Longer school schedules, child care, and mothers' employment quality: Evidence from a school reform in Chile

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Abstract:

Lack of child care is one of the main reasons mothers stay out of the labor force, as women traditionally assume childrearing responsibilities. When children enter school, often school and work schedules are incompatible. We investigate the effect of a reform that lengthened school schedules from half to full days in Chile on mothers' employment quality. We use the gradual implementation of the policy across municipalities and over time to identify its effects. We find an overall positive effect of access to full-day schools on several job quality measures: longer school days allow mothers to work more hours, and find more formal jobs with higher wages.

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1. Introduction

Most households around the world rely on labor activities as their main source of income, and exiting poverty has been related to improvements in labor market outcomes (World Bank 2013). In particular, women's employment has played an important role in determining households' well-being: reductions in poverty and income inequality between 2000 and 2010 in Latin America were positively impacted by increases in women's income and labor force participation during the period. In addition, female employment has positive externalities on children; for instance, in households where women are the main income earners, school enrollment rates tend to be higher (World Bank 2012).

Given that women's attachment to the labor market plays an important role in households' welfare, policies that promote female labor force participation and employment are of paramount importance for economic development. Women's decisions to engage in the labor market are determined by multiple factors. Among the most relevant ones are those related to motherhood, which is one of the main determinants of inactivity among women, because it is often women who exit the labor force when they have children.

The possibility of reconciling work and family life can be affected by public policies that address this issue, directly or indirectly. For instance, lack of family-friendly employment policies in the United States explains almost 30 percent of the decrease in U.S. women's labor force participation in the past 25 years (Blau and Kahn, 2013), whereas in other countries, policies that support flexible work schedules have facilitated mothers' entry or re-entry into the labor market after child birth (Chioda et al. 2011, Del Boca 2002).

A common job market obstacle for mothers of school-aged children is a mismatch between school hours and work hours. This mismatch can be particularly important in families where both parents work, or for single-parent households—mostly headed by women. Access to child care, therefore, is relevant in mothers' employment decisions.

Among women with school-age children, lack of child care is one of the main reasons for not working and not seeking employment, so that policies that increase access to childcare should affect women's labor force participation. This relationship has been broadly studied for mothers of pre-school children: in the U.S., Gelbach (2002), Cascio (2009), and Fitzpatrick (2012) find that having access to public kindergarten in the U.S. increases mothers' labor supply, and Barua (2014) finds that these effects can be long lasting. Meanwhile, the existing empirical evidence for developing countries confirms that greater access to pre-school increases mothers' labor force participation (Berlinski and Galiani, 2007; Berlinski, Galiani and Mc Ewan, 2011).[1]

Within the context of this literature, much less is known about the effects of access to child care on labor supply of mothers of school-aged children, and to the best of our knowledge, no work has studied the effects of formal child care arrangements on the quality of mothers' employment.[2] In a context of labor market rigidities, such as where part-time jobs are not readily available, closing the gap between school hours and working hours and might allow mothers to access full-time jobs that would not be available otherwise. Since full-time jobs are typically

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[1] There are also some working papers for Latin America including Peña-Parga and Glassman (2004) for Colombia; Calderon (2012) for Mexico; and Aguirre (2012), Martínez and Medrano (2009), and Martínez and Encina (2009) for Chile.

[2] Recent work finds that childcare facilitates mothers' labor supply in Chile (Martinez and Perticara, 2017; Contreras and Sepulveda, 2016, and Berthelon, Kruger and Oyarzun, 2017).

correlated with higher quality employment, extending school hours may affect the decision to participate in the labor market, as well as the quality of jobs that women can access.[3]

This paper analyzes whether access to schools with longer daily school schedules affects the quality of mothers' employment. If hours of supervised child care arrangements increase, mothers are able to devote more time to job search activities, improving their match to offered job positions, and possibly accessing better jobs.[4] Here, we study the effect of an exogenous increase in the daily schedules in publicly funded schools in Chile, on the quality of mothers' jobs.

Increases to daily schedules were part of a nation-wide reform that extended yearly instruction time by about 35 percent without increasing the length of the yearly school calendar; throughout this paper we refer to this as the Full-Day School (FDS) reform.[5] The increase in the length of daily school schedules significantly reduced the gap between school and employed mothers' work hours, thus it is reasonable to expect that mothers responded by increasing their labor supply and by possibly accessing better jobs.

We analyze several measures of employment quality: wages (hourly), and categorical variables for whether the job is full-time, presence of a contract, whether the job is permanent, self-employment/business owner (employer), and size of firm where the mother works.[6] We also analyze the effect on labor supply, which has been studied elsewhere (see Martinez and Perticara, 2017; Contreras and Sepulveda, 2016; Berthelon, Kruger and Oyarzun 2017)).

Identification of the policy effects comes from exogenous changes in access to full-day schools at the municipal level. Due to data limitations, we are not able to identify the school that a child attends, thus the policy variable is access to full-day schools at the municipal level as a measure of exposure to the reform. Our key assumption is that trends in women's labor outcomes were independent from the implementation of the FDS reform at the municipal level. Although we cannot test this assumption directly, we present convincing evidence that it is met.

Previous studies that analyze the Chilean FDS reform have found positive effects on female labor force participation, employment, and hours worked (Contreras and Sepulveda 2016 and Berthelon, Kruger and Oyarzun 2017). The main contribution of this paper is that we extend the analysis of the FDS policy and study whether the reform impacted the quality of jobs that mothers accepted as a result of the reform. Our dataset in this paper is a large panel of about 2,600 women that were interviewed between 2002 and 2009, which allows us to estimate a panel data model that controls for individuals' unobserved heterogeneity, which is plausibly important determinant in employment decisions. These unobservable characteristics may include differences in attachment to the labor force and/or preferences regarding child care arrangements, and other time-invariant unobservable traits. Our paper focuses on women most likely to be

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[3] On the quality trade-off between full-time and part-time jobs see Hirsch (2005), Manning and Petrongolo (2008) and Bardasi and Gornick (2008).

[4] A similar channel has been proposed when assessing the effect of unemployment insurance and job quality (Acemoglu & Shimer, 2000; Van Ours & Vodopivec, 2008).

[5] The reform is referred to as JEC in Chile, due to the Spanish acronym of its official name, *Jornada Escolar Completa*, approved in law No.19,532. For most schools, this meant changing from a system of half-day shifts, to one continuous full-day schedule. A typical half-day schedule is from 8:00 a.m. until 1:30 p.m., while a typical full-day schedule runs from 8:00 a.m. until 3:30 p.m.

[6] The literature on job quality is vast. See, among others, Land (1975), Jencks et al. (1988), Gittleman & Howell (1994), Anker, et al. (2003), Bescond, et al. (2003) and Clark (2005).

affected by the policy, i.e., on mothers whose youngest child was in primary school during the period.

We find that on average, an increase in access to full-day schools increases mothers' labor supply and improves job quality. We find that if FDS coverage increases by 25 percentage points—equivalent to an increase in coverage of one standard deviation—mothers' labor force participation and employment would increase by 7 percent, which is consistent with previous findings.[7] We also find that this increase in FDS access would lead to an increase in hours worked of about 10 percent. The novel findings of our paper regard job quality: we find that increasing FDS access by 25 percentage points increases wages by 12 percent, and it also increases the likelihoods of full-time employment by 10 percent, of being employed with a contract by 14 percent, and of holding a permanent job by 7 percent. The effects on labor supply and wages are slightly greater among lower-education women, yet many of the beneficial effects on job quality are concentrated among higher-educated women.

