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Article

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Can universal preschool increase the labor supply of mothers?

The success of universal preschool education depends crucially on the policy parameters and specific country context

Keywords: preschool, universal preschool, female labor supply, maternal employment

ELEVATOR PITCH

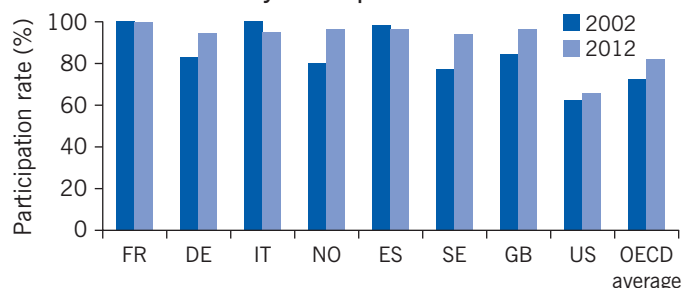
Since the 1970s, many countries have established free or highly subsidized education for all preschool children in the hope of improving children's learning and socio-economic life chances and encouraging mothers to join the labor force. Evaluations reveal that these policies can increase maternal employment in the short term and may continue to do so even after the child is no longer in preschool by enabling mothers to gain more job skills and increase their attachment to the labor force. However, their effectiveness depends on the policy design, the country context, and the characteristics of mothers of preschoolers.

KEY FINDINGS

Pros

- ⊕ When low maternal employment is driven by a lack of affordable childcare, universal preschool can encourage more mothers to work.
- ⊕ Universal preschool may enable the accumulation of job skills and lead to greater attachment to the labor force in the long term.
- ⊕ Where universal preschool has increased maternal employment, effects have been found to persist for several years.
- ⊕ Increasing the quality, availability, and flexibility of universal preschool could move more mothers into employment.

Preschool enrollment of three- to five-year-olds has risen in many developed countries



Source: Calculations based on data from the OECD Family Database (PF3.2 Enrollment in childcare and pre-schools). Online at: <http://www.oecd.org/els/family/database.htm>

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Cons

- ⊖ If universal preschool simply crowds out existing informal or privately paid childcare, it will have little impact on maternal labor supply.
- ⊖ In countries with low female labor demand and more traditional views of gender roles, universal preschool may be less effective at increasing maternal employment.
- ⊖ A targeted approach may be more cost-effective if universal preschool increases labor supply mainly of low-income mothers and mothers with less non-labor income, such as single mothers.

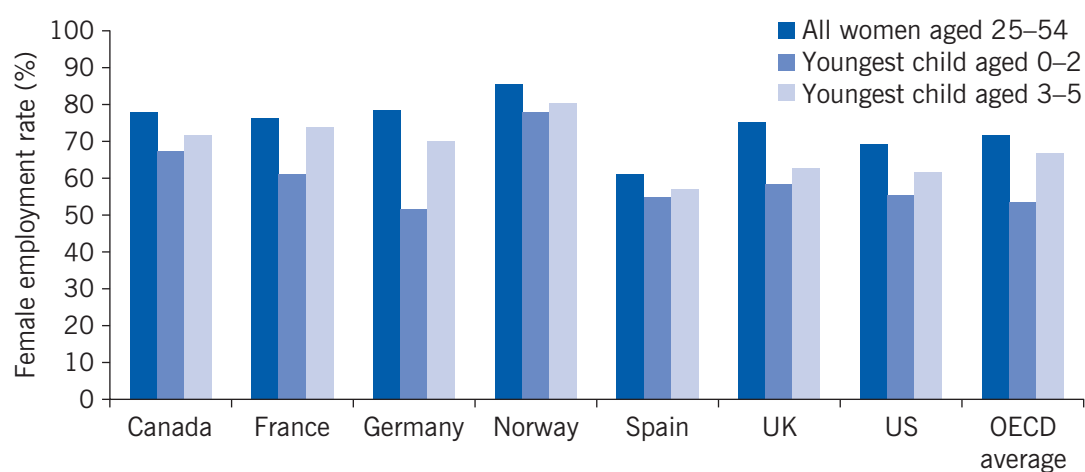
AUTHOR'S MAIN MESSAGE

Evaluations of the impact of universal preschool on maternal employment find higher impacts in countries with lower initial levels of female employment, use of private childcare, and welfare benefits. Where policies have encouraged more mothers to work, impacts have often been concentrated among low-income or single mothers whose youngest child is eligible for preschool and have persisted after the child has left preschool. The varied impacts of these policies suggest that subsidizing preschool only for mothers for whom affordability is the main barrier to work may be a more cost-effective way to increase maternal labor supply.

