptive decompositions of the gap rather than as causal effects of any specific promotion regime.

Although the CM system was discontinued in 2014, its salary benefits remained in place, and a large share of teachers in our sample had already accumulated CM categories. Adding CM pay-category controls to the baseline specification reduces the female coefficient from -0.018 to -0.008 log points (column 2), a decline of roughly one half. Adding SPD high-pay-category controls leaves the estimate essentially unchanged (column 3). CM categories and seniority account for different parts of the gap. Each reduces it by about 0.010 log points on its own (columns 2 and 5), and with both the gap is 0.002 log points (column 6). The 95 percent confidence interval rules out a female penalty larger than 0.0002 log points. Adding the SPD high-pay category to seniority and CM leaves the estimate at 0.0004 (column 7).

Table B.9 in Appendix B reports a decomposition of the equal-work gap in constant pesos of December 2015, based on the published salary schedules and the controls of Table 2, column 4. Women earn 983.9 pesos less per quarter than men of the same age in the same school. Of this gap, 539.3 pesos (55 percent) are in the CM increment of the schedule, and 452.4 pesos (46 percent) are in pay components that the public FONE files report only in total.

We do not observe the pay categories associated with SICAMM, so we cannot perform an analogous decomposition for the current regime. However, restricting the sample to the period before the first SICAMM incentives took effect in September 2021 (2016Q2–2021Q2) yields a residual gap of -0.013 log points (Table 6, column 4), similar to the estimate for the whole period (column 3). With seniority instead of age fixed effects, the gap in this period is -0.004 log points (s.e. 0.001). Taken

together, seniority and CM categories account for nearly all of the equal-work wage gap. Because CM promotions ended in 2014, this part of the gap reflects promotions earned before our sample period, not differences generated under current rules.

Table 6: Gender Wage Gap for Equal Work: The Role of Horizontal Promotions

	(1)	(2)	(3)	(4♠)	(5)	(6)	(7)
Female	-0.018***	-0.008***	-0.009***	-0.013***	-0.008***	0.002*	0.0004
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.0009)
Obs.	10,567,397	10,567,397	10,567,397	6,943,776	10,567,397	10,567,397	10,567,397
Quarter FE	X	X	X	X	X	X	X
Age FE	X	X	X	X			
Seniority FE					X	X	X
School FE	X	X	X	X	X	X	X
CM. Pay category		X	X	X		X	X
SPD. High pay category			X	X			X

Notes: The dataset for this estimation includes information on Mexican teachers aged 22 to 65 from the second quarter of 2016 to the first quarter of 2024, excluding the State of Ciudad de Mexico. Controls include quarter FE, teacher's age FE, school FE, homicide rate, municipality marginalization index, CM ("Carrera Magisterial") category, and SPD high-pay category. The category level is a national categorization from the "National Teaching Career Program," designed to incentivize horizontal earning increases among Mexican teachers, with categories progressing in the order 07, 7A, 7B, 7C, 7D, and 7E. The SPD high-pay category indicates a *Destacado* (outstanding) rating in the 2015–2016 SPD performance evaluation, from 2016Q2, or in the 2017–2018 evaluation, from 2018Q4. Columns with ♠ are restricted to 2016Q2–2021Q2, before the first SICAMM incentives took effect in September 2021. Columns 5 to 7 replace age FE with the seniority FE of Table 3, which are quarters since entry for new hires and age bins interacted with entry status for the other groups. Observations with ages below 22 (standard bachelor's in education age) and where the national identifier (CURP) was incorrect, leading to misidentification of sex or negative age, were excluded. Additionally, observations with negative values were excluded for estimations with logarithmic dependent variables. Standard errors clustered at the teacher level are reported in parentheses. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

5.2 Age Profiles and Cohort Differences

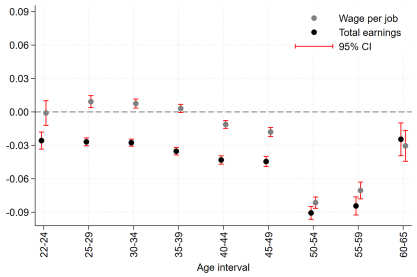
Figure 2 shows that the equal-work wage gap follows a different age profile from the gaps in total earnings and multiple-job holding. The equal-work wage gap (Panel A) is close to zero through roughly age 39, then becomes increasingly negative after age 40, reaching −0.081 log points at ages 50–54 and remaining sizable at ages 55–59. By contrast, the total-earnings gap is already negative at ages 22–24 (−0.026 log points), and the multiple-job gap (Panel B) widens from −1.64 percentage points at ages

22–24 to −5.18 percentage points at ages 40–44.

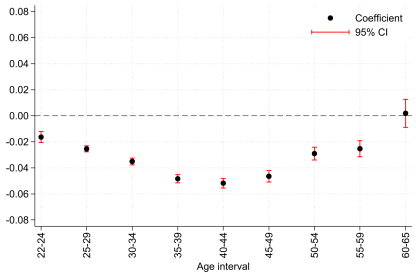
Panel C shows which teachers drive the late-career wage gap. Among incumbents, women earn more than men between ages 25 and 39, the gap is close to zero at ages 40–49, and it becomes large and negative only at ages 50 and older (−0.069 at ages 50–54 and −0.056 at ages 55–59). Among new hires, women earn more than men of the same seniority and age at ages 22 to 34. Horizontal promotions explain part of the late-career gap, since controlling for CM and SPD categories shrinks the wage gap in Panel A of Figure 2 by about 30 percent at ages 50–54 and by more than half at ages 55–59 (Figure A.2 in Appendix A).

Figure 2: Gender Gaps by Age

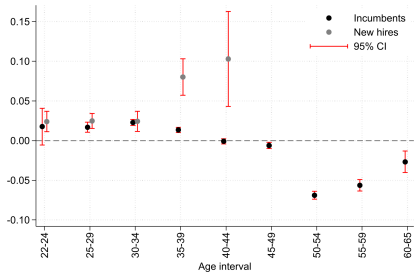
Panel A: Wage rates and total earnings



Panel B: Probability of holding multiple jobs



Panel C: Wage per job, incumbents and new hires



Notes: Panel A plots age-specific estimates of the gender gaps in log wage per job and log total earnings. Panel B plots the corresponding age-specific gap in the probability of holding multiple jobs. Panel C plots the age-specific gap in log wage per job separately for incumbents (teachers already in a generalist primary-school position in 2016Q2), with age fixed effects, and for new hires who entered from 2017 onward at age 35 or younger, with seniority and age fixed effects. Both specifications include school and quarter fixed effects and location controls. Vertical bars denote 95% confidence intervals.

The wage gap among incumbents in their fifties could open as women age, or it could reflect cohorts in which women were already paid less than men when our data begin. To distinguish the two, we estimate two regressions on the log wages of incumbents. The first interacts gender with birth cohort and period (2016–17, 2018–19, 2020–21, and 2022–24), with school and cohort-by-quarter fixed effects. The second interacts gender with birth cohort and a linear trend, with school, cohort-by-quarter, and cohort-by-gender fixed effects. Table 7 reports the gap of each cohort in 2016–17 and 2022–24 from the first regression (columns 1 and 2) and its change per year from the second (column 3). The gap of

incumbents born in 1970–74, who were 42 to 54 years old during our sample period, goes from −0.011 in 2016–17 to 0.008 in 2022–24, while that of incumbents born in 1965–69 goes from −0.042 to −0.063 (columns 1 and 2). Within cohorts, women's pay relative to men's rises by 0.003 to 0.006 log points a year for those born in 1970 or later, and it falls only for those born in 1965–69, by 0.002 a year (column 3). This cohort accounts for 61 percent of incumbents' job-quarters at ages 50–54.

Another explanation for the late-career wage gap is that older female incumbents have less seniority than male incumbents of the same age, for instance because of long unpaid leaves taken before 2016, which we do not observe. Such a difference has a small direct effect on pay, because in the 2022 pay scale the seniority allowance after 25 years of effective service, which excludes unpaid leave, was about 1 percent of the base salary of a teacher without a CM category (Congreso de la Unión, 1963; SNTE Sección 51, 2022). In addition, between 2016 and 2024, 9.5 percent of female and 10.0 percent of male incumbents spend at least one quarter off every FONE payroll and then return. Controlling for these quarters leaves the equal-work gap essentially unchanged (Table 3, columns 3 and 5).

We estimate the second regression for the gaps in multiple-job holding and total earnings of incumbents (columns 4 and 5). For those born in 1980–89, who were 27 to 44 years old, the multiple-job gap narrows by 0.16 to 0.19 percentage points a year (column 4), although the gap in Panel B of Figure 2 widens over this age range. The earnings gap narrows by 0.003 to 0.005 log points a year for every cohort born in 1970 or later (column 5). In contrast, both gaps widen among incumbents born in 1965–69, by 0.34 percentage points and 0.006 log points a year, respectively. Taken together, all three gaps move against women only in this cohort, and none of them does among incumbents born in 1970 or later (columns 3–5). Table B.10 in Appendix B reports the estimates with teacher fixed effects and, for multiple-job holding and total earnings, for all teachers. In these estimates, too, all three gaps move against women among those born in 1965–69, and none does among those born in 1970 or later.