Our results provide several contributions to the existing literature on the effects of child care policies on women's employment. First, we find evidence that polices focused on school-aged children in primary school have significant effects on mothers' employment outcomes. They also contribute to the growing literature and debate about on job quality and decent work (Findlay (2013) and ILO (1999)) by providing evidence that some school policies—although not aimed at improving or changing working conditions—may have significant effects of the quality of jobs that mothers are able to find, highlighting the importance of policies that allow a better match between schooling and working hours.[8]

This paper is organized as follows: in the next section we describe the Chilean education system and the FDS reform implemented since 1997. We discuss our identification strategy and the empirical model in Section 3. Data and variables are described in Section 4. Section 5 presents our results and Section 6 concludes.

2. Background: Chilean education system and the full-day school reform

Chile's education system is characterized by school choice. Until recent reforms that will take place in 2018, three types of school exist, defined by their funding scheme. First, there are *public* schools—administered at the municipal level that are funded by a per-student subsidy from the central government and from resources allocated by the municipality. Second, there exist *private subsidized* or *voucher* schools, which are privately owned, for-profit organizations that receive the same per-student subsidy from the central government as public schools, but which can charge additional fees to their students.[9] Third, there are *private* schools that do not receive public funding and are allowed to freely set the fees they charge. Private and private subsidized schools can select students but public (municipal) schools cannot.[10]

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[7] Previous studies on the effects of the FDS reform over LFP include Hernando (2009), Contreras and Sepulveda (2016) and Berthelon, et al. (2017).

[8] Our results are also consistent with preliminary results fund by Calderon (2012) in Mexico. We also contribute to the literature that characterizes job quality in Chile (Chacón, 1999; Sehnbruch, 2004; Cassar, 2010; Cáceres & Zúñiga, 2013).

[9] The fee charged to students is regulated and the government per-student subsidy is reduced as private fees increase.

[10] The recent reforms will mostly affect public subsidized (voucher) schools: as of 2018, to continue receiving the per-student subsidy, such schools may not charge additional fees and they may no longer select students. Schools

Another feature of Chile's education system—unlike public school systems in other countries—is that families are not restricted to a specific location or district because the per-student subsidy is independent of the family's municipality of residence. Families can enroll their children in the school of their choice, according to their preferences and financial capacity.[11]

Chile initiated a large-scale education reform in 1997 that included the increase of instructional time. This reform increased in the amount of time students spent in the classroom without lengthening the school year—in other words, increased the length of daily school schedules—and came to be known as the Full Day Schooling (FDS) reform. It mandated that all primary and secondary schools that receive public funds—public or private subsidized—must offer a full-day program by 2007 and 2010, respectively, and the change to full-day schedules could be implemented gradually within a school.[12] Additionally, the FDS law mandates that all publicly funded schools created after 1997 must initiate operations as full-day schools. Full-day 1st and 2nd grade is not mandatory.

The FDS reform stipulates that in primary schools—the focus of this paper—weekly academic hours have to increase from 30 to 38 hours in grades 3 to 6, and from 33 to 38 hours in grades 7th through 8th (García-Huidobro & Concha, 2009). To accomplish these goals there were also increases in time allocated to recesses and lunch, so daily time spent at school increased by about 1.5 to 2 hours, which represents an increase of around 35 percent.

The increase in time children stay at school presented operational challenges as many schools had to move from providing two half-day shifts to one full-day shift. Infrastructure and financial constraints forced the reform to be implemented gradually. Figure 1 shows the gradual move towards FDS for primary school enrollment. Only after 9 years enrollment in FDS schools surpassed enrollment in traditional school schedules, and by 2009—13 years after the launching of the reform—FDS coverage had reached only 66 percent of total primary school enrollment.

The implementation of the reform has operational and infrastructure costs. Operational costs includes variable costs that increase as a result of lengthening of the school day; for example, teachers' salaries, administrative costs, and the provision of school lunches. To cover operational costs, the per-student subsidy regularly paid to all public and voucher schools was increased by 40%. In terms of infrastructure costs, they appear as an expansion of schools' infrastructure was required to accommodate, in many cases, twice the number of students at any given time. Schools participated in a competitive process in which they applied for infrastructure funds from the Ministry of Education. In this process, they were required to submit their academic plans and they could request funds for infrastructure expansion to operate under the full day regime. The Ministry of Education allocate their funds according to several criteria, one of them being the socio-economic or educational vulnerability of the school's student.[13] Therefore,

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that wish to continue to charge fees and discriminate students will begin to operate as private schools and will not receive public funds.

[11] Strictly, place of residence in not bound to school choice, although there is empirical evidence that school proximity is an important determinant in parent´s choice of school (Chumacero, et al., 2011).

[12] Schools switching to the FDS regime did not have to change all grade levels to full-day schedules. For instance, it was possible for a primary school to offer FDS for 5th through 8th grades, and not for 3rd and 4th grade. However, if a grade level is full-day, all its classrooms within that grade level have to be offered as FDS. Full-day 1st and 2nd grade is not mandatory.

[13] Law No. 19.532 of 1997 indicates that the Ministry of Education will grant schools authorization to operate under the full-day regime and also, through special competitive programs, will provide funds to schools that require additional resources to implement the FDS schedule. The Law also states that in granting both authorizations and

given the limited resources and the infrastructure constraints, the first schools that entered the program were schools with relatively low switch costs (i.e., rural schools with excess capacity) and priority schools with pre-existing deficits in infrastructure and located in areas of socio-economic vulnerability.[14]

Although improving access to child care was not an explicit goal of the policy, by increasing the time that children spend in school and the number of hours they receive adult care, the FDS policy was an implicit child care subsidy for school-aged children, which may impact the employment decisions of their mothers. Since mothers with children in primary school report lack of child care as an important determinant of inactivity (see Table 1), we would expect that the FDS policy would lead to an increase in women's participation and also to improvements in the quality of jobs they access.[15]

Identification in our empirical estimations relies on the fact that the school system is highly decentralized, and therefore the FDS program was taken up at different rates across Chilean administrative regions and municipalities. Table 2 reports the average share of primary schools that were under a full-day regime in Chile's thirteen administrative Regions. Several features of the policy immediately stand out. First, there has been a sustained increase in full day school coverage in all regions. Second, there is also a large variability in reform take-up across regions, and third, there is an inverse relationship between enrollment and FDS implementation. The Metropolitan Region (XIII), where Santiago is located, was home to 36 percent of Chilean primary school students in 2009, yet there the reform was slowest—with 75 percent take-up—mainly because schools in this predominantly urban area face larger physical space constraints or higher costs of expansion of their infrastructure. The fastest implementation occurred in the sparsely populated XI, X and III Regions, comprised mostly of rural areas and small cities and where a total of 12 percent of primary school students reside. In each of these regions, more than 95 percent of primary schools were full day by 2009.

Given that there are more than 330 municipalities in Chile, in Table 3 we report the fraction of all 334 municipalities in the country which fall within different ranges of FDS implementation. As expected, we observe an increase over time in the share of municipalities reaching high levels of coverage, and a decrease in the number of municipalities with low coverage levels. More importantly, for our estimates, it also shows that there is a wide variation of FDS implementation levels at any given year, particularly for the years in which we compute our estimates. This feature can also be seen in Figure 2, which presents a map of the depth of FDS implementation across municipalities between 2002 and 2009. These descriptions reveal that the reform's phase-in had significant temporal and municipal variation. Our identification strategy is partly based on the quasi-experimental nature of its implementation.