MOTIVATION

Despite increases in female employment since the 1970s, in most countries the employment rate for mothers remains considerably lower than that of childless women (Figure 1). This difference is particularly large for mothers of preschool-age children, for whom the lack of affordable childcare is an important obstacle to working or working more. Many countries have implemented universal preschool policies that lower the cost of preschool education and/or increase its availability. The EU recognized the importance of support for childcare policies for preschool children in 2001 when it set the “Barcelona targets,” which stipulated that at least 90% of children between the age of three and the mandatory school starting age and at least 33% of children under the age of three should have access to formal childcare by 2010.

Figure 1. In most countries the employment rate for mothers of young children is well below that of childless women, 2013



Source: Calculations based on data from the OECD Family Database (LMF1.2 Maternal employment). Online at: <http://www.oecd.org/els/family/database.htm>; data for Norway are from administrative registries of population, demographics, and income/tax.

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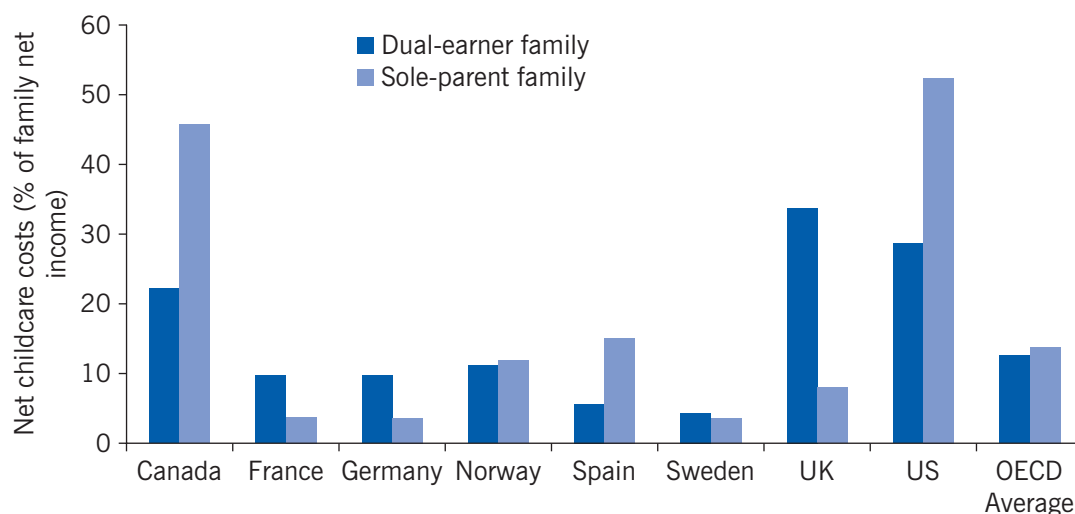
Despite general agreement among policymakers that subsidizing preschool education can facilitate mothers' employment, only nine of 27 EU countries had reached the first Barcelona target and seven had reached the second target by 2010. And large cross-country differences remain in the amount of financial support provided to families for the education of preschool children (Figure 2). As governments continue to deliberate about how much public money should be spent on financing preschool education, it is important to reflect on the already large body of research evaluating the impact that subsidizing universal preschool education has had on female labor supply around the world. Does this evidence suggest that providing free preschool education to all children is an effective way to promote female employment? What lessons can be drawn to make future policy more cost-effective?