Table 7: Gender Gaps Within Birth Cohorts

	Log wage per job			More than one teaching job (p.p.)	Log total earnings
	Gap in 2016–17	Gap in 2022–24	Change per year	Change per year	Change per year
	(1)	(2)	(3)	(4)	(5)
Female × birth cohort					
Before 1960	-0.027***	-0.035*	0.002	-0.15	0.001
	(0.010)	(0.018)	(0.003)	(0.18)	(0.003)
1960–64	-0.145***	-0.058***	0.016***	0.12	0.017***
	(0.005)	(0.008)	(0.001)	(0.08)	(0.001)
1965–69	-0.042***	-0.063***	-0.002**	-0.34***	-0.006***
	(0.004)	(0.005)	(0.001)	(0.05)	(0.001)
1970–74	-0.011***	0.008**	0.003***	0.01	0.003***
	(0.003)	(0.003)	(0.0005)	(0.04)	(0.0004)
1975–79	-0.014***	0.008***	0.004***	0.03	0.004***
	(0.003)	(0.003)	(0.0005)	(0.03)	(0.0004)
1980–84	0.002	0.020***	0.003***	0.16***	0.004***
	(0.003)	(0.003)	(0.001)	(0.03)	(0.0004)
1985–89	0.008**	0.039***	0.005***	0.19***	0.005***
	(0.004)	(0.003)	(0.001)	(0.04)	(0.0005)
1990 or later	0.017***	0.049***	0.006***	0.10*	0.004***
	(0.006)	(0.005)	(0.001)	(0.06)	(0.001)
Obs.	8,522,603	8,522,603	8,522,603	7,537,011	7,536,871
School FE	X	X	X	X	X
Cohort × quarter FE	X	X	X	X	X
Cohort × gender FE			X	X	X

Notes: Results from OLS estimation. Each row reports, for the birth cohort in the row, the coefficients described below. The birth year is the smallest value of the year minus the teacher's age across the teacher's quarters. The sample is restricted to incumbents, the teachers who already held a generalist primary-school position in 2016Q2. In columns 1–3, the sample has one observation per generalist primary-school job-quarter of these teachers, aged 22 to 65, outside Mexico City, from 2016Q2 to 2024Q1, and the dependent variable is the log of quarterly pay per job. Columns 1 and 2 come from one regression on Female interacted with birth cohort and period (2016–17, 2018–19, 2020–21, and 2022–24) and report the coefficients for 2016–17 and 2022–24. Columns 3–5 report the coefficients on Female interacted with birth cohort and a linear trend in years since 2016Q2. In columns 4 and 5, the sample has one observation per teacher-quarter of the same teachers, with all their teaching positions in the quarter, and the dependent variables are an indicator for holding more than one teaching job, in percentage points (column 4), and the log of total quarterly earnings (column 5). School fixed effects refer to the school of the job in columns 1–3 and of the main job, the teacher's highest-paid generalist primary-school position in the quarter, in columns 4 and 5. All regressions control for the municipal homicide rate and the locality marginalization index. The number of observations excludes singletons. Standard errors clustered at the teacher level are reported in parentheses. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

Overall, the gender gaps differ across birth cohorts. Seniority and differential progression through horizontal promotions account for nearly all of the equal-work wage gap, which is concentrated among teachers aged 50 and older who were already in service when our data begin. The earnings gap, by contrast, is present from the start of women's careers and narrows as teachers born in 1970 or later age.

6 The Effect of Motherhood on Labor Market Outcomes

6.1 Empirical Strategy

We next estimate the effect of motherhood on women's wage rates, number of teaching jobs, and earnings in the public education system. Following the literature, we implement an event-study design centered on the first birth we observe from 2016Q2 on. Specifically, we estimate,

$$Y_{it\tau} = \sum_{j \neq 0} \alpha_j \, \mathbf{1}[\tau = j] + \sum_{y} \gamma_y \, \mathbf{1}[t = y] + \sum_{k=0}^{3} \delta_k \, E_{itk} + \theta_i + \nu_{it\tau}, \tag{2}$$

where $Y_{it\tau}$ denotes the outcome of female teacher i at calendar quarter t and event time τ. The first term on the right-hand side consists of event-time dummies with respect to child conception, and the second term includes calendar-quarter dummies to control for time trends. The third term consists of indicators E_{itk} that equal one if quarter t is k quarters after teacher i's first active payroll quarter. They are zero for teachers whose first active payroll quarter is 2016Q2, the first quarter of our data.[5] We include these indicators because pay is lower in a teacher's first quarters on the payroll, and mothers who have not yet conceived are more often in those quarters than mothers in the quarter before conception.[6] θ_i is a set of individual fixed effects and $\nu_{it\tau}$ a noise term. Because we omit the event-time dummy at $\tau = 0$, the estimated event-time coefficients measure the effect of this birth relative to the quarter

[5] When the indicators E_{itk} cover only new hires, the estimates in the sixth post-treatment quarter are -0.051 log points for total earnings and -0.041 for wage rates.

[6] In the quarter before conception, 21.6 percent of the mothers in our estimation sample whose first active payroll quarter is after 2016Q2 are within three quarters of it, compared with 23.2 to 41.1 percent in each of the twelve earlier quarters.

before conception.

Because of our shorter observation window, our specification departs from the standard approach in the literature, which measures effects on an annual basis. Furthermore, we include individual fixed effects to avoid potential bias from individual and cohort heterogeneity (Thakral and To, 2025). The individual fixed effects and the calendar-quarter dummies together absorb the linear effect of age, since a teacher's age is the difference between the calendar date and her date of birth. We do not include school fixed effects, because changing schools is one of the margins through which motherhood can affect pay (Section 6.3). As in related studies, our estimates capture the impact of motherhood on women's labor market outcomes relative to the counterfactual of not having children. We exclude male teachers from the analysis due to data limitations. As a result, we do not provide additional estimates of child penalties defined as the impact of children on women relative to men.

FONE publishes each quarter a list of the personnel on leave, with the type of leave and its start and end dates. We use the first quarter from 2016Q2 on in which a teacher appears in this list on maternity leave (*licencia por gravidez*).[7] Maternity leave lasts 90 calendar days, divided into 30 days before childbirth and 60 days after, and almost all teachers remain on the payroll in that quarter.[8] Accordingly, we define the event—conception of a child—as occurring three quarters before that quarter, consistent with the typical nine-month duration of pregnancy.[9] We count quarters from the last quarter before conception, quarter 0, so that quarter 1 is the quarter of conception and quarter 4 is the teacher's first quarter in the list from 2016Q2 on, and we call quarter $\tau \geq 1$ the τ-th post-treatment quarter. Male teachers are entitled to five days of paternity leave, but information on these licenses is not available in the data.

The estimation sample consists of female generalist primary-school teachers in school establish-

[7]The leave lists start in 2015, and 1.6 percent of the 10,201 mothers in our estimation sample are on maternity leave in 2015Q1–2016Q1, before our payroll data begin.

[8]In our estimation sample, 88.8 percent of maternity leaves last 85 to 95 days, and 99.5 percent of the mothers with FONE data for their state are on the payroll in their first quarter on the leave list.

[9]If we date the birth 30 days after the start of the leave and assume a 266-day pregnancy, conception falls in the quarter we assign for 77.5 percent of the 10,201 mothers, one quarter later for 13.1 percent, and one quarter earlier for 9.3 percent.

ments outside Mexico City who are observed by 2023Q1 at age 25 or younger and whose first active payroll quarter also occurs by 2023Q1. It includes only the mothers whose first quarter in the leave list from 2016Q2 on is 2017Q4 or later, so that our data cover quarter -2, and who are on the payroll in quarter 0. The staggered difference-in-differences (DID) design compares women who take their first maternity leave from 2016Q2 on with women whose first such leave comes later in the sample period. For total earnings, wage rates, number of jobs, and school characteristics, we use active teacher-quarters. The estimates therefore refer to mothers who are on the payroll in each quarter, a group whose composition can change after conception if motherhood leads women to leave the payroll. The wage rate is total quarterly pay per position, which FONE does not break down by component. A lower wage rate can therefore reflect a school or position that pays less, a lower allowance, or a quarter that is paid only in part.

Table 8 compares the same 8,714 mothers in quarter 0 and in quarter 8, four quarters after their first quarter in the leave list from 2016Q2 on. These are the mothers who are on the payroll in quarter 0 and whose quarter 8 falls within our data, which end in 2024Q1, and 8,360 of these mothers are in our estimation sample. In quarter 8, they are two years older, hold fewer jobs, and are somewhat more likely to work the morning shift and in less marginalized localities closer to the state capital, while their average earnings and wage rates are 2 to 4 percent higher.