3. Identification Strategy and estimation

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funds the Ministry might use one or more of the following four selection criteria: a) Socio-economic or educational vulnerability of the school's students; b) Amount of resources requested on a per-student basis; c) Quality of the proposal with regard to technical, pedagogical, economic and social specifications; and d) Percentage of total requested funding that would be covered by the school's own administration.

[14] In section 3 we discuss how the non-random funds allocation rules may affect our empirical strategy.

[15] Although the reform was implemented in both primary and secondary schools, we focus only on the impact of primary FDS availability, as lack of child care is not as relevant a concern to mothers with children in secondary school (see Table 1).

Before discussing our identification strategy, we discuss properties of our data and of the FDS reform that play a crucial role in determining the estimation methodology. A first issue is related to our data set. Chile's Social Protection Survey (EPS), which is the source of our labor market outcomes, does not include information of the school that children attend, so it is not possible to estimate the direct effect of attending an FDS school on mothers' employment outcomes. Therefore, the policy variable we analyze is potential access, measured as availability to FDS schools at the municipal level.[16]

One concern could be that due to family school choice in Chile, parents are not limited geographically in their choice of school so that FDS availability in the municipality of residence may not reflect parents' choice set; however, studies for Chile have found that proximity is an important determinant of school choice, and that most children attend primary school in the municipality they live (Chumacero, et al., 2011), so that access to full day schools in the municipality of residence is an appropriate proxy.[17] One advantage of this measure is that FDS coverage at the municipal level is exogenous to each family—whereas actual school choice is not—provided that FDS access at the municipal level is not correlated with families' choice of residency, which is corroborated in Berthelon et al. (2017) who find that mothers' migration decisions were uncorrelated with municipal FDS coverage.

Another relevant aspect of the identification strategy is the non-random nature of FDS funds allocation. As indicated previously, each school was allowed to apply to the Ministry of Education for authorization and/or funding to become an FDS school, and after a sorting and selection process, funding was allocated.[18] Thus, one concern is that since FDS funds were targeted to more vulnerable schools, the estimates of its effect might be biased. For instance, schools in a municipality with a disproportionately large fraction of socio-economically vulnerable students might obtain funding for implementing the FDS reform. At the same time this municipality may also experience poor female labor market outcomes due to economic conditions, which in turn increases the vulnerability of its population. In this case, we would observe a negative correlation between FDS access and female labor outcomes.

However, there are two relevant characteristics of the Chilean school system that make this spurious correlation unlikely. First, the school system in Chile is highly decentralized, with school districts defined at the municipality level. Each school district is operated in complete independence of other school districts. Second, within each school district principals operate with a high level of decentralization in both the public system (municipal schools) and private subsidized system. Within the public system, principals have gained increasing levels of autonomy (Núñez, et al., 2010) and within the private subsidized system, more than 70 percent of schools operate as single standing schools, i.e., they do not operate within a franchise, and therefore the school principal's decisions are not coordinated with other schools—either within the school district or with schools in other school districts (Elacqua, et al., 2011). The combination of these two characteristics introduce—once all school decisions are aggregated at the municipal level—a large variation in the take up rate across municipalities and time (see

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[16] The municipality is the smallest geographical level in our data.

[17] Approximately 11% of 4th grade students went to school in a municipality different from their place of residence in 2009 (SIMCE questionnaires, *Agencia de Calidad de la Educación*).

[18] To our knowledge there is no available data that would allow us to model how schools decided to apply for authorization and funds, nor how funds allocation decisions were carried out at the Ministry level.

previous section); therefore we are confident that in this sense the FDS reform resembles a quasi-natural experiment.

To explore whether FDS take up is determined by labor market outcomes, we estimated a regression of the determinants of FDS take up. We constructed a panel of municipality-level data that includes the policy's take up between 1997 and 2009, as well as socio-economic variables and municipal-level measures of women's employment. The dependent variable is the average share of primary schools under the FDS regime. As control variables we included the previous year's FDS take-up rate, primary school enrollment in the municipality, and a set of variables that capture the municipality's socio-economic conditions: the municipality poverty rate, average adult educational attainment (a proxy for longer term, more permanent income), the municipality employment rate, share of municipal rural population, male and female labor force participation rates, and region-year fixed effects to capture regional differences across time.[19] Results of these estimates reveal that the policy take up was higher in municipalities with lower enrollment, and that the policy had higher implementation in areas with higher poverty rates, providing supportive evidence that FDS program funds may have been targeted towards poorer areas.[20] Results also suggest that FDS take-up rates were not correlated to municipality employment characteristics, which eases our concern of a biased estimate of its effect on mothers' participation. Nonetheless, our estimates will control for the possibility that the program followed different trends in municipalities that had initially lower levels of employment (we describe our approach in greater detail in the following section).

Identification Strategy

We estimate a reduced-form panel data model of female labor supply and employment quality, controlling for individual woman fixed effects. The fixed effects allow us to control for time-invariant, individual characteristics, including unobservable traits that may jointly affect employment outcomes, choice of residency and the unobserved choice of school. In our fixed-effects model, therefore, the effect of access to longer school schedules on job quality is identified through exogenous, within-individual changes in FDS access.

Identification in our model hinges on the quasi-experimental nature of the policy implementation—i.e., that implementation was not correlated to women's employment decisions. Given the dynamics of the Chilean school system—which are the results of the aggregation of highly independent school decisions—we believe that this assumption is reasonable. Additionally, given the criteria in the allocation of public FDS funds (discussed above), there is no evidence that schools received them in response to changes in the local female labor market. Even though we cannot test these assumptions explicitly, our estimates follow the approach in Duflo (2001) by controlling for pre-existing trends in female employment rates, as well as for other municipality characteristics that can affect labor outcomes and that are independent of FDS implementation. The basic model we wish to estimate is the following:

$$Q_{imrt} = \theta \text{FDS}_{mrt} + X_{imrt}\beta + M_{mt}\mu + \alpha_i + \tau_{rt} + \delta_t D_{mr} + \epsilon_{imrt} \qquad (1)$$

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[19] We use Chile's CASEN Household Surveys as the source of data for these variables. CASEN is used to construct time-varying municipal-level variables.

[20] Results not shown, available upon request.

where the dependent variable Q_{imt} represents an indicator of labor force participation or indicators of job quality (described below) for woman i living in municipality m and region r in year t. The policy variable of interest, FDS_{mrt}, measures the share of full-day primary schools in municipality m and region r in year t.[21] We also control for time-varying individual characteristics in vector X_{imrt}, and municipality-level characteristics in vector M_{mrt}.

As we are using panel data, we include an individual-level fixed effect, α_i, which allows us to control for individual unobserved heterogeneity both in the labor participation and employment decisions. We also include region-time fixed effects, τ_{rt}, to control for regional trends in labor force participation as well as quality of jobs.

We account for pre-existing trends in the labor market by interacting year fixed effects (δ_t), with a dummy variable that defines a municipality as "low" LFP if its LFP rate in 2000 was below the median (D_{mr}). These interaction terms cleanse the estimated FDS effect of any differences in female labor force participation trends across municipalities that may have been in place prior to the first EPS survey. Finally, ϵ_{imrt} is an idiosyncratic error term.