DISCUSSION OF PROS AND CONS

Preschool education around the world

Since the 1970s, a large number of developed countries and a growing number of developing countries have instituted free or highly subsidized education and childcare

Figure 2. There are large differences across countries in the amount of financial support provided to families for the education of preschool children, 2012



Note: Calculations of net childcare cost relate to full-time care for two children ages two and three in a typical childcare facility, taking into account benefits that are not primarily childcare-related but nonetheless have a positive influence on household income, such as tax reductions and childcare benefits. One member of the dual-earner family earns the average wage, and the other earns half the average wage. The wage earner in the sole-parent family earns 50% of the average wage.

Source: Calculations based on data from the OECD Family Database (PF3.4 Childcare support). Online at: <http://www.oecd.org/els/family/database.htm>

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services for all children below the compulsory schooling age. In most cases, these policies have been articulated as a tool to achieve at least two objectives. First, by relaxing the financial barriers for mothers to work, these policies should make it easier for women to combine paid work and childcare responsibilities and promote gender equality. Second, by promoting child development, especially of children in disadvantaged families, these policies should reduce socio-economic gaps in education, improve other socio-economic outcomes, and promote social integration.

Preschool education has been subsidized in many ways. While some countries directly provide free public preschool education, others reduce parents' out-of-pocket costs through direct payments to parents or to childcare providers in the private or the public sector or both. Many governments also offer additional subsidies to low-income families or low-income working families that can have the effect of reducing a family's costs for childcare through an income-raising effect. As Figure 2 shows for a selected set of OECD countries, the overall assistance provided through these subsidies varies considerably in both their magnitude and their progressivity (the extent to which they vary with family income and family circumstances).

Expected effects of free preschool education on maternal labor supply

Most countries that provide universal free or low-cost preschool expect it to have a positive impact on maternal labor supply. However, a simple economic model suggests that the expected effect might not be as straightforward as it seems and that the effectiveness of the policy in increasing maternal employment depends on an array of factors.

To understand the links between the cost of preschool education and maternal labor supply, it is useful to consider a mother's decision on how to split her time between working (and implicitly using nonparental childcare) and leisure (and implicitly taking care of the child herself) [1]. In making this choice, a mother is constrained by her financial resources, which depend on her labor income net of the cost of preschool, and on her non-labor income (such as welfare support and her partner's labor income). A policy introducing free preschool education changes the mother's financial constraints by increasing her effective wage rate (the hourly wage rate net of the hourly cost of preschool). All else being equal, free preschool will have a non-negative effect on maternal labor supply: the maternal employment rate will not fall and will more likely rise as result of the policy.

The expected effect of the policy on hours of work will depend on how much labor the mother was supplying before the policy was introduced. If the mother previously worked more than the length of the preschool day, introduction of the policy will reduce her hours of work because it acts as an income subsidy, which weakens her incentive to work. If the mother previously worked less than the length of the preschool day, introduction of the policy will have an ambiguous effect on her hours of work because it increases her effective wage rate, which creates opposing substitution and income effects. On the one hand, leisure becomes relatively more expensive than consumption, so the mother has more incentive to work (the substitution effect); on the other hand, her real income rises (when her effective wage rate increases, she can consume more without working more) so she has less incentive to work (the income effect). The overall effect will therefore depend on the relative strengths of the substitution and income effects. Some mothers may work more as a result of the policy; others may work less.

The effectiveness of the policy as a tool to promote maternal labor supply will also depend on a variety of other factors [2]. First, the availability and use of other forms of care for preschool children will play an important role, as possible substitution among different forms of care arrangements may mitigate the effect of the policy on bringing more mothers into the labor force. For example, making preschool education free might induce mothers who were relying on informal or privately paid care (such as grandparents and nannies) to substitute these arrangements for free preschool, without necessarily increasing their labor supply.

Second, holding initial labor supply constant, free preschool education will likely have stronger effects among women who face higher returns from working (mothers who command higher wages because of higher levels of education or work experience). Note, however, that such mothers may already have been working longer hours before the policy was introduced, so the policy may have only a slight impact on them.

Third, free preschool education may also have stronger effects among women, such as single mothers, who have less non-labor income (e.g. partner's income). For these mothers, the introduction of free preschool represents a larger subsidy.