Table 8: Descriptive Statistics: Mothers

	Not yet mothers				Mothers			
	Mean	SD	P10	P90	Mean	SD	P10	P90
Total earnings	44,966.15	13,430.19	31,296.95	61,870.43	45,926.39	14,065.35	33,153.39	62,657.07
Num of jobs	1.07	0.28	1.00	1.00	0.99	0.23	1.00	1.00
Wage per job	43,889.14	12,414.14	30,681.98	59,705.68	45,621.11	13,644.30	33,153.39	61,863.23
Max CM category	1.19	0.72	1.00	1.00	1.13	0.62	1.00	1.00
Age	26.01	1.92	24.00	29.00	28.01	1.92	26.00	31.00
Rural %	35.77	47.94	0.00	100.00	35.32	47.80	0.00	100.00
Marginalization index	-0.71	0.77	-1.32	0.23	-0.73	0.74	-1.32	0.17
Homicides per 1,000	0.07	0.11	0.00	0.19	0.07	0.11	0.00	0.17
Distance to state capital (kms.)	98.95	103.02	7.75	243.57	96.63	100.10	7.57	233.16
Morning Shift %	77.32	41.88	0.00	100.00	80.58	39.56	0.00	100.00
Obs	8,714				8,714			

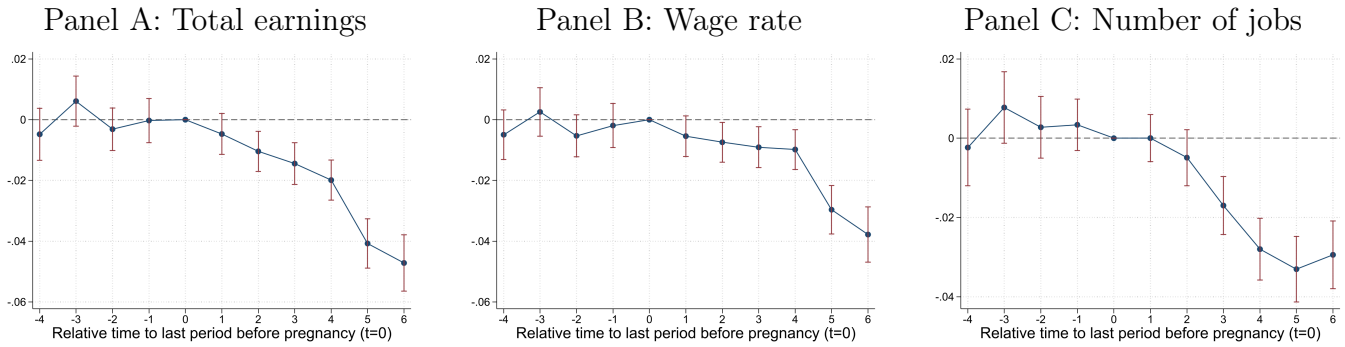
Notes: The table reports summary statistics for 8,714 mothers. They meet the restrictions of the estimation sample of Figures 3–6 on age, entry, position, and location, are on the payroll in quarter 0, the last quarter before conception, and have their first quarter in FONE's list of personnel on maternity leave from 2016Q2 on in 2023Q1 or earlier. Our data, which end in 2024Q1, therefore cover their quarter 8, four quarters after that first quarter. The estimation sample includes the 8,360 of them whose first quarter in the list is 2017Q4 or later. The "Not yet mothers" columns use quarter 0, and the "Mothers" columns use quarter 8. In quarter 8, 244 of these mothers have no payroll record, 74 of them in a quarter for which FONE has no data for their state. The "Mothers" columns count their total earnings, wage per job, and number of jobs as zero and leave them out of every other row except age. Wage variables are quarterly amounts in constant pesos of December 2015, deflated with the national consumer price index (INPC), and percentage variables are reported on a 0–100 scale.

We estimate equation 2 using the estimator proposed by de Chaisemartin and D'Haultfoeuille (2020). Standard errors are clustered at the individual level. Each coefficient compares the change in the outcome between the quarter before conception and a given post-treatment quarter for mothers who conceive in a given quarter with the change over the same calendar quarters for mothers in the sample who have not yet conceived, averaged across quarters of conception. The estimates for quarters -4 to -1 make the same comparison between each of those quarters and the quarter before conception. A key difference relative to Section 4 is that the specification in this section allows both position type and school of employment to adjust after conception. The estimates therefore capture not only within-job changes, but also reallocations across jobs and schools.

6.2 The Effect of Motherhood

Panel A of Figure 3 shows that motherhood reduces female teachers' total earnings by 0.014 log points by the third post-treatment quarter and by 0.047 log points by the sixth. This decline reflects lower wage rates (Panel B) and fewer teaching jobs (Panel C). The effect on wage rates is smaller than the effect on total earnings, at 0.009 log points by the third post-treatment quarter and 0.038 log points by the sixth. Female teachers also hold 0.017 fewer teaching jobs by the third post-treatment quarter and 0.029 fewer by the sixth. In all three panels, the estimates for quarters -4 to -1 are not statistically significant at the 95 percent level, individually or jointly. The effects on total earnings and wage rates remain broadly stable when extending the horizon to the twelfth post-treatment quarter (see Figure A.3 in Appendix A). The emergence of motherhood effects already during pregnancy is consistent with evidence for the general population in Mexico (Aguilar-Gomez et al., 2026). When we drop the 185 women with a quarter off the payroll between quarter 0 and the sixth post-treatment quarter, the estimates for that quarter change little, while the effects on wage rates in the second and third post-treatment quarters are statistically indistinguishable from zero (see Figure A.4 in Appendix A).

Figure 3: Effect of Motherhood on Employment Outcomes in the Public Education Sector



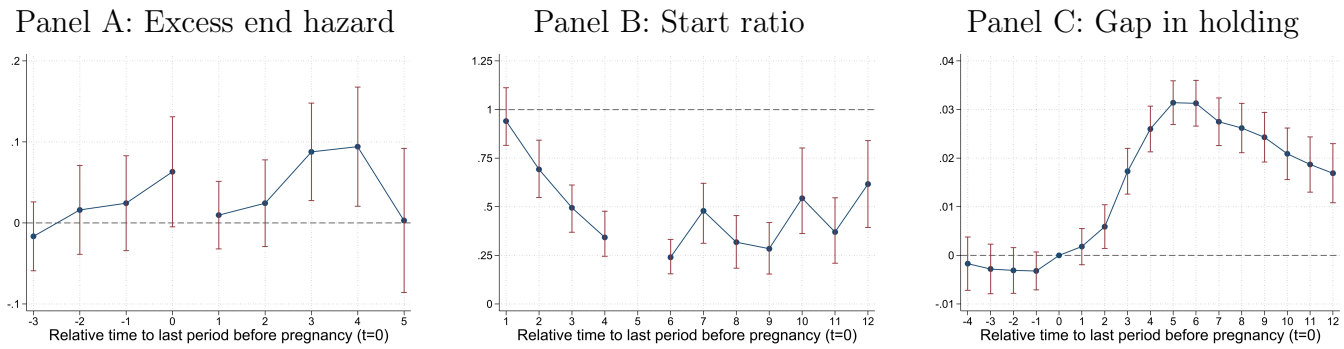
Notes: The sample consists of generalist primary-school teachers outside Mexico City who are observed by 2023Q1 at age 25 or younger, whose first quarter listed on maternity leave from 2016Q2 on is 2017Q4 or later, and who are on the payroll in quarter 0, the last quarter before conception and the fourth quarter before that first listed quarter. Coefficients from the estimator of de Chaisemartin et al. (2025) compare mothers with those who have not yet conceived. Standard errors are clustered by teacher. Controls are indicators for a teacher's first active payroll quarter and the next three, unless that quarter is 2016Q2. The estimates use 270,789 active teacher-quarters of 10,201 women in Panels A and B and 270,790 in Panel C. Total earnings are a teacher's quarterly pay from all her teaching positions, and the wage rate is the quarterly pay of her highest-paid generalist position, both in logs. The number of jobs counts her teaching positions. Vertical bars denote 95% confidence intervals.

The magnitudes are modest relative to estimates for Mexican mothers in the national labor force survey. For example, Aguilar-Gomez et al. (2026) find a 24% decline in labor income fifteen months after childbirth and a 17-percentage-point reduction in labor-force participation. Our estimates refer to teachers who remain on the payroll, so they do not include the earnings lost by women who leave it. The smaller effects in our setting are consistent with the high degree of regulation and the presence of wage premia in the Mexican public education system. They are also in line with evidence from Denmark and France indicating that motherhood effects tend to be smaller in the public sector than in the private sector (Nielsen et al., 2004; Duvivier and Narcy, 2015).

To examine the decline in mothers' teaching jobs, we compare their second positions with those of mothers who have not yet conceived (Figure 4). In quarters 3 and 4, the end hazard of mothers' second positions exceeds that of mothers who have not yet conceived by 0.088 and 0.094 (Panel A). In the same quarters, the start hazard of mothers with one position in quarter 0 is 0.49 and 0.34 times as high (Panel B). Mothers' shortfall in the share holding two or more positions peaks at 0.031 in quarters

5 and 6 (Panel C).