4. Data and variables

Our main source of information comes from Chile's Social Protection Survey, which we denominate as EPS for its Spanish acronym.[22] The EPS has several rounds available (2002, 2004, 2006, and 2009) and collects detailed information of respondents' current labor status and labor history, as well as other socio-economic characteristics. From this data source we obtain individual information for our dependent variables on labor supply and job quality (Q_{imt}) and mothers' socio-economic characteristics (X_{imrt}).

Given that mothers of primary school children report lack of child care is one of their main constraints in accessing the labor market (see Table 1), we restrict our sample to women that were potentially affected by the FDS policy, i.e., women whose youngest child is of primary school age in at least one period of the data. In addition, we only include in our sample women aged 25 to 55, to avoid the possible correlation between women's education and retirement decisions. We also limit our sample to mothers that lived in the same municipality during the period analyzed to avoid the possible correlation between the policy implementation and the choice in municipality of residence.[23] Our final sample is an unbalanced panel of more than 2,600 women (the number of observations varies with each outcome variable).

Since we observe the women in the panel over (up to) a 7-year period, they may not be affected by the FDS policy in every year they are surveyed, because their youngest child may be younger than 6 in some of the survey years.[24] To identify the effect of FDS access on mothers' employment outcomes, we interact our measure of FDS availability in a given year with a

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[21] Our data also allows us to measure total enrollment under FDS: However, we believe that parents' choice is affected by the availability of schools under the FDS regime rather than the aggregated enrollment at the municipality level: the availability of FDS schools is observed by parents but aggregated enrollment is not.

[22] The survey's name is *Encuesta de Protección Social*.

[23] We also estimated all our regressions including women who migrate and results are unchanged. In Berthelon et al. 2017, we analyzed whether migration decisions were impacted by availability of FDS schools and found that they were not.

[24] We drop women from the sample if their youngest child is 14 or older because child care is not one of the main concerns for mothers once children enter secondary school (see Table 1).

dummy variable that equals one if the youngest child is of primary school age that year. Thus, the empirical model we estimate is the following:

$$Q_{imrt} = \theta \text{FDS}_{mrt} + \gamma(\text{FDS}_{mrt} \times PSAge_{imrt}) + X_{imrt}\beta + M_{mt}\mu + \alpha_i + \tau_{rt} + \delta_t D_{mr} + \epsilon_{imrt} \quad (2)$$

Here, the variables are as defined above, and $PSAge_{imrt}$ is a dummy variable that equals 1 if the youngest child is aged 6-13 in year t. The total effect of longer school schedules is θ when the mother's youngest child is in primary school and $(\theta + \gamma)$ when (s)he enters the primary school system. Identification, therefore, comes from exogenous municipal-level variation in the availability of full-day primary schools, and from within-mother variation in the child's age, which determines the timing of policy exposure. Our regression results tables present estimates of θ and γ in equation (2), as well as results of a test of joint significance of these parameters.

We construct three measures of labor supply—participation, employment, and weekly hours worked—to compare our results to previous evaluations of the FDS reform.[25] We also construct several measures of job quality and formality that are widely accepted in the existing literature: hourly wage (in logs), and categorical variables for whether the job is full-time, presence of a contract, whether the job is permanent, whether the worker is a business owner, and categorical variables for size of the firm where the woman works: small (less than 10 employees), medium (between 10 and 199 employees), and large firms (200 or more employees).

We also construct measures of women's individual characteristics that may affect her decision to participate in the labor market: years of education, age and age squared, and family demographics (number of children that are of pre-school, primary and secondary-school or university age). The individual fixed effects of our estimates control for unobservable characteristics—such as work or fertility preferences—that are related to her decision to enter the labor force and the type of jobs they prefer.

FDS availability at the municipal level is obtained from administrative school data that contains detailed yearly information on full day enrollment within a school. The FDS program does not require schools to implement full days for all their grade-levels, instead schools seeking to participate in the program were only required to offer FDS to all classrooms of the same grades.[26] We defined a school as full-day if at all its grade levels were functioning under the FDS scheme, and estimate the share of FDS schools in a municipality for all years of the EPS survey. Chile's CASEN Household Surveys provided time-varying municipal-level variables (vectors M_{mrt} and D_{mr}), including average adult educational attainment, male and female labor force participation rates, municipal male and female employment rates and municipal poverty rate.

Table 4 reports summary statistics of all variables in our sample, for each year and the period's average. Approximately 74 percent of mothers participated in the labor force during the period,[27] while 62 percent were employed and they worked an average of 27 hours per week.[28] It

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[25] Contreras and Sepulveda (2016) and Berthelon et al. (2017).

[26] For instance, a school that had two classes per grade could choose to enter only grades 3rd to 8th, provided that both classes in each grade were offered as full-day.

[27] The observed difference (decrease) between 2002 and 2004 is due to the fact that in 2002, the population contributing to the country's pension system (working women) was over-sampled. Later rounds of the survey are representative of the whole population.

[28] This includes mothers that do not work because we are interested in analyzing how the policy affects participation and the quality of employment mothers can access. Conditional on being employed, mothers work 42 hours per week, slightly below the legal 44-hour work week.

is interesting to point out that hours worked decreased consistently over time, which is due to a 2005 law that reduced a legal work week from 48 to 44 hours. About 47 percent of mothers have full-time employment and 47 percent have a formal contractual arrangement; 47 percent have a permanent job (either with or without contract) and 11 percent are self-employed or own their business. Lastly, over the whole period 26 percent of women declare having worked in a small firm, 23 percent in medium-size firms and 17 percent in large firms.

Regarding our policy variable of interest, the mothers in our sample live in municipalities where on average 25 percent of primary schools have all their courses under the FDS regime and 50 percent of primary school enrollment attends Full-Day Schools. Coverage increased during the 2002-2009 period: the average municipal share of FDS schools increased from 19 to 37 percent, and average share of FDS enrollment increased from 34 to 66 percent. Also, in our sample mother's average age is almost 38 years, and the average education attainment is 10.7 years. The average mother lives in a municipality with a poverty rate of 16 percent and unemployment rate of 9 percent.

5. Results

We estimate equation (2) for each of our labor supply and job quality measures using two measures of FDS access: share of schools with all courses with full-day schedules, and share of FDS enrollment in the municipality. Table 5 presents results of the effects of FDS access with both measures (panels A and B, respectively); results with both measures of FDS access yield similar results; for ease of exposition, we will discuss results of Panel A only.

We find that increases in access to FDS schools increased mothers' labor force participation and employment, which is similar to the earlier findings in Contreras and Sepulveda (2016). This is reaffirming evidence as to the policy's effect, because our data set and empirical model are different from their earlier paper.[29] In contrast to their results, we find a large and positive effect of FDS access on hours worked by mothers: our point estimate for indicates that if the share of FDS schools in a municipality increases by 1 (or 100 percentage points), then mothers of primary school children will work 10 additional hours per week (Table 5, column 3). To put this result in relevant context, an increase of 25 percentage points in FDS (equivalent to one standard deviation of 2009 coverage) would lead to a predicted increase in weekly hours worked of 2.5 hours, or 10 percent.[30]

Columns 4 to 11 of Table 5 report our results of the estimated effect of FDS access on mothers' employment quality. Beyond the positive effects on mothers' labor supply, we find that greater access to FDS schools had a positive effect on several measures of mothers' employment quality: increasing FDS coverage by 25 percentage points would lead to a predicted increase of 12 percent in mothers' hourly wage. Additionally, the same increase in FDS coverage would increase the likelihood of full-time employment, of being employed with a formal contract and holding a permanent job by about 11, 14 and 7 percent, respectively. We don't find any impact of the policy on the likelihood of being self-employed or owning a business, nor on firm size,

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[29] Contreras and Sepulveda (2016) used repated rounds of CASEN household surveys and identified the effect of the policy comparing mothers of 8-14 year old children to mothers of 6-7 year olds.