Finally, maternal preferences for work and for family and leisure will also likely influence the effectiveness of a free preschool policy in increasing female employment. Specifically, all else remaining equal, the labor supply of mothers with stronger preferences for work should respond more strongly to the provision of free preschool education. Thus, overall, while the introduction of free preschool education may increase maternal labor supply, there are many reasons why its impacts may differ across mothers.

Empirical evidence

Policies introduced to provide free or highly subsidized education to all preschool children have created opportunities to rigorously evaluate the impact of universal preschool education on maternal labor supply. That is possible because these programs provide incentives for mothers to enroll their children in preschool that can be argued to be unrelated (exogenous) to mothers' unobserved characteristics and preferences for work.

In particular, research has exploited two types of institutional features related to subsidized preschool education. First, in countries with excess demand for childcare and preschool education places, governments have increased the number of free or subsidized preschool places over time but have generally done so at a pace that differed across regions. Thus, under the assumption that maternal labor supply would have changed at the same rate in all regions, studies have estimated the impact of the policy by comparing the outcomes for mothers in areas with fast growth in subsidized preschool places with those for mothers in areas with slower growth [3], [4], [5], [6], [7], [8], [9].

Second, in many countries, governments have linked children's eligibility for free preschool to their birth date (e.g. a child may become eligible for free preschool on September 1 of the year that he or she turns four). Having a cutoff rule means that two children born even just one day apart—say, on August 31 and on September 1—become eligible for a free place a year apart. Thus, under the assumption that mothers cannot manipulate their child's date of birth, the causal effect of becoming eligible for a free preschool place can be estimated by comparing the outcomes for mothers of children born on each side of the cutoff date [10], [11], [12].

Depending on the context, numerous studies have taken advantage of one (or both) of these quasi-experimental conditions to evaluate the impact of subsidized preschool education on maternal labor supply. Studies span a large array of countries with different histories and traditions (Anglo-Saxon, Nordic, northern European, and southern European, among others). A cross-country comparison of the findings of these studies reveals that the provision of subsidized preschool education has had very different impacts on maternal employment and hours of work across countries as well as within them. Given the predictions of the simple framework described above, these differences in outcome may not come as a surprise. The following sections review the evidence from this literature on European and North American countries and discuss the empirical factors that seem to matter most for explaining the heterogeneity of policy impacts both across and within countries.

Differences in female labor market

A comparison of studies evaluating the impact of free or subsidized preschool education on maternal labor supply reveals that subsidizing preschool education has had larger impacts in countries where maternal employment was relatively low to begin with. For example, the introduction of free preschool education for three-year-olds in the 1990s in Spain, a country with historically low maternal employment, increased maternal labor supply by 10% [9]. Similarly, reforms expanding free pre-primary school education in Germany in the 1990s, when the maternal employment rate was around 40%, also had significant impacts on maternal labor force participation [4]. In contrast, in Sweden in the early 2000s, when the maternal employment rate was around 80%, a reform considerably

reducing the cost of childcare had no significant impact on the employment of mothers with a child in preschool [8].

Several mechanisms may explain this apparent link between the impact of preschool education on maternal employment and the rate of maternal employment before the introduction of the policy. Naturally, countries with low maternal employment may be those where mothers are most financially constrained by the cost of preschool education. Moreover, in countries where maternal employment is already high, there may be little scope for increasing it if the women who are not in the labor force have particularly strong preferences for caring for their children and thus their labor supply is less responsive to changes in the price of preschool.

However, it is not necessarily the case that subsidizing preschool will significantly increase maternal labor supply even in a country with low initial maternal employment. Indeed, a low rate of maternal employment could reflect a variety of other barriers to female employment that will interact with and likely weaken the effect of the policy on maternal employment. Such barriers might include slow economic growth, low demand for female labor, or social norms that are unfavorable to maternal employment. Spain illustrates a context in which many of these barriers were at play—traditional gender roles and slow economic growth—when free preschool education was introduced for all three-year-olds in the 1990s. Thus, it is particularly notable that the policy had such a strong impact on maternal employment [9], but context also suggests that the impact might have been even stronger had the new policy been accompanied by other measures aimed at boosting female labor demand and reducing the social stigma associated with maternal employment.