Figure 4: Effect of Motherhood on Second Teaching Positions



Notes: The sample consists of 10,201 generalist primary-school teachers outside Mexico City who are observed by 2023Q1 at age 25 or younger, whose first quarter listed on maternity leave from 2016Q2 on is 2017Q4 or later, and who are on the payroll in the fourth quarter before that first listed quarter. Quarter 0, the last quarter before conception, is that fourth quarter, or the fifth for 950 mothers whose leave start date places conception in the fourth. Mothers with a common quarter 0 are compared with mothers who have not yet conceived and, like them, hold one generalist primary-school position or two or more in that quarter. Panel A plots mothers' excess end hazard of the second position held in quarter 0 (520 mothers) or, for quarters −3 to 0, of the one held in quarter −4, with status matched then, among those still holding it. Panel B plots the start ratio, the start hazard of a second position among mothers who hold one position in quarter 0 over that of mothers who have not yet conceived. Quarter 5 is not reported. Panel C plots the gap in holding, mothers' shortfall in the share holding two or more positions. In each comparison and quarter, the weights of mothers who have not yet conceived sum to the number of mothers. Panels A and C are regression estimates that control for age and for a teacher's first active payroll quarter and the next three, unless that quarter is 2016Q2. Standard errors are clustered by teacher, and Panel B's intervals use 200 bootstrap draws of teachers. Vertical bars denote 95% confidence intervals.

6.3 What Explains the Motherhood Effect on Wage Rates

The negative effect of motherhood on women's labor supply—and, through this channel, on labor income—is well documented in both developed and developing countries (Kleven et al., 2019a,b; Berniell et al., 2023) and is largely attributed to gender norms that generate disparities in childcare responsibilities. Consistent with this mechanism, Aguilar-Gomez et al. (2026) document that Mexican mothers increase the time they spend on unpaid work by 12 hours per week after birth, while the corresponding increase for fathers is only 3 hours. What is less obvious is why, in a setting with centralized wage setting, motherhood lowers mothers' wage rates from the second quarter of pregnancy.

Figure 5 provides evidence on this margin. Panel A shows that the wage premium of the school

in which mothers work declines relative to that of mothers who have not yet conceived, starting about a year before conception. Specifically, relative to the quarter before conception, the premium is 0.003 log points higher in quarter −4 and about the same in quarter −2, and it is 0.004 log points lower in the fourth post-treatment quarter. The difference in quarter −4 is statistically significant at the 95 percent level, while the one in the sixth post-treatment quarter is not. Moreover, the school wage premium stops falling after the fourth post-treatment quarter, while the decline in the wage rate keeps growing through the sixth (Figure 3, Panel B). Changes in the school wage premium therefore do not account for the further decline in wage rates after the fourth post-treatment quarter. We measure school wage premia using the school fixed effects recovered from equation 1.

To examine how mothers' schools change, we estimate equation 2 with two outcomes, the number of times a teacher has moved, since her first active payroll quarter, to a school with a higher wage premium than her previous main school, and the number of times she has moved to a school with a lower one. A teacher moves when the main school of her previous quarter on the payroll, the school of her highest-paid generalist position, is not among her schools in the current quarter. In quarters −4 to 0, mothers in our estimation sample move in about 8 percent of their quarters, and in all their quarters before conception, half of their moves are to a school with a higher wage premium.

Panel B of Figure 5 shows that mothers move less often than mothers who have not yet conceived to schools with a higher wage premium, and the point estimates already decline before conception.[10] Specifically, mothers make 0.007 fewer such moves between quarter −4 and the quarter before conception, a difference that is not statistically significant at the 95 percent level, and 0.014 fewer between the quarter before conception and the fourth post-treatment quarter. The post-treatment estimates are statistically significant at the 95 percent level from the third to the fifth post-treatment quarter.[11] In Panel C, the estimates for moves to schools with a lower wage premium are not statistically signifi-

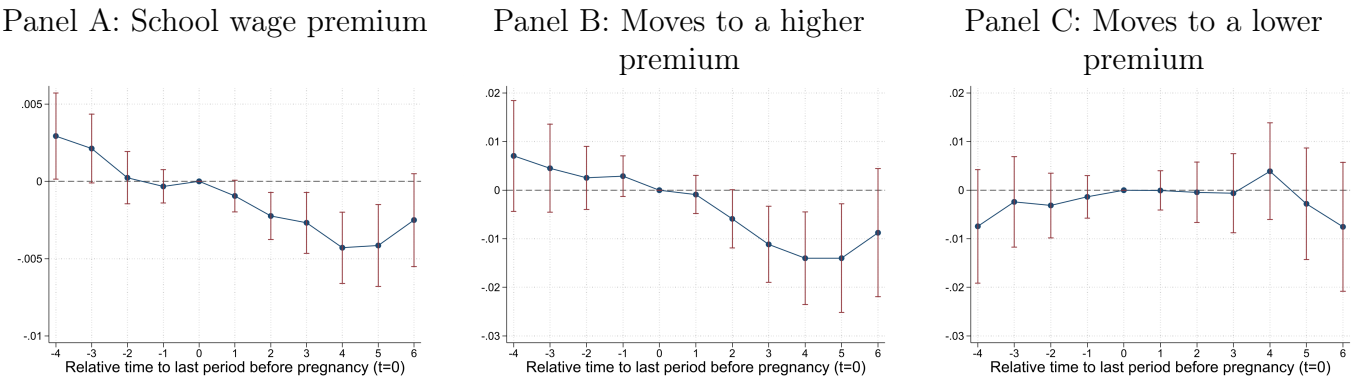
[10] When we count all moves, mothers make 0.011 fewer moves by the fourth post-treatment quarter than mothers who have not yet conceived, and the six post-treatment estimates are not jointly significant at the 95 percent level.

[11] With teacher-specific linear trends, mothers make 0.005 more moves to schools with a higher wage premium by the fourth post-treatment quarter than mothers who have not yet conceived, and no post-treatment estimate is statistically significant at the 95 percent level.

cant at the 95 percent level in any quarter, before or after conception, although the six post-treatment estimates are jointly significant at the 95 percent level.

We also split the change in a teacher's school wage premium since her first active payroll quarter into four cumulative sums, the premium gains and losses at moves and those at changes of the main school without a move, and estimate equation 2 for each sum. A change without a move is one in which the previous main school remains among the teacher's schools, which requires her to work in at least two schools in the same quarter. Moves account for about two thirds of the decline in the school wage premium in the fourth post-treatment quarter, mostly through smaller premium gains, and changes without a move account for the remaining third.[12]

Figure 5: Effect of Motherhood on the Wage Premium of the School of Employment and on Moves Between Schools



Notes: The sample consists of generalist primary-school teachers outside Mexico City who are observed by 2023Q1 at age 25 or younger, whose first quarter listed on maternity leave from 2016Q2 on is 2017Q4 or later, and who are on the payroll in quarter 0, the last quarter before conception and the fourth quarter before that first listed quarter. Coefficients from the estimator of de Chaisemartin et al. (2025) compare mothers with those who have not yet conceived. Standard errors are clustered by teacher. Controls are indicators for a teacher's first active payroll quarter and the next three, unless that quarter is 2016Q2. The estimates use 270,620 active teacher-quarters of 10,198 women in Panel A and 270,790 of 10,201 in Panels B and C. The school wage premium is the fixed effect of the teacher's main school, the school of her highest-paid generalist position, in a regression of log quarterly pay per generalist position on gender, age, location controls, and quarter and school fixed effects. A teacher moves when the main school of her previous quarter on the payroll is not among her current schools. Panels B and C plot the cumulative number of her moves to a main school with a higher or a lower premium, respectively, than the one she leaves. Vertical bars denote 95% confidence intervals.

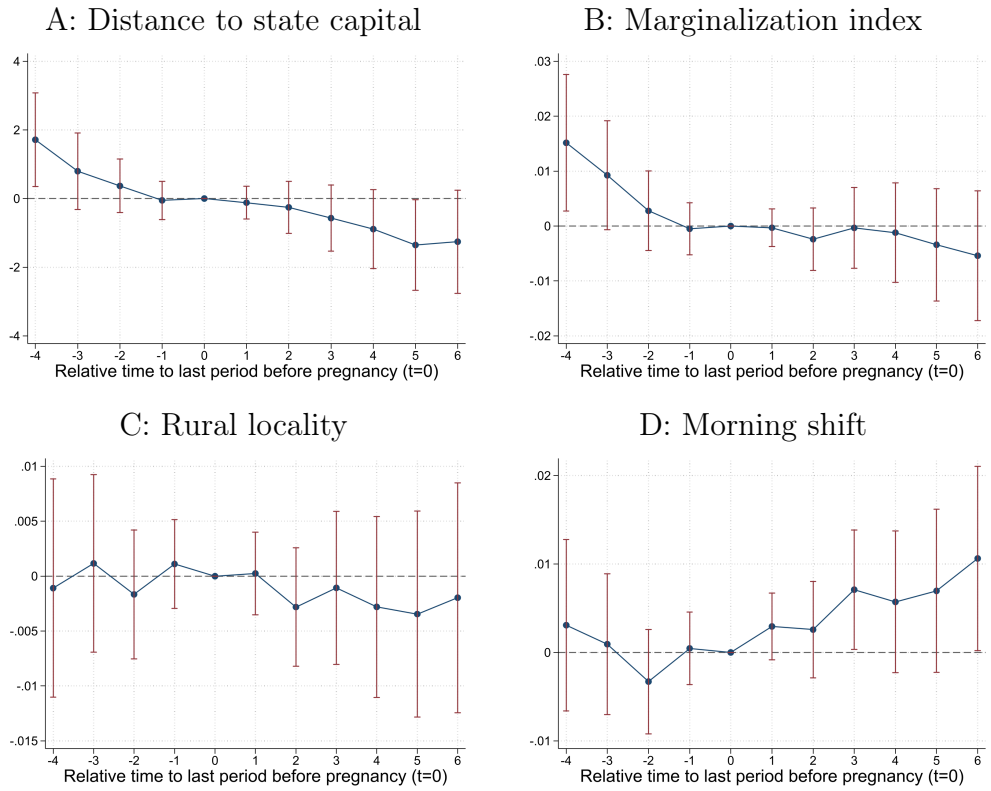
One possible reason why mothers move less often to schools with a higher wage premium is a

[12]Of the decline of 0.0043 log points in Panel A of Figure 5 in the fourth post-treatment quarter, moves account for 0.0028, of which 0.0023 come from smaller premium gains, and changes without a move for 0.0015.

change in the amenities they value in their work locations. As noted earlier, teachers' base salaries are mechanically determined by position, economic zone, and state. Schools are classified into two economic zones, with higher pay in the more marginalized zone, and additional allowances are provided for teaching in more isolated and poorer localities.