[30] The marginal effect reported is estimated relative to the average weekly hours that women worked, and is obtained by multiplying the point estimates (0.35+9.69=10.04) by 0.25 and dividing by the average of the dependent variable (26.5).

though point estimates suggest that the policy helps mothers find employment in small and medium-sized firms.

Our main results suggest that greater access to the child-care provided by schools not only facilitates mothers' entry into the work force and greater hours supplied to the labor market—i.e., the extensive and intensive labor supply margins—but that child-care also allows women to enter into jobs that are of better quality. Mothers are able to be employed in higher-paying jobs, and they are more likely to hold jobs that have a higher degree of formality. It is possible that if children spend more hours in school, mothers are able to carry out a more successful job search. Another possibility is that since the labor market is very rigid and in Chile and part-time employment is uncommon (Rau, 2010), the reduced need for child-care arrangements outside of school extends the feasible set of jobs that mothers could access due to the availability of a full-day school.

Heterogenous effects?

We are interested in studying whether effects of the policy were different for lower- vs. higher-income mothers. We proxied for a woman's permanent income with her education level in the first year she was interviewed and defined two groups: mothers who had completed 12 or fewer years of schooling (equivalent to a high school degree or less) and mothers that had completed 13 years of schooling or more (equivalent to having ever completed at least one year of higher education). We present results for lower vs. higher education mothers in Panels A and B of Table 5, respectively. Henceforth, we will compare the marginal effects of the policy, by calculating marginal effects following the methodology described in the pervious section.

We find that the effect of access to full-day schools on the likelihood of employment is larger for lower-education women: an increase of 25 percent in access to FDS schools leads to an increase of 9 percent in the likelihood of employment, compared to an increase of 4 percent among higher-education mothers. The impact on hours worked is larger in absolute and relative terms for more-educated mothers, as is the impact on the likelihood of having a job with a contract and permanent employment. It appears, therefore, that many of the positive effects of the policy on employment quality are concentrated among mothers with higher levels of initial education.

Does FDS provide childcare?

To explore whether the policy affects mothers' employment outcomes through increasing the number of hours that children spend under schools' supervised care, we estimated equation (2) for groups that would respond differently to the policy: women without children of primary school age (i.e., either mothers of older children or non-mothers) and men. The availability of full-day primary schools should not affect mothers of older children because they do not benefit. Men, on the other hand, should have a smaller or no reaction to the policy because women are the primary care-takers of children in Chile. It is also possible that men's labor supply decreases in response to the policy because mother's greater employment in better jobs can facilitate more leisure among men. Results for these two groups are found in Panels A and B of Table 7.

We do not find effects of the FDS policy on labor supply or employment quality of women that do not have children in primary school (Panel A). Also, we find that the policy

slightly reduced men's labor supply: likelihood of participation and employment would decrease by 0.2 and 2 percent, respectively, with an increase of 25 percent of FDS coverage, whereas hours worked per week would decline by about 1.5 hours, equivalent to a reduction of 3 percent in the intensive margin. The quality of their jobs was not affected by the policy. These findings are suggestive that the policy has provided much needed child care among Chilean mothers, at least when their children are young.

6. Conclusions

The present study analyzes the effect that a national school reform in Chile that extended the school day from half to full day schedules, had on mothers' labor supply and quality of employment. We study mothers that were most affected by the policy: mothers whose youngest child was of primary school-age in at least one of the years she was interviewed. This group of mothers is affected by the FDS policy—it affected primary and secondary schools only—and reports lack of child care as an important reason for not participating in the labor market. Our identification strategy relies both on the exogenous changes in availability of full-day primary schools across time, and on whether the mother's youngest child was in primary school in a given year. We confirmed the quasi-experimental implementation of the policy across time and municipalities during the 2002-2009 period, or that it was at least not affected by mothers' employment outcomes.

Our estimates indicate that mothers responded to increases in access to FDS schools by increasing their labor supply. Increases of FDS access of 25 percentage points would lead to increases in mothers' LFP and employment of about 7 percent, a sizable effect. Mothers would also increase the hours worked per week by 10 percent as a response to the policy. We also find that mothers not only work more, but they work in better jobs as a response to the policy: they earn higher wages, and they are more likely to hold jobs that are full-time, that have a contract, and that are permanent. Many of the benefits in terms of employment quality are concentrated among higher-educated mothers.

Our results are contribute to the literature by finding that policies that expand child care for school-aged children have positive effects on the quality of jobs that mothers are able to access, due to the implicit child care subsidy provided by longer school schedules. Mothers plausibly have more time to engage in a more successful job search, and the options of jobs to which they can apply is amplified.

These findings are novel and complement our understanding of how child care affects mothers' labor supply and job quality. They suggest that longer school schedules not only benefit children's academic achievement, but that they may play an important role in reducing within-household gender inequality (through higher maternal incomes), and in improving household incomes and overall family welfare, which provides further evidence of the benefits of policies that extending schools schedules.

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Figure 1
Primary school enrollment 1990-2009
By length of school day (millions of students)
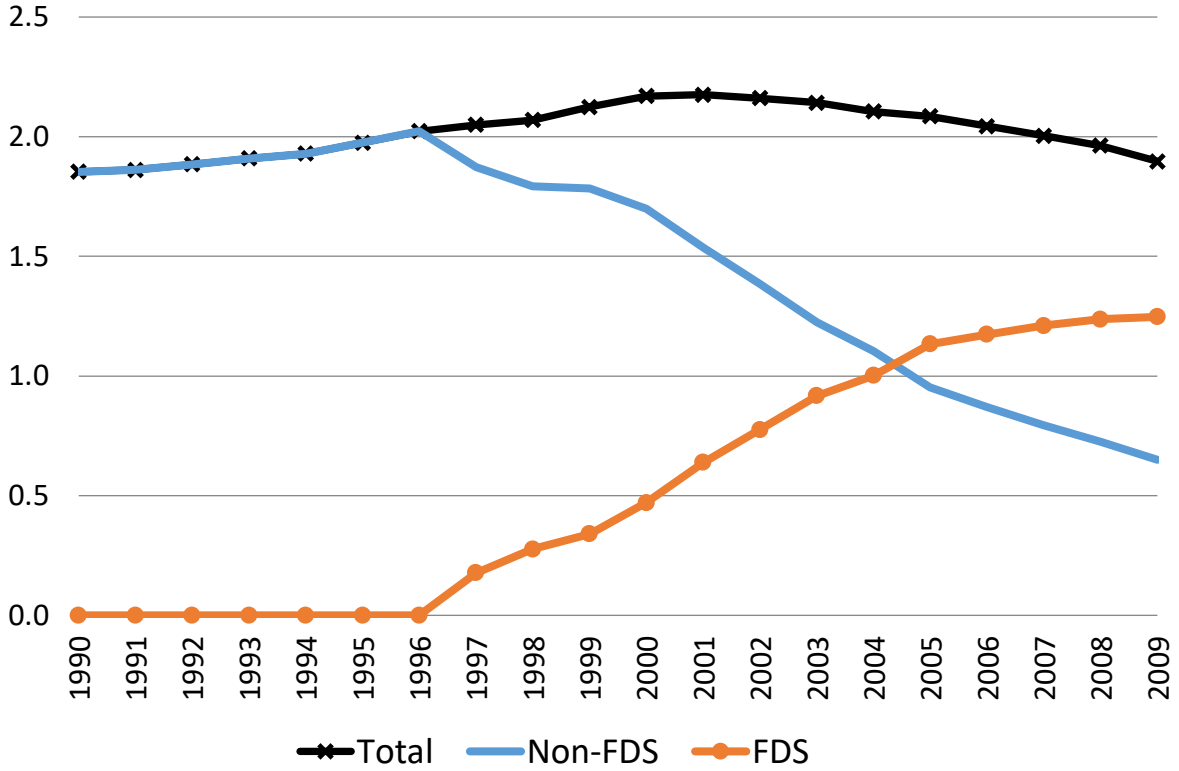
Source: Authors' estimates based School Directory/Administrative JEC data

Figure 2
Evolution of Municipal Share of Primary schools under FDS regime, 2002-2009
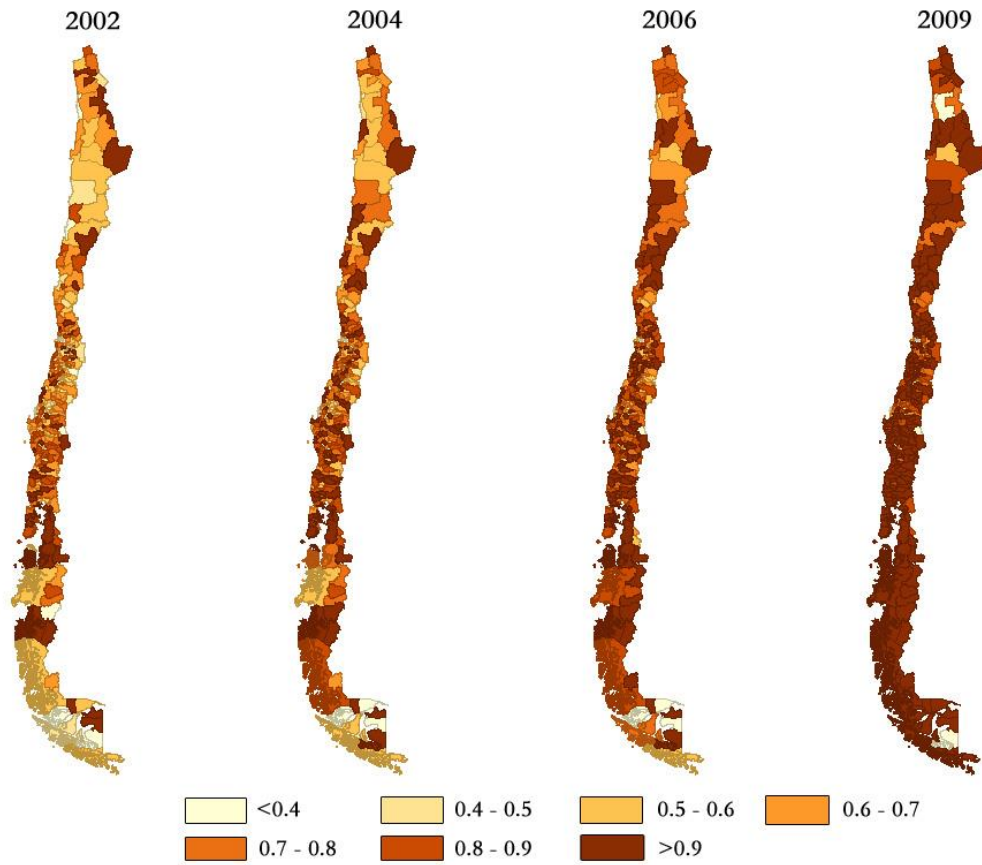
Source: Authors' estimates based School Directory/Administrative JEC data (MINEDUC).

Table 1

Main reason mothers do not participate in labor force

	Mother whose youngest child is of:		
Reason	Pre-school age	Primary school age	Secondary school age
Household chores	39%	54%	63%
Lack of childcare	49%	25%	4%
Not interested	3%	4%	1%
Other reasons	9%	17%	32%
Total	100%	100%	100%

Source: Authors' estimates from CASEN 2009. Includes mothers aged 25-55 years who are inactive in the labor force. Pre-school age: 0-5 years; primary school age: 6-12 years; secondary school age: 13-18 years.

Table 2

Primary schools under FDS regime, 1997-2009 (% of total number of schools), by Region

Region	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Primary Enrollment in 1997 (% total)
I	43	40	48	61	59	67	74	65	75	75	80	71	88	3%
II	38	42	44	48	55	65	70	73	79	82	84	87	89	3%
III	47	50	55	62	64	67	77	81	83	89	88	91	95	2%
IV	36	42	43	50	56	63	68	72	74	76	78	82	87	4%
V	24	32	40	48	53	63	69	73	78	79	81	84	85	10%
VI	25	33	34	41	51	59	65	71	76	80	83	86	89	5%
VII	32	39	43	45	51	59	64	68	71	75	80	83	89	7%
VIII	28	34	39	46	52	60	64	65	70	74	76	79	83	13%
IX	47	53	60	64	68	71	74	77	79	80	85	87	94	7%
X	55	66	68	72	73	77	78	81	83	84	86	88	96	8%
XI	41	46	56	61	67	70	87	86	90	93	94	94	99	1%
XII	33	35	39	50	47	56	56	65	59	65	68	64	81	1%
XIII	11	16	21	27	37	41	49	54	61	65	68	72	75	36%
Regional Ave.	**32**	**39**	**43**	**49**	**55**	**61**	**66**	**70**	**74**	**77**	**79**	**82**	**87**	**100%**
National Total	**27**	**33**	**37**	**44**	**50**	**56**	**62**	**66**	**70**	**74**	**76**	**79**	**84**	**100%**

Source: Authors' estimates from administrative data, Ministry of Education. Share of schools with at least 50 percent of all their grade levels under the FDS regime. Includes schools that receive public funds (municipal and voucher schools, represent 92% of total enrollment nationwide). Primary enrollment shares by region are shown only for 1997 as they remain relatively constant across the period. Years shadowed are those included in our estimates. Santiago, the capital city, is located in the XIII region.

Table 3

Percentage of municipalities by share of FDS implementation, 1997-2009.

Share of schools within municipality under FDS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0-9	22,8	12,6	9,3	5,4	3,3	2,4	1,2	0,9	0,6	0,6	0,6	0,9	0,6
10-19	12,6	13,5	13,2	7,8	3,6	1,8	0,9	0,9	0,0	0,0	0,0	0,0	0,0
20-29	14,1	12,9	11,7	14,4	11,1	4,8	3,0	2,1	1,2	0,9	0,6	0,6	0,3
30-39	12,6	13,2	12,9	8,7	9,9	10,2	7,8	5,1	2,7	1,5	0,9	0,9	0,6
40-49	8,4	12,6	11,7	13,5	13,2	10,8	9,9	9,0	6,0	3,6	3,0	2,4	0,9
50-59	5,4	7,5	9,3	9,3	14,4	12,3	13,2	11,7	10,5	11,1	9,3	5,1	3,0
60-69	8,1	7,8	10,2	9,9	9,6	15,3	12,9	15,9	20,1	14,7	13,8	14,6	9,6
70-79	2,1	6,6	7,8	11,4	12,3	15,9	21,0	18,6	15,6	20,4	17,4	19,1	12,2
80-89	0,6	1,5	1,8	3,6	7,8	10,8	12,6	15,6	20,4	21,9	22,8	23,0	16,4
90-100	13,5	12,0	12,3	16,2	15,0	15,9	17,7	20,4	23,1	25,4	31,7	33,4	56,4
	100	100	100	100	100	100	100	100	100	100	100	100	100
Number of municipalities	334	334	334	334	334	334	334	334	334	334	334	335	335

Source: Authors' estimates from administrative data, Ministry of Education. Includes schools that receive public funds (municipal and voucher schools, represent 92% of total enrollment nationwide). Years shadowed are those included in our estimates.

Table 4: Summary Statistics

Variable	2002-2009 N = 7,202		2002 N=2,003		2004 N = 2,085		2006 N = 1,773		2009 N = 1,341	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev.	Mean	Std. Dev
Participation	0.736	0.441	0.836	0.371	0.671	0.470	0.738	0.440	0.684	0.465
Employed	0.620	0.485	0.719	0.449	0.555	0.497	0.613	0.487	0.582	0.493
Hours worked/week	26.5	23.6	32.0	22.6	24.3	24.2	25.5	23.7	23.3	22.8
(Log) wage/hr.	3.40	3.50	3.58	3.47	3.29	3.48	3.33	3.53	3.37	3.53
Full-time job	0.473	0.499	0.556	0.497	0.432	0.495	0.460	0.499	0.427	0.495
Has contract	0.428	0.495	0.532	0.499	0.376	0.485	0.398	0.490	0.391	0.488
Permanent job	0.486	0.500	0.599	0.490	0.421	0.494	0.457	0.498	0.457	0.498
Own business	0.105	0.306	0.114	0.318	0.082	0.274	0.126	0.332	0.098	0.298
Small firm (1-9 workers)	0.262	0.440	0.332	0.471	0.237	0.425	0.253	0.435	0.211	0.408
Medium firm (10-199 workers)	0.230	0.421	0.306	0.461	0.195	0.396	0.223	0.416	0.179	0.383
Large firm (200+ workers)	0.166	0.372	0.235	0.424	0.138	0.345	0.144	0.351	0.133	0.340
Share FDS schools in municipality	0.254	0.201	0.194	0.154	0.235	0.180	0.255	0.180	0.371	0.261
Share FDS enrollment in municipality	0.495	0.200	0.342	0.171	0.473	0.178	0.572	0.153	0.655	0.149
Mother's education (years)	10.7	3.4	11.0	3.4	10.5	3.4	10.6	3.4	10.8	3.2
Mother's age	37.5	7.3	36.0	7.2	37.1	7.4	38.1	7.1	39.3	6.8
Number of pre-school aged children	0.34	0.54	0.49	0.64	0.36	0.54	0.26	0.46	0.18	0.41
Number of primary school aged children	1.11	0.67	1.04	0.74	1.10	0.68	1.15	0.64	1.16	0.56
Number of secondary school aged children	0.42	0.63	0.34	0.59	0.42	0.65	0.45	0.65	0.48	0.64
Number of university aged children	0.34	0.70	0.20	0.53	0.31	0.65	0.42	0.78	0.51	0.84
Municipality ave. education (years)	9.9	1.2	9.9	1.3	10.0	1.3	9.9	1.2	10.0	1.1
Municipality poverty rate	0.178	0.075	0.198	0.077	0.192	0.079	0.156	0.066	0.154	0.064
Municipality rural pop.	0.141	0.220	0.133	0.219	0.144	0.223	0.142	0.218	0.148	0.219
Municipality male labor force participation rate	0.727	0.044	0.733	0.038	0.732	0.047	0.728	0.041	0.707	0.045
Municipality female labor force participation rate	0.412	0.072	0.400	0.073	0.416	0.075	0.420	0.072	0.413	0.063
Municipality male employment rate	0.919	0.029	0.909	0.032	0.919	0.029	0.933	0.024	0.919	0.025
Municipality female employment rate	0.880	0.039	0.876	0.043	0.875	0.042	0.890	0.033	0.879	0.033
Municipality had low female LFP in 2000	0.149	0.357	0.134	0.341	0.156	0.363	0.153	0.360	0.157	0.364

Source: EPS panel (2002-2009), CASEN surveys, and administrative data from the Ministry of Education. Sample includes mothers aged 25-55 with a youngest child of primary-school age during the 2002-2009 period.

Table 5: Effect of full-day schedules on quality of mothers' employment (Individual fixed-effects)

VARIABLES	Labor supply			Employment quality							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
			Hours worked/ week	(Log) Wage/hr.	Full-time job	Has contract	Permanent job	Owns business	Small firm	Medium firm	Large firm
	Participate	Employed									
A. FDS schools											
Access to FDS schools (θ)	0.0842	-0.0712	0.346	0.463	0.0187	0.0439	0.0193	0.0287	0.0105	-0.0350	-0.145*
	(0.121)	(0.105)	(4.636)	(0.838)	(0.0976)	(0.0940)	(0.0982)	(0.0641)	(0.107)	(0.123)	(0.0754)
Access to FDS schools x Child in primary school (γ)	0.139***	0.250***	9.693***	1.221**	0.182***	0.193***	0.120*	-0.0139	0.0504	0.115*	0.0832**
	(0.0491)	(0.0634)	(2.855)	(0.514)	(0.0612)	(0.0674)	(0.0623)	(0.0345)	(0.0610)	(0.0613)	(0.0406)
R-squared	0.045	0.042	0.041	0.043	0.026	0.038	0.035	0.023	0.039	0.031	0.026
F-test of joint significance (p-value)	0.005	0.000	0.001	0.003	0.006	0.004	0.052	0.874	0.573	0.159	0.042
Mean - Dependent Variable	0.736	0.62	26.5	3.4	0.473	0.428	0.486	0.105	0.262	0.23	0.166
% outside 0-1 range (LPM models)	0.091	0.045			0.005	0.009	0.003	0.083	0.067	0.108	0.129
B. FDS enrollment											
FDS enrollment (θ)	0.0372	-0.107	-1.692	-0.107	0.0291	-0.150	-0.0559	0.0583	-0.0722	0.00747	-0.0868
	(0.0854)	(0.0956)	(4.246)	(0.656)	(0.0858)	(0.0996)	(0.0967)	(0.0694)	(0.0826)	(0.0860)	(0.0671)
FDS enrollment x Child in primary school (γ)	0.166***	0.272***	9.765***	1.101***	0.154**	0.156**	0.149**	0.0169	0.112**	0.0839	0.0535
	(0.0524)	(0.0669)	(2.985)	(0.416)	(0.0630)	(0.0682)	(0.0645)	(0.0421)	(0.0534)	(0.0561)	(0.0427)
R-squared	0.046	0.042	0.041	0.042	0.026	0.037	0.035	0.023	0.039	0.031	0.026
F-test of joint significance (p-value)	0.003	0.000	0.005	0.030	0.023	0.062	0.068	0.600	0.115	0.259	0.284
Mean - Dependent Variable	0.736	0.62	26.54	3.397	0.473	0.428	0.486	0.105	0.262	0.23	0.166
% outside 0-1 range (LPM models)	0.091	0.053			0.009	0.026	0.004	0.082	0.068	0.116	0.111

Robust standard errors in parentheses. Errors clustered at the municipality level. ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively. Sample includes mothers aged 25-55 years whose youngest child was of primary school-age in some period of the panel. Number of observations = 7,202; number of women in panel: 2,674. Access to FDS schools = share of schools that are full-day in municipality; child in primary school = 1 if youngest child is aged 6-13 years. Other controls: mother's years of schooling, mother's age (and age squared), number of children of pre-school, primary, secondary, and higher-education age; municipality averages: education, poverty rate, rural population (%), male and female employment rates, and male and female labor force participation rates; region-year dummy variables; trend for low initial municipality labor force participation rate. Constant not shown.

Table 6: Effect of full-day schedules on quality of mothers' employment (Individual fixed-effects) - By mothers' education level

VARIABLES	Labor supply			Employment quality							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
			Hours worked/ week	(Log) Wage/hr.	Full-time job	Has contract	Permanent job	Owns business	Small firm	Medium firm	Large firm
	Participates	Employed									
A. Low-education mothers											
Access to FDS schools (θ)	0.116	-0.0306	-1.880	0.648	-0.0593	-0.0518	0.0301	0.136*	0.0928	-0.0546	-0.231***
	(0.134)	(0.116)	(5.491)	(0.881)	(0.107)	(0.107)	(0.121)	(0.0785)	(0.122)	(0.153)	(0.0809)
Access to FDS schools x Child in primary school (γ)	0.0885	0.240***	10.87***	0.984	0.213***	0.202**	0.0912	-0.0268	0.0422	0.108	0.0639
	(0.0589)	(0.0711)	(3.499)	(0.625)	(0.0766)	(0.0839)	(0.0779)	(0.0414)	(0.0726)	(0.0782)	(0.0426)
R-squared	0.056	0.057	0.056	0.054	0.042	0.041	0.044	0.029	0.047	0.038	0.027
F-test of joint significance (p-value)	0.135	**0.003**	**0.005**	**0.050**	**0.018**	**0.045**	0.331	0.230	0.431	0.380	**0.017**
Mean - Dependent Variable	0.692	0.564	24.2	2.9	0.423	0.355	0.405	0.108	0.283	0.184	0.126
% outside 0-1 range (LPM models)	0.103	0.087			0.084	0.038	0.028	0.048	0.070	0.142	0.217
B. High-education mothers											
Access to FDS schools (θ)	0.0194	-0.217	6.348	0.710	0.207	0.260	-0.0479	-0.307*	-0.285	0.0823	0.242
	(0.229)	(0.240)	(9.903)	(1.893)	(0.242)	(0.248)	(0.215)	(0.160)	(0.226)	(0.222)	(0.219)
Access to FDS schools x Child in primary school (γ)	0.250***	0.328**	8.334*	1.718**	0.110	0.207*	0.262**	0.0269	0.0948	0.152	0.125
	(0.0866)	(0.130)	(4.738)	(0.865)	(0.110)	(0.113)	(0.101)	(0.0734)	(0.142)	(0.105)	(0.112)
R-squared	0.058	0.053	0.062	0.072	0.051	0.075	0.063	0.055	0.070	0.070	0.071
F-test of joint significance (p-value)	**0.007**	**0.032**	**0.048**	**0.038**	0.171	**0.009**	**0.014**	0.115	0.444	0.173	0.117
Mean - Dependent Variable	0.841	0.758	32.2	4.7	0.594	0.606	0.685	0.0967	0.212	0.342	0.263
% outside 0-1 range (LPM models)	0.149	0.081			0.064	0.003	0.013	0.246	0.060	0.077	0.057

Robust standard errors in parentheses. Errors clustered at the municipality level. ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively. Sample includes mothers aged 25-55 years whose youngest child was of primary school-age in some period of the panel. Low-education mothers had 12 or less years of schooling in first year surveyed; high-education mothers had 13 or more years of schooling. Number of observations (Panel A) = 5,114; number of women in panel (Panel A): 1,913; Num. obs. (Panel B) = 2,088; num. women in panel (Panel B) = 761. Access to FDS schools = share of schools that are full-day in municipality; child in primary school = 1 if youngest child is aged 6-13 years. Other controls: mother's years of schooling, mother's age (and age squared), number of children of pre-school, primary, secondary, and higher-education age; municipality averages: education, poverty rate, rural population (%), male and female employment rates, and male and female labor force participation rates; region-year dummy variables; trend for low initial municipality labor force participation rate. Constant not shown.

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Table 6: Effect of full-day schedules on unaffected groups (Individual fixed-effects)

VARIABLES	Labor supply			Employment quality							
	(1)	(2)	(3) Hours worked/ week	(4) (Log) Wage/hr.	(5) Full-time job	(6) Has contract	(7) Permanent job	(8) Owns business	(9) Small firm	(10) Medium firm	(11) Large firm
	Participates	Employed									
A. Women without primary school children											
Access to FDS schools (θ)	-0.0263	-0.0979	-2.511	-0.822	-0.0005	0.0622	-0.135*	-0.0811	-0.0988	0.117*	0.0394
	(0.0764)	(0.0744)	(4.237)	(0.604)	(0.0919)	(0.0743)	(0.0793)	(0.0708)	(0.0840)	(0.0664)	(0.0718)
R-squared	0.056	0.057	0.056	0.054	0.042	0.041	0.044	0.029	0.047	0.038	0.027
Mean - Dependent Variable	0.692	0.564	24.2	2.9	0.423	0.355	0.405	0.108	0.283	0.184	0.126
% outside 0-1 range (LPM models)	0.103	0.087			0.084	0.038	0.028	0.048	0.070	0.142	0.217
B. Men											
Access to FDS schools (θ)	0.0485	-0.00631	-1.267	-1.017	-0.0704	-0.102	-0.101	-0.0093	-0.198	0.169	0.0708
	(0.0419)	(0.0780)	(4.690)	(0.883)	(0.106)	(0.112)	(0.125)	(0.120)	(0.140)	(0.162)	(0.143)
Access to FDS schools x Child in primary school (γ)	-0.0417**	-0.0717**	-4.738**	0.135	-0.0819	-0.00135	0.0670	-0.0535	-0.0064	-0.0255	-0.122**
	(0.0174)	(0.0342)	(2.317)	(0.361)	(0.0535)	(0.0665)	(0.0527)	(0.0648)	(0.0664)	(0.0764)	(0.0572)
R-squared	0.030	0.030	0.061	0.024	0.042	0.046	0.050	0.022	0.055	0.058	0.048
F-test of joint significance (p-value)	**0.060**	**0.072**	**0.071**	0.517	0.150	0.620	0.435	0.693	0.269	0.577	0.106
Mean - Dependent Variable	0.98	0.951	45.9	6.0	0.869	0.671	0.775	0.272	0.364	0.421	0.278
% outside 0-1 range (LPM models)	0.235	0.283			0.133	0.001	0.013	0.011	0.062	0.050	0.001

Robust standard errors in parentheses. Errors clustered at the municipality level. ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively. Sample includes mothers aged 25-55 years whose youngest child was of primary school-age in some period of the panel. Number of observations (Panel A) = 11,218; number of women in panel (Panel A): 4,277; Num. obs. (Panel B) = 6,677; num. men in panel (Panel B) = 4,277. Access to FDS schools = share of schools that are full-day in municipality; child in primary school = 1 if youngest child is aged 6-13 years. Other controls: mother's years of schooling, mother's age (and age squared), number of children of pre-school, primary, secondary, and higher-education age; municipality averages: education, poverty rate, rural population (%), male and female employment rates, and male and female labor force participation rates; region-year dummy variables; trend for low initial municipality labor force participation rate. Constant not shown.