Differences in use of nonparental care

In line with the discussion above, the literature suggests that the extent to which parents use nonparental care before the introduction of free preschool education plays an important role in determining how effective a policy for subsidizing preschool education is in increasing maternal employment. Providing universal preschool has lower impacts on maternal employment in countries where mothers have access to private preschool education or typically use informal providers, such as grandparents, because the new subsidized preschool places simply replace alternative arrangements. Such crowding out has important implications for the net cost of the policy, as it creates a “deadweight cost” by transferring income to mothers (the avoided cost of providing alternative childcare) without affecting their labor market behavior.

Norway is an example of a country where the labor supply of mothers did not change as a result of an expansion in subsidized preschool education in the 1970s, presumably because the newly subsidized preschool education places crowded out the informal arrangements that working mothers had relied on before the new policy [6]. In contrast, a similar reform in the former West Germany in the 1990s, where the employment rate of mothers was similar to that in Norway in the 1970s, led to a significant increase in the labor supply of mothers of three- and four-year-olds because there was a real increase in the number of children in nonparental care [4].

It is important to consider that even if subsidizing preschool increases maternal labor supply, the net cost of the policy may still be negative if the new subsidized preschool places

crowd out informal care. This might have been the case in Quebec, which introduced universal, low-cost childcare for children aged zero to five in the early 2000s. The policy was found to significantly increase the labor force participation of married mothers in the short term, but by proportionately less than the childcare utilization rate because the new subsidized places reduced the use of informal childcare arrangements [3].

When assessing the benefits and costs of providing universal preschool, however, it is important to consider not only the immediate effects of the policy on mothers, but also the benefits that accrue over the medium and long term. The full effects of the policy may be delayed because it takes time for mothers to find a job and to arrange childcare for out-of-school hours so that they can have a full-time job. Moreover, the policy may have effects even after the child has finished preschool. Indeed, by strengthening mothers' attachment to the labor force in the short term and fostering their accumulation of human capital on the job, subsidizing preschool may have a positive impact on mothers' real wages and provide further incentives to increase their labor supply throughout their lifetime. To date, the empirical evidence of such long-term effects is scarce, but evaluations of policies in Quebec and Spain find that the effects persisted for up to four years after the child entered preschool and grew over time, suggesting that the net benefits of these policies were higher in the long term than in the short term [7], [9].

Differences in mothers' characteristics

Another important finding from the literature evaluating the impact of free preschool education on maternal labor supply is that the effectiveness of the policy depends on the characteristics of mothers affected by the policy. First, the effectiveness of the policy depends on the amount of non-labor income available to a mother, especially her partner's income or welfare benefits aimed at helping parents meet the costs of raising children (examples include parental leave, childcare tax credits, and family benefits). Across the literature, effects tend to be lower in countries with more generous welfare policies for parents (Nordic countries) than in countries with less generous welfare policies (Anglo-Saxon countries). This is in line with the predictions of the simple model described at the beginning of this article, which suggests that, holding everything else constant, the policy is expected to have smaller effects among mothers with higher non-labor income because the reduction in preschool cost is proportionally lower.

By extension, differences in welfare generosity across mothers in the same country could also explain why universal, free preschool education policies have often been found to have diverse effects within countries. A study evaluating the impact of eligibility for free, pre-elementary school in France finds evidence consistent with this point: it finds a smaller effect on maternal labor supply when the child is two years old than when the child is three, the age at which non-working mothers lose their eligibility for family benefits (of about half the minimum wage) [12].

Finally, the literature finds fairly strong evidence (although not in all contexts) of a stronger effect of policies subsidizing preschool education among single mothers than among mothers with partners [5], [11], [12]. Again, this finding is consistent with the idea that a partner's extra income will help pay for childcare, thus making mothers with partners less responsive than single mothers to the introduction of free preschool education.

Differences in policies

While a cross-country comparison of studies evaluating the impact of free preschool education on maternal labor supply is helpful in identifying factors that determine the effectiveness of the policy, it is important to keep in mind that the policies evaluated in this literature differ in important respects and that those differences also contribute to the diversity of policy impacts found in the literature. While some studies have evaluated the impact of an increase in the availability of subsidized preschool, others have evaluated the impact of becoming eligible for a subsidized preschool place. Additionally, even though all the policies evaluated in this literature aim to subsidize preschool education, the characteristics of the policies differ widely—in the age of the children they aim to reach, the amount of free education they provide (full-day or part-day), and the flexibility with which parents can use the subsidy.

While more generous and flexible subsidized preschool might be expected to have stronger impacts on maternal labor supply, only one study provides evidence that this may indeed be the case [10]. That study compares the impact of providing three-year-olds with free part-time preschool with the impact of providing four-year-olds with free full-time preschool on the likelihood of single mothers on welfare entering employment in the UK. The study finds that single mothers start entering employment only when their child is offered a full-time place, which suggests that a subsidy covering the cost of preschool for only 15 hours a week may not be a strong enough incentive for mothers to go back to work or that it might be difficult to find part-time jobs that accommodate such few hours of free care.

LIMITATIONS AND GAPS

While cross-country comparisons of studies evaluating the impact of free preschool education on maternal labor supply can identify some contextual factors that determine the effectiveness of subsidizing preschool, there are limitations on what they can tell.

First, such analyses cannot shed light on the role that specific aspects of the policy, such as the flexibility or amount of provision, play in determining its impact. Going forward, more evidence about the impact of varying features of the policy within the same country would be helpful for policymakers who are considering extending subsidized preschool to cover more hours or new groups of children (such as younger children).

Second, more evidence is needed on how the quality of subsidized preschool affects mothers' decisions to go to work. Quality is likely to play an important role, since mothers presumably decide to work and send their children to preschool based on their expectations of the effect it will have on their children as well as on themselves. The research on this issue is scarce, probably because of a lack of data that include information on child development, labor market outcomes of mothers, and childcare quality, as well as the difficulty of separating the impact of quality of subsidized preschool from the impact of the subsidy.

More broadly, the question of whether providing free preschool is an effective way to increase maternal employment cannot be looked at apart from its effect on child development. In most cases, these policies have been introduced in the hope of both improving outcomes for children and fostering employment of mothers. And even though the same policy may be more effective at achieving one objective than the other, it is

important to evaluate the merits of these policies against all the objectives they set out to achieve in both the short and the long term.

Finally, even if the provision of free preschool is found to increase maternal labor supply, its effectiveness needs to be compared with that of other policies to promote female labor supply and other policies to subsidize the care and education of preschoolers. Governments have traditionally used an array of policy tools to encourage women's labor supply, especially in low-income families (such as working tax credits), and to strengthen support for childcare costs for particular families (such as childcare tax credits and means-tested preschool programs). Yet, little is known about the relative cost-effectiveness of all these policies for increasing maternal employment. Filling this knowledge gap is challenging because policies often come in bundles so their individual effects are hard to disentangle. Doing so should nonetheless be a priority for future research.

SUMMARY AND POLICY ADVICE

Since the 1970s, many countries have introduced subsidies for free or low-cost preschool with the expectation that this would both increase maternal labor supply and improve child outcomes. The main message from the evaluations of the impact of these policies on maternal labor supply is that, while universal free preschool can increase maternal labor supply, its effectiveness depends on many factors, including the nature of the female labor market, the childcare market, and the welfare system in place before the policy is implemented. The impact of subsidized preschool on mothers' work is also likely to depend greatly on mothers' financial and family circumstances. For example, if most mothers are already paying for private childcare or relying on informal care so that they can work, providing universal free preschool will simply transfer income from the government to these families without substantially affecting mothers' labor market behavior. In this case, a targeted policy subsidizing preschool only for mothers for whom affordability is the main barrier to work could be more cost-effective in increasing maternal labor supply than a universal preschool subsidy.

The case for universal preschool has been made on multiple grounds, however, ranging from increasing maternal labor supply to giving equal chances to all children. It is therefore fundamental that policymakers be clear about which objective they are seeking to achieve and realistic about how well a single policy can achieve several objectives while being an effective use of public resources.

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Competing interests

The IZA World of Labor project is committed to the *IZA Guiding Principles of Research Integrity*. The author declares to have observed these principles.

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