To examine these amenities, we estimate equation 2 with four characteristics of the teacher's main school as outcomes, its distance to the state capital, the marginalization index of its municipality, and indicators for a rural locality and for the morning shift. Figure 6 reports the estimates. The point estimates suggest that, relative to mothers who have not yet conceived, mothers move toward schools closer to the state capital (Panel A), in less poor areas (Panel B), and in more urban settings (Panel C), but these changes are small and imprecise. Specifically, among the post-treatment estimates of Panels A–C, only the distance to the state capital in the fifth post-treatment quarter is statistically significant at the 95 percent level. In Panels A and B, the changes start before conception, and the estimates in quarter -4 are positive and statistically significant at the 95 percent level. Consistent with the idea that childcare needs become more salient with motherhood, mothers become more likely to work the morning shift (Panel D), by about 1 percentage point by the sixth post-treatment quarter. The morning-shift estimates are statistically significant at the 95 percent level in the third and sixth post-treatment quarters, although the six post-treatment estimates are not jointly significant at the 95 percent level. In addition, women are less likely to hold a second position in municipalities with more homicides (Section 4.3), which is also consistent with locality characteristics shaping gender differences in labor supply.

Figure 6: Effect of Motherhood on the Characteristics of the School of Employment



Notes: The sample consists of generalist primary-school teachers outside Mexico City who are observed by 2023Q1 at age 25 or younger, whose first quarter listed on maternity leave from 2016Q2 on is 2017Q4 or later, and who are on the payroll in quarter 0, the last quarter before conception and the fourth quarter before that first listed quarter. Coefficients from the estimator of de Chaisemartin et al. (2025) compare mothers with those who have not yet conceived. Standard errors are clustered by teacher. Controls are indicators for a teacher's first active payroll quarter and the next three, unless that quarter is 2016Q2. The estimates use 265,964 active teacher-quarters of 10,181 women in Panel A, 270,550 of 10,199 in Panel B, and 270,790 of 10,201 in Panels C and D. The outcomes refer to the teacher's main school, the school of her highest-paid generalist position. Distance is in kilometers, the marginalization index is higher in more deprived municipalities, and Panels C and D plot indicators. Vertical bars denote 95% confidence intervals.

Overall, the evidence suggests that mothers move less often than mothers who have not yet conceived to schools with higher wage premia, with point estimates that already decline before conception, and that mothers become more likely to work the morning shift, while the estimated changes in the location of the school are small and imprecise. Because involuntary school transfers and dismissals are extremely rare in the Mexican education system, this pattern is unlikely to be driven by employer-initiated reassignments and more likely reflects women's own choices.

7 Conclusions

This paper investigates gender pay disparities in Mexico's public education system, a highly regulated labor market with standardized pay. Using administrative payroll records from 2016 to 2024, we compare male and female teachers holding identical positions within the same schools and examine whether gaps in wage rates, total earnings, and labor supply evolve over the life cycle.

Our results show a small wage penalty for women for equal work, concentrated among older teachers. In this market, pay standardization does not eliminate gender inequality. Women earn 0.018 log points less than men of the same age who hold the same position in the same school. About half of this gap reflects women's lower seniority at a given age, and the rest corresponds to promotion categories that teachers accumulated under the *Carrera Magisterial* by 2014. The gender gap in total earnings is larger because men are more likely to hold multiple positions and because their second positions are relatively better paid. The gender gaps differ across birth cohorts. From 2016 to 2024, the gaps in equal-work wage rates, total earnings, and multiple-job holding grow against women together only in the cohort born in 1965–69.

We find that motherhood reduces women's wage rates and the number of teaching jobs they hold. Among teachers who remain on the payroll, the effects of motherhood on earnings are smaller than those documented for the general population of Mexican mothers (Aguilar-Gomez et al., 2026).

In our setting, where base pay is governed by formal rules and wage increases are bargained centrally, gender disparities persist through women's lower seniority at a given age, the promotion categories that teachers earned by 2014, the number and pay of additional positions, and the decline in the number of teaching jobs after motherhood. More broadly, the results from this regulated labor market are consistent with the evidence on the role of household responsibilities in gender inequality (Goldin, 2014, 2021; Frederiksen et al., 2026; Harrington and Kahn, 2026).

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Appendix

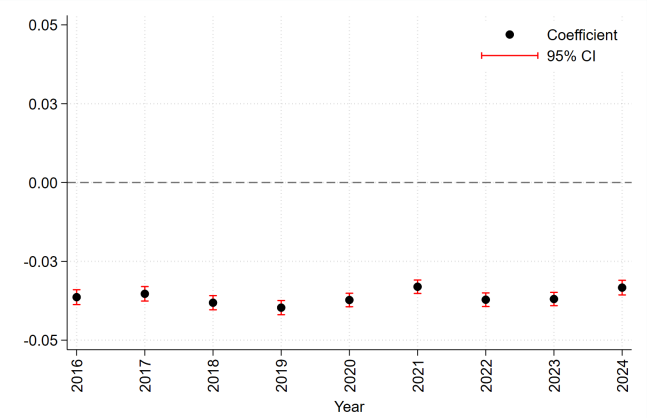
A Additional Figures

Figure A.1: Gender Gaps by Year

Panel A: Wage rates and total earnings



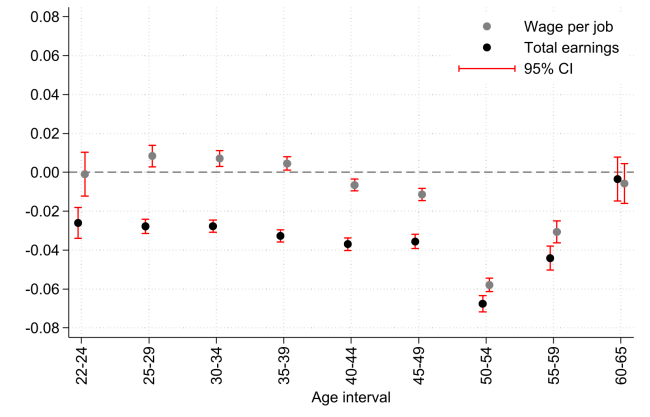
Panel B: Probability of holding multiple jobs



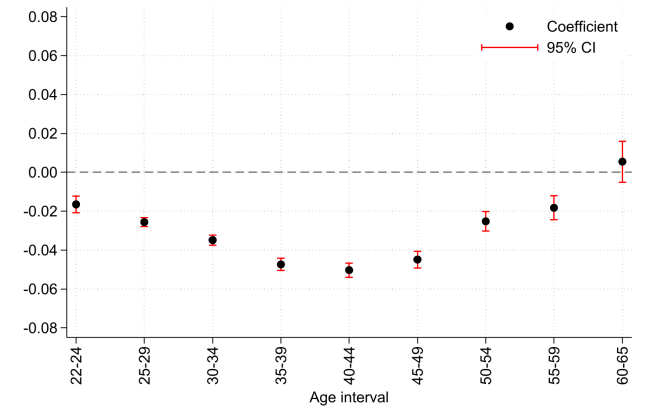
Notes: Panel A plots year-specific estimates of the gender gaps in log wage per job and log total earnings. Panel B plots the corresponding year-specific gap in the probability of holding multiple jobs. Vertical bars denote 95% confidence intervals.

Figure A.2: Gender Gaps by Age: Controlling for Horizontal Promotions

Panel A: Wage rates and total earnings

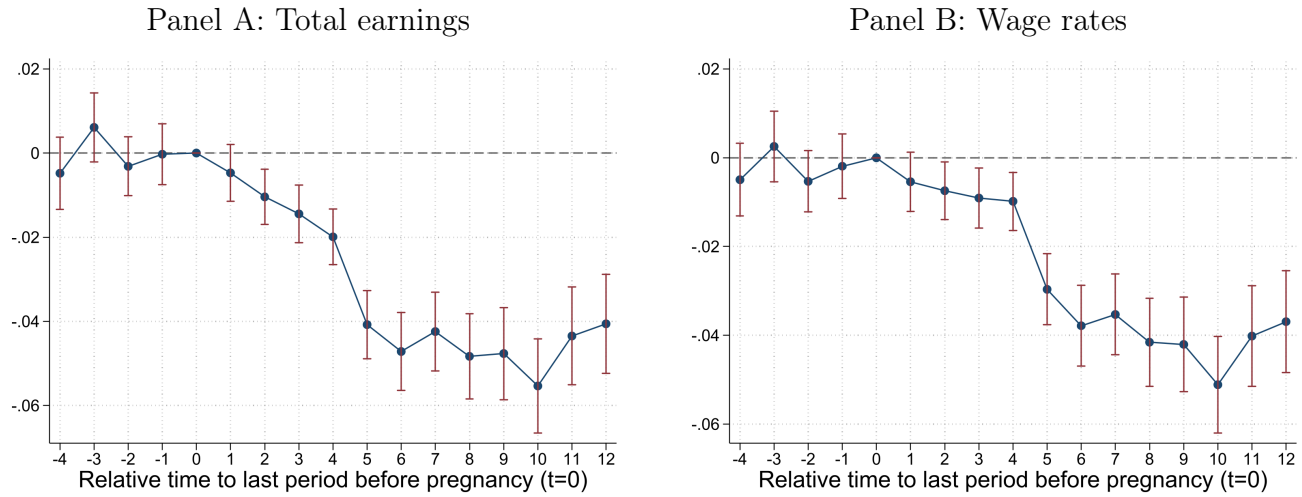


Panel B: Probability of holding multiple jobs



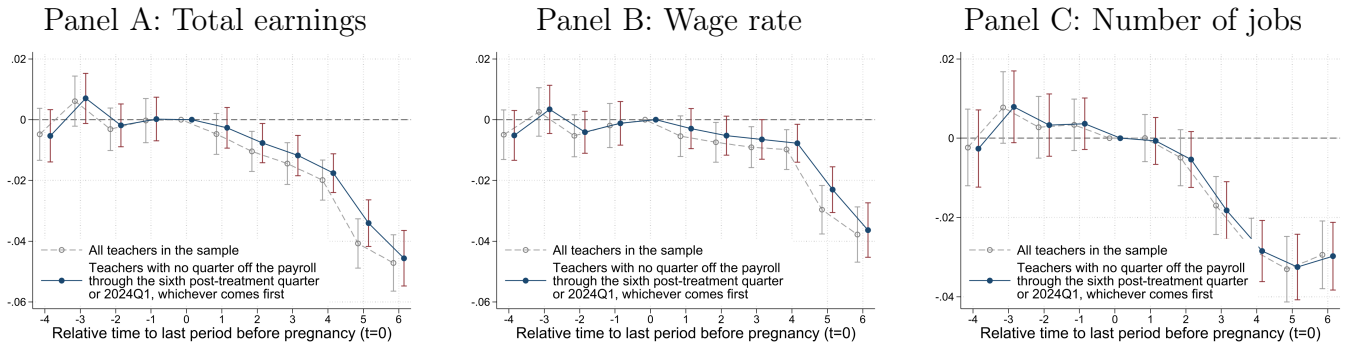
Notes: Panel A plots age-specific estimates of the gender gaps in log wage per job and log total earnings after controlling for CM and SPD horizontal-promotion categories. Panel B plots the corresponding age-specific gap in the probability of holding multiple jobs. Vertical bars denote 95% confidence intervals.

Figure A.3: Effect of Motherhood on Employment Outcomes in the Public Education Sector (Longer Time Horizon)



Notes: The sample consists of generalist primary-school teachers outside Mexico City who are observed by 2023Q1 at age 25 or younger, whose first quarter listed on maternity leave from 2016Q2 on is 2017Q4 or later, and who are on the payroll in quarter 0, the last quarter before conception and the fourth quarter before that first listed quarter. Coefficients from the estimator of de Chaisemartin et al. (2025) compare mothers with those who have not yet conceived. Standard errors are clustered by teacher. Controls are indicators for a teacher's first active payroll quarter and the next three, unless that quarter is 2016Q2. The estimates use 270,789 active teacher-quarters of 10,201 women. Total earnings are a teacher's quarterly pay from all her teaching positions, and the wage rate is the quarterly pay of her highest-paid generalist position, both in logs. Vertical bars denote 95% confidence intervals.

Figure A.4: Effect of Motherhood on Employment Outcomes: Teachers Who Remain on the Payroll



Notes: The sample consists of generalist primary-school teachers outside Mexico City who are observed by 2023Q1 at age 25 or younger, whose first quarter listed on maternity leave from 2016Q2 on is 2017Q4 or later, and who are on the payroll in quarter 0, the last quarter before conception and the fourth quarter before that first listed quarter. Coefficients from the estimator of de Chaisemartin et al. (2025) compare mothers with those who have not yet conceived. Standard errors are clustered by teacher. Controls are indicators for a teacher's first active payroll quarter and the next three, unless that quarter is 2016Q2. Gray, hollow markers show the estimates for the whole sample and reproduce Figure 3. Navy, solid markers show those for the 10,016 women, with 267,427 active teacher-quarters, who have no quarter off the payroll from quarter 0 through quarter 6 or 2024Q1, whichever comes first. A quarter with no payroll data for the teacher's state counts as on the payroll. Total earnings are a teacher's quarterly pay from all her teaching positions, and the wage rate is the quarterly pay of her highest-paid generalist position, both in logs. The number of jobs counts her teaching positions. Vertical bars denote 95% confidence intervals.

B Additional Tables

Table B.1: Wage Premium to Teaching in Public Primary Schools

	Women		Men	
	Monthly wage (ln)	Hourly wage (ln)	Monthly wage (ln)	Hourly wage (ln)
Public School	-	-	-	-
Private School	-0.054***	-0.080***	-0.045*	-0.077**
	(0.015)	(0.017)	(0.027)	(0.031)
Other occupations	-0.009	-0.050***	0.032***	-0.062***
	(0.009)	(0.010)	(0.011)	(0.013)
Obs	466,120		528,068	
Individuals	193,313		219,881	

Notes: Table reports the coefficients (and standard errors) for the sector categories of an individual fixed effects wage model (the baseline category is in the first row). The indicators for public and private school include teachers working in primary education. All regressions include as controls age, state FE, and time FE. The top and bottom 2 percentiles of the quarterly wage distribution are trimmed. Wages are expressed in constant pesos at the fourth quarter of 2019. The sample is composed of individuals aged 21 to 65 years old with a university degree who report positive wages and worked at least 20 hours in the reference week, and excludes teachers not working in primary schooling. Data come from ENOE from the first quarter of 2015 to the fourth quarter of 2019.

Table B.2: Horizontal Promotion Systems

Characteristics	Carrera Magisterial (CM)	Servicio Profesional Docente (SPD)	Sistema para la Carrera de las Maestras y los Maestros (SICAMM)
Period	1992–2014	2013–2019	2019–Current
Participation	Optional	Optional (the performance evaluation was mandatory for teachers called by the authorities)	Optional
Eligibility*	Seniority of 0 to 15 years, depending on the degree. Permanent contract or unlimited interim appointment.	Seniority of 2 years. Permanent contract.	Seniority of 2 years in current position. Permanent contract.
Evaluation Criteria (and method)	Seniority, highest degree earned, preparation (teacher testing), participation in professional development activities, performance (school principal and peer reviews), and student achievement (student testing).	Preparation (teacher testing) and evidence of good teaching practices (teaching portfolio and lesson plan; teaching project from 2017). From 2017, teacher and principal questionnaires added up to 3 of the 100 points needed to pass.	Seniority, highest degree earned, preparation (teacher testing), and participation in professional development activities.
Maintenance Requirements	Eligibility for next pay category required a waiting period. Maintenance of a category earned in 2011–2012 or later required a good performance in an evaluation held within the waiting period.	Teachers were evaluated every four years, determining access to next pay category, maintenance, or loss of current category.**	None. Eligibility for next pay category required a four-year waiting period.
No. of Pay Categories	6.	7.	8.
Compensation	36% to 294% of basic salary.***	35% to 180% of basic salary (41% to 222% in marginalized areas).	35% to 205% of basic salary (41% to 247% in marginalized areas).

Notes: This table compares Carrera Magisterial (CM), Servicio Profesional Docente (SPD), and Sistema para la Carrera de las Maestras y los Maestros (SICAMM), the three national systems that governed horizontal promotions for Mexican public-school teachers over time. The columns summarize each system's operating period, participation rules, eligibility requirements, evaluation criteria, maintenance requirements, number of pay categories, and associated salary supplements. * Teachers with temporary contracts were excluded from all horizontal promotion systems. ** New teachers were evaluated after their first year of service, for diagnosis, and after their second year, when they could be rated only as meeting the teaching function or as insufficient. *** Base salary at CM levels A and E relative to the base salary without CM, for the generalist primary-school position in the FONE salary schedules for 2016–2024 (34 and 278 percent from the fourth quarter of 2023).

