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Childcare and Women's Labor Participation:

Evidence for Latin America and
the Caribbean

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Abstract

Reliable and affordable non-parental childcare is intimately related to female participation and other outcomes in the labor market given the conflicting demand for women's time on both, work and care activities. In terms of policy, public provision and subsidy of childcare services lift some of the time constraints and contribute to help families in the transition through the initial years of parenthood. Both from developed and developing countries, there is evidence that subsidized childcare increases enrollment and this in turn increases the probability for mothers to look for a job or to be employed. This paper summarizes the available evidence specifically discussing characteristics and impact of childcare policies and programs in the Latin American region. Almost all random assignment and quasi-experimental studies show consistent positive effects either on the intensive or extensive margins of female labor supply. We also provide a review of incipient evidence about factors that affect program take-up and demand for childcare services and other informal care arrangements.

Keywords: Childcare, female labor supply, impact

JEL Codes: J13, J22, I28

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1 Introduction

This document summarizes the available evidence on the effects of childcare policies on female labor market outcomes, discussing more specifically what we know about their impact in the region. Women participation in the labor market has been consistently increasing in the last decades. More participation has been accompanied by a bigger share of female workers in earnings. These general positive trends hide important variations within the region, and persistent gender gaps in terms of wages, and vulnerability to unemployment and informality. Constraints to participation are even stronger when women have young children.

In coming years, many Latin American and Caribbean countries (LAC) will face a unique opportunity to reduce dependency from social assistance programs and strengthen social security systems, if they can increase participation in the labor market. Some countries like Uruguay, Brazil, Chile or Costa Rica, have less than 10 years to capitalize on the demographic dividend, which is still giving them a larger share of working age population with respect to dependent and non-economically active groups (children and elderly). Many of this unused labor force are women, and more specifically mothers to children between 0 and 6. In a context in which mothers are still highly demanded for care activities, policies to support the care of young children can lift some of the existing constraints to a more active involvement in economic activities.

A majority of the evidence here presented shows that subsidized childcare increases enrollment, and this, in turn, increases female labor supply. The second question for policymakers is then what childcare programs are cost-effective and can be considered as a sustainable strategy for better labor outcomes. Answering this question also implies understanding the demand for such programs and identifying the determinants of enrollment or take-up. Demand is not an issue specific to childