Preschool Enrollment and Mothers' Employment in Mexico

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Extended Abstract

For women with young children, labor participation and child care are jointly determined (Berlinski and Galiani, 2007). There is a large body of literature that has explored the effects of subsidies, changes in preschool laws and increases in the supply of schools and its relationship to maternal employment. Evidence on this topic is mixed. Schlosser (2005) found that in Israel, a gradual implementation of compulsory pre-k laws for children 3 and 4 years old in Arab towns increased maternal employment; the effect was larger among more educated mothers. Using children's quarter of birth, Gelbach (2002) found that in the United States, access to a child care subsidy in 1980 increased the employment probability of single and married mothers whose youngest child was 5 years old by 6-24%. In similar a fashion, Cascio (2009) found that, in the U.S., an increase in kindergarten funding (in 1960s and 1970s) increased employment of single mothers with 5-year olds without younger children by 12%. Baker et al. (2008) studied the effect of subsidized childcare for children under 5 years old in Quebec, Canada. Their results showed a positive effect of this subsidy on maternal employment for married mothers in the magnitude of 8pp. Lafebvre and Merrigan (2005) also found an increase in hours and weeks worked in the Canadian case. In Argentina, Berlinski and Galiani (2007) explored the effect of increasing the supply of preschools on female employment. Through a difference-in-difference analysis, these researchers found that the program did have a statistically significant effect on mother's employment between 7 to 14 percentage points.

Conversely, Fitzpatrick (2009) re-estimated Gelbach's (2002) results and found null effects on the employment of single mothers and positive effects on the employment of married mothers. Lastly, subsidies for universal preschool in Georgia (1993) and Oklahoma (1998), in the U.S. resulted in an increase in enrollment but had no effect on maternal labor supply (Fitzpatrick, 2010). The main hypothesis behind these findings were that recent cohorts of women had changed their preferences and female labor supply were less responsive than it had used to be some decades ago (Blau and Kahn, 2007; Heim, 2007). Blau and Kahn (2007) found that in the 1990s, women's own elasticity decreased in 50-56%, while their cross-wage elasticity fell by 38-47%. This theory predicts that only those women that work less than the number of hours of care provided by the programs would indeed increase their labor supply (Fitzpatrick, 2010). No studies have tested the similar policy changes in Mexico.

Policy Change in Preschool Education

On November 2002, the Mexican government modified the compulsory education laws to include the completion of preschool education. Prior to the change, the "basic" compulsory education laws in Mexico included six years of primary education and three years of middle school. The new legislation phased in universal preschool across the whole country. In the first phase, it would be compulsory for all 5 year-olds to enroll in the 3rd grade of preschool by school year 2004-2005. Subsequently, during the second phase, the compulsory law reached all the 4 and 5 year olds eligible for the second and third grades of preschool by the academic year 2004-2005. The third phase mandated all eligible children to enroll in the first and all the consecutive grades of preschool by school year 2008-2009.

The year the reform was passed (2002), national enrollment rates were, on average, 19%, 61% and 81% for the first, second and third grades of preschool, respectively. After the initial year, gradual changes occurred between 2004 and 2008, but not all the parents were able or willing to enroll their children in preschool. Given the low levels of preschool enrollment prior to the reform, by 2008, the roll out was not successful, thus the government relaxed the policy and required that children had at least one year of preschool in order to enroll in elementary school.

In 2006 another education law change took place. Starting school year 2006-2007, the minimum entry age for first grade of elementary school changed from6 years old by September (when school year starts) to 6 years old by December of the corresponding school year. This change would allow 5-year old children to be enrolled in the first year of primary school four months prior to their 6th birthday. This complicates the analysis of the employment outcomes of mothers of 5-year old preschoolers, because after 2006, a 5-year old child could either be enrolled in preschool or in primary school. For this reason, the impact of universal preschool on the employment of mothers of 5-year olds is analyzed separately from the outcomes of mothers with 3- and 4-year olds.

Prior to the policy change, preschool education was optional and available at private and public institutions. After this policy change, significant increases in preschool enrollment were observed. The effect of this policy change on preschool enrollment remains unexplored. Under the assumption that the policy had a positive impact on preschool enrollment, I hypothesized that sharp increases in preschool enrollment also impacted positively the employment of women with preschool age children. In Mexico, 58% of workingwomen have at least one child. Thus, a policy change that affected a child's enrollment represents an ideal opportunity to analyze some of the possible mechanisms that incentivize mother's employment in Mexico.

Data, Methods and Results

Using from the Mexican Income and Expenditure Household Survey (ENIGH) and the Mexican Ministry of Education, I estimated the effect of the policy on a child's probability of preschool enrollment. Then, through a difference-in-difference analysis, I exploited the state-year variation in preschool enrollment to measure its association to mother's employment. I compared labor outcomes of mothers of preschool-age children (3– and 4–year olds) to mothers of younger children, mothers of older children and non-mothers. Bertrand, Duflo, and Mullainathan (2004) pointed out; conventional standard errors often understate the standard deviation of the estimators. Thus, errors in these two models were clustered at the state level.

I included controls for *education* (less-than-primary education, primary education and some secondary education, and complete secondary education and beyond), *marital status* (married or cohabitating, single and divorced, separated or widowed), *region* (urban and rural), *family status* (i.e. whether the woman is head of the household), *number of women, number of men, number of additional workers in the household*. During the legislative discussion of the change in compulsory education laws, there were party differences in budget allocation and disbursement. To control for these differences I created one dummy variable for each of the three ruling parties across states in Mexico (-PRI, *Partido Accion Nacional* -PAN and *Partido de la Revolucion Democratica* -PRD) to control for local party in power. In order to account for pre- and post-trends in state preschool investment I also added a variable for when the state and federal party coincide. This model included a state fixed-effect that removed fixed differences in maternal employment across states, a year fixed-effect that absorbed variation for common shocks to maternal employment, an age-of-the-mother fixed effect that controlled heterogeneity of labor decisions across different ages, and an individual error assumed to be distributed independently across states.

Results showed a progressively significant increase in preschool enrollment each year after the policy change. Once I estimated the effect of increased preschool enrollment on maternal employment, I found significant and positive effects when mothers of preschoolers of 3- and 4- years of age were compared to mothers of younger and older children, and to non-mothers. Effects varied depending on the comparison group. In adjusted models where treatment is subject to a child's actual preschool enrollment (and age of the child varies), the effects increase for mothers of children enrolled in first year of preschool (comparable to mothers of 3–year olds) across all comparison groups. For mothers of children enrolled in second year of preschool, the effects decrease but remain statistically significant. When predicted enrollment by state and year is used instead of the observed enrollment rate, estimates are consistent. Although the effect of preschool enrollment on the employment of mothers of 5 year old preschoolers was also positive and significant after adjustments in the specification of the treatment are made, an additional policy change that affected this group of mothers complicated the analysis. For this reason, the case of mothers of 5-year old preschoolers was excluded from the main analysis and available in an appendix.

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