Table B.3: Gender Gap in the Number of Jobs: Heterogeneity by Municipal Homicide Rates

	Total Homicides	Women Homicides	$Total\ Homicides_{t-1}$
Panel A: More than one Job			
Female	-0.028***	-0.032***	-0.002
	(0.001)	(0.001)	(0.001)
Homicides	0.005***	0.012***	0.004***
	(0.001)	(0.002)	(0.000)
Female × Homicides	-0.017***	-0.030***	-0.007***
	(0.002)	(0.003)	(0.000)
Homicides + Female × Homicides	-0.012***	-0.018***	-0.003***
	(0.001)	(0.001)	(0.000)
Obs.	9,426,534	9,426,534	9,426,534
Panel B: Teaching Jobs			
Female	-0.044***	-0.048***	-0.011***
	(0.002)	(0.001)	(0.002)
Homicides	0.023***	0.034***	0.013***
	(0.002)	(0.004)	(0.001)
Female × Homicides	-0.024***	-0.048***	-0.009***
	(0.003)	(0.005)	(0.000)
Homicides + Female × Homicides	-0.001	-0.013***	0.004***
	(0.001)	(0.002)	(0.000)
Obs.	9,296,932	9,296,932	9,296,932

Notes: One observation per teacher-quarter (main job) for Mexican teachers aged 22 to 65 observed from 2016Q2 to 2024Q1, excluding Mexico City. The columns measure homicides in the municipality of the teacher's main school. Total Homicides is all homicides per 1,000 inhabitants in the quarter, Women Homicides is homicides of women per 1,000 women in the quarter, and $Total\ Homicides_{t-1}$ is the number of homicides in the previous year. Each measure x enters as $\ln(10x + 1)$. "Homicides" is the effect of homicides for men, and "Homicides + Female × Homicides" is the effect for women. Panel A includes quarter, age-bin, CM pay-category, and school fixed effects. Panel B includes quarter, age-bin, CM pay-category, and state fixed effects, and controls for job type, distance to the state capital, economic zone, and rural locality. Both panels control for a quartic in the locality marginalization index. Observations with ages below 22 and incorrect national identifiers (CURP) were excluded. Standard errors clustered at the teacher level are reported in parentheses. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$, based on unrounded p-values.

Table B.4: Gender Pay Gap in Public and Private Schools: Labor Force Survey

	Public School		Private School	
	Monthly earnings (ln)	Hourly wage (ln)	Monthly earnings (ln)	Hourly wage (ln)
Female	-0.040***	-0.036***	-0.096***	-0.144***
	(0.005)	(0.006)	(0.022)	(0.023)
Obs	26,034		4,087	
R^2	0.14	0.13	0.24	0.24

Notes: Table reports the coefficients (and standard errors) for the gender wage gap of regressions including as controls age, state FE, and time FE. The top and bottom 2 percentiles of the quarterly wage distribution are trimmed. Wages are expressed in constant pesos at the fourth quarter of 2019. The sample consists of primary school teachers aged 21 to 65 years who hold a university degree, report positive wages, and worked at least 20 hours during the reference week. Following Estrada, Goyheix, and Lombardi (2024), only individuals who self-responded to the employment questionnaire are included in the sample. The data come from the ENOE and cover the period from the first quarter of 2015 to the fourth quarter of 2019.

Table B.5: Gender Wage Gap by the Number of Jobs

	(1)	(2)	(3)	(4)	(5)	(6)	(7♠)
Panel A: Just one Job							
Female	-0.042***	-0.044***	-0.022***	-0.016***	-0.008***	-0.010***	-0.014***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs.	8,308,771	8,308,771	8,308,771	8,307,814	8,307,814	8,307,814	5,347,094
Panel B: More than One Job							
All Jobs							
Female	-0.130***	-0.130***	-0.083***	-0.094***	-0.079***	-0.081***	-0.074***
	(0.004)	(0.004)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Obs.	2,235,880	2,235,880	2,235,880	2,232,401	2,232,401	2,232,401	1,576,674
First Job							
Female	-0.057***	-0.059***	-0.036***	-0.041***	-0.030***	-0.031***	-0.032***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Obs.	1,117,940	1,117,940	1,117,940	1,112,874	1,112,874	1,112,874	785,073
Second Job							
Female	-0.203***	-0.202***	-0.130***	-0.152***	-0.137***	-0.140***	-0.126***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Obs.	1,117,940	1,117,940	1,117,940	1,113,077	1,113,077	1,113,077	785,123
Quarter FE		X	X	X	X	X	X
Age			X	X	X	X	X
School				X	X	X	X
CM. Pay category					X	X	X
SPD. High pay category						X	X

Notes: Panel A reports the coefficient on Female for teachers holding exactly one job. Panel B reports the corresponding coefficient for teachers holding more than one job, separately for all jobs, the first job, and the second job. The sample includes Mexican generalist primary-school teachers aged 22 to 65 observed from 2016Q2 to 2024Q1, excluding Mexico City. Columns progressively add quarter fixed effects, age fixed effects, school fixed effects, CM pay-category controls, and SPD high-pay-category controls. Column (7♠) is restricted to 2016Q2–2021Q2, before the first SICAMM incentives took effect in September 2021. Standard errors clustered at the teacher level are reported in parentheses.

Table B.6: Second Teaching Positions by Gender

	(1) Men	(2) Women	(3) Difference	(4) Std. error
Panel A: The two positions				
Second position is full-time (%)	99.68	99.40	-0.27***	(0.07)
Both held in the previous and following quarters (%)	85.14	79.30	-5.84***	(0.19)
Panel B: Location of the second position relative to the first				
Same school (%)	15.24	16.18	0.94***	(0.33)
Same municipality (%)	89.15	88.63	-0.52**	(0.22)
Same location (%)	40.34	43.00	2.67***	(0.47)
Distance between the schools, lower bound (km)	4.30	4.85	0.55***	(0.07)
Lower bound above 20 km (%)	3.43	4.33	0.90***	(0.10)
Panel C: Quarterly pay				
First position	59,145	57,030	-2,115***	(209)
Second position	44,466	40,222	-4,244***	(161)
Obs.	458,309	622,651		

Notes: Teacher-quarters, 2016Q2–2024Q1, in which a teacher in our sample holds two or more generalist primary-school positions (codes E0281 and E0261). The table excludes the 37,586 teacher-quarters (2.26 percent of men's and 4.16 percent of women's) in which one position replaces another within the quarter, i.e., one position ends in the quarter without starting in it and another starts without ending, and 102 teacher-quarters without a second-ranked position. A position starts (ends) in the quarter when the teacher does not hold its code in the previous (following) quarter. A neighboring quarter outside 2016Q2–2024Q1 or in which the teacher's state is missing from the payroll is not used, so a replacement can be identified only when both the previous and the following quarter are observed. Positions are ranked as in Table 5, by core status and then by quarterly pay. Columns 1 and 2 report means for men and women, column 3 the difference between women and men, and column 4 its standard error, clustered at the teacher level. A full-time position is an appointment by shift (code E0281), and the other second positions have code E0261, which is paid by the hour. Both positions are held in the previous and following quarters when the teacher holds both codes in both quarters. This share is computed on the 426,489 teacher-quarters of men and 577,062 of women in which both quarters are observed for both positions. Two schools are at the same location when they are in the same municipality and their distances to the state capital and to two fixed reference schools of the municipality coincide to the meter. This share excludes 155,766 teacher-quarters without these distances. The lower bound on the distance between the schools is the largest absolute difference among these three distances for schools in the same municipality, and the absolute difference of their distances to the state capital for schools in different municipalities of the same state. Its mean and the share above 20 km exclude 6,688 teacher-quarters with schools in different states and 9,573 without a distance, and the mean also excludes 192 teacher-quarters with a lower bound above 500 km. The same-municipality share excludes 2,472 teacher-quarters without a municipality code. Quarterly pay is in constant pesos of December 2015. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

Table B.7: Gender Gap in the Pay of First and Second Teaching Positions

First position	Higher pay		Morning shift		First held earlier	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Log pay differential, first minus second position						
Female	0.106***	0.052***	0.087***	0.056***	-0.073***	0.019
	(0.004)	(0.003)	(0.005)	(0.004)	(0.012)	(0.015)
Female, with location and shift of second position	0.101***	0.053***	0.086***	0.055***	-0.053***	0.019
	(0.004)	(0.003)	(0.005)	(0.004)	(0.011)	(0.015)
Men's mean differential	0.437	0.260	0.020	0.039	0.466	0.402
Obs.	998,631	754,252	749,777	586,892	232,000	87,603
Panel B: Pay differential in pesos, first minus second position						
Total quarterly pay		1,538.6***		2,766.3***		
		(149.0)		(222.5)		
Base salary without CM		-0.6		-4.6		
		(5.1)		(5.7)		
CM increment		520.4***		1,422.3***		
		(108.6)		(149.9)		
Other pay components		1,018.8***		1,348.7***		
		(75.8)		(110.8)		
Men's mean differential		13,215.8		2,630.5		
Obs.		742,379		580,361		
Panel C: Gender gap in log pay, by position						
First position	-0.034***	-0.008***	-0.031***	-0.006	-0.124***	-0.060***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.008)	(0.008)
Second position	-0.141***	-0.065***	-0.113***	-0.060***	-0.045***	-0.065***
	(0.004)	(0.003)	(0.004)	(0.003)	(0.008)	(0.010)
Both held in previous and following quarters		X		X		X
Exactly one position in a morning-shift school			X	X		
First held in different quarters					X	X
Quarter FE	X	X	X	X	X	X
Age	X	X	X	X	X	X
School FE	X	X	X	X	X	X
Location characteristics	X	X	X	X	X	X

Notes: Results from OLS regressions on the teacher-quarters of Table 5 without the 35,211 in which one position replaces another within the quarter (Table B.6). As in Table 5, the sample excludes the teacher-quarters whose two positions pay the same. Every column ranks core positions first. Columns 1 and 2 then rank first the higher-paid position, as Table 5 does. Columns 3 and 4 rank first the position in a morning-shift school and keep the teacher-quarters in which exactly one position is in such a school. Columns 5 and 6 rank first the position the teacher first held earlier within 2016Q2–2024Q1 and keep the teacher-quarters whose two positions were first held in different quarters. Columns 2, 4, and 6 keep the teacher-quarters in which the teacher holds both position codes in the previous and the following quarter. Panels A and B report the coefficient on Female from the specification of Table 5, column 4. The second row of Panel A adds indicators for the same school, the same shift, the same municipality, and the same location, and the lower bound on the distance between the schools of Table B.6, capped at 500 km, with indicators for missing values, which are set to zero. Panel B splits the first-minus-second difference in quarterly pay, in constant pesos of December 2015, into the parts defined in Table B.9, for teacher-quarters in which both positions have a tabulated salary. Panel C reports the coefficient on Female from regressions of log quarterly pay in each position on the teacher-quarters of Panel A, with quarter and age fixed effects, fixed effects for the school of that position, and the location characteristics of that school. Standard errors clustered at the teacher level are reported in parentheses. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

Table B.8: Starts and Ends of Second Teaching Positions by Gender

	Men	Women	Difference	Std. error
Start hazard (%)	0.77	0.76	-0.01	(0.01)
Start hazard, within cells (%)	0.84	0.62	-0.22***	(0.01)
Obs.	2,619,600	5,270,830		
End hazard (%)	6.70	9.02	2.32***	(0.08)
End hazard, within cells (%)	5.99	7.25	1.26***	(0.06)
Obs.	433,140	575,660		

Notes: Generalist primary-school positions (codes E0281 and E0261) of the teachers in our sample, 2016Q2–2024Q1. Positions start and end as in Table B.6. A position that continues another at the same school, or replaces it within the quarter, counts with it as one position. The start hazard is computed over the teacher-quarters in which the teacher holds exactly one position from the previous quarter (2016Q3–2024Q1), and the end hazard over those in which the teacher holds two or more positions, at least one from the previous quarter (2016Q2–2023Q4). The table counts only the positions held past the quarter in which they start. The rows within cells report means over the cells of entry status, seniority group, municipality, and quarter with teacher-quarters of both sexes, weighted so that their difference is the coefficient on Female in a regression with cell fixed effects. Seniority groups are quarters of seniority for teachers hired after June 2016 and age bins for the other teachers. Standard errors are clustered at the teacher level. Numbers of observations are rounded to the nearest 10. Hazards are in percent, and differences and standard errors in percentage points. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

Decomposition of the Equal-Work Gap in Pesos

Because base pay is set by published salary schedules, we can decompose the equal-work gap directly in pesos, as an accounting identity. For each job-quarter, we split quarterly pay into three parts. The first is the tabulated base salary of the position without CM, which depends only on the state, the economic zone, and the quarter. The second is the CM increment, i.e., the difference between the tabulated salary at the teacher's CM level and that base salary. The third consists of all other pay components, which the public FONE files report only in total (SPD increments, seniority and locality allowances, and other benefits). We regress each part on the female indicator with the controls of Table 2, column 4. Because the three parts add up to total pay, the three coefficients add up exactly to the gender gap in quarterly pay.

Table B.9 shows that, in constant pesos of December 2015, women earn 983.9 pesos less per quarter than men of the same age in the same school, or 1.9 percent of men's mean pay (column 1). The base salary without CM differs by 7.9 pesos in favor of women, so the gap comes from the CM increment (539.3 pesos, 55 percent of the gap) and from the other pay components (452.4 pesos, 46 percent). To exclude the first and last quarters of each spell, which may be paid only in part, we keep only the job-quarters of teachers who hold a generalist primary-school position in both the previous and the following quarter (column 2). To check whether SPD increments account for the gap in the other pay components, we add the SPD high-pay category to the controls of column 1 (column 3). The gap in the CM increment changes little in columns 2 and 3 (546.5 and 552.1 pesos, respectively), while the gap in the other pay components falls to 332.3 pesos in column 2 and rises to 517.4 pesos in column 3.

Table B.9: Decomposition of the Equal-Work Gap in Quarterly Pay, in Pesos

	(1)	(2)	(3)
Total quarterly pay	-983.9***	-870.5***	-1,061.5***
	(50.5)	(51.4)	(49.9)
Base salary without CM	7.9***	8.3***	7.9***
	(2.3)	(2.3)	(2.3)
CM increment	-539.3***	-546.5***	-552.1***
	(31.7)	(33.0)	(31.7)
Other pay components	-452.4***	-332.3***	-517.4***
	(31.2)	(30.5)	(30.6)
Share of the gap: CM increment	0.55	0.63	0.52
Share of the gap: other components	0.46	0.38	0.49
Men's mean quarterly pay	51,496	52,639	51,496
Obs.	10,506,235	9,294,590	10,506,235
Sample	All	Interior quarters	All
SPD high-pay category			X

Notes: The table decomposes the gender gap in quarterly pay per job (constant pesos of December 2015) into three parts that add up to total pay. These are the tabulated base salary of the position at CM level 07 (no CM) for the state, economic zone, and quarter, from the FONE salary schedules (*Catálogo de Tabuladores*); the CM increment, i.e., the difference between the tabulated salary at the teacher's CM level and that base salary; and all other pay components, which the public data report only in total (SPD increments, seniority and locality allowances, and other benefits). Each row reports the coefficient on Female from a regression of that part with the controls of Table 2, column 4, which are school, quarter, and age-bin fixed effects, the municipal homicide rate, and the locality marginalization index. The share of the gap of each part is the ratio of its coefficient to the coefficient for total quarterly pay, and men's mean quarterly pay is the mean total quarterly pay of men in the column's sample. Column 2 (interior quarters) keeps job-quarters of teachers who hold a generalist primary-school position in both the previous and the following quarter. Column 3 adds the SPD high-pay category as a control. The sample is that of Table 2 with a tabulated salary for the state, quarter, and CM level (99.4 percent of job-quarters). Standard errors clustered at the teacher level are reported in parentheses. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

Table B.10: Gender Gaps Within Birth Cohorts: Other Specifications

	Log wage per job	More than one teaching job (p.p.)		Log total earnings	
	Change per year	Change per year	Change per year	Change per year	Change per year
	(1)	(2)	(3)	(4)	(5)
Female × birth cohort					
Before 1960	0.004	-0.01	-0.01	0.003	0.004
	(0.003)	(0.07)	(0.07)	(0.002)	(0.002)
1960–64	0.007***	-0.12***	-0.12***	0.006***	0.006***
	(0.001)	(0.04)	(0.04)	(0.001)	(0.001)
1965–69	-0.009***	-0.08***	-0.07***	-0.011***	-0.010***
	(0.001)	(0.03)	(0.03)	(0.001)	(0.001)
1970–74	0.003***	0.09***	0.08***	0.004***	0.004***
	(0.0004)	(0.03)	(0.03)	(0.0004)	(0.0004)
1975–79	0.004***	0.10***	0.10***	0.004***	0.005***
	(0.0004)	(0.03)	(0.03)	(0.0003)	(0.0003)
1980–84	0.004***	0.21***	0.19***	0.005***	0.006***
	(0.0004)	(0.03)	(0.03)	(0.0004)	(0.0004)
1985–89	0.006***	0.20***	0.16***	0.006***	0.007***
	(0.001)	(0.03)	(0.03)	(0.0004)	(0.0004)
1990 or later	0.006***	0.11**	0.19***	0.005***	0.002***
	(0.001)	(0.05)	(0.04)	(0.001)	(0.001)
Obs.	8,519,999	7,534,111	9,411,325	7,533,948	9,411,143
Incumbents only	X	X		X	
School FE	X	X	X	X	X
Cohort × quarter FE	X	X	X	X	X
Teacher FE	X	X	X	X	X

Notes: Results from OLS estimation. Each row reports, for the birth cohort in the row, the coefficient on Female interacted with birth cohort and a linear trend in years since 2016Q2. The birth year is the smallest value of the year minus the teacher's age across the teacher's quarters. Incumbents are the teachers who already held a generalist primary-school position in 2016Q2. In column 1, the sample has one observation per generalist primary-school job-quarter of incumbents aged 22 to 65, outside Mexico City, from 2016Q2 to 2024Q1, and the dependent variable is the log of quarterly pay per job. In columns 2–5, the sample has one observation per teacher-quarter, with all the teacher's teaching positions in the quarter, for incumbents (columns 2 and 4) or for all teachers aged 22 to 65 outside Mexico City (columns 3 and 5), and the dependent variables are an indicator for holding more than one teaching job, in percentage points (columns 2 and 3), and the log of total quarterly earnings (columns 4 and 5). School fixed effects refer to the school of the job in column 1 and of the main job, the teacher's highest-paid generalist primary-school position in the quarter, in columns 2–5. All regressions control for the municipal homicide rate and the locality marginalization index. The number of observations excludes singletons. Standard errors clustered at the teacher level are reported in parentheses. Statistical significance is indicated by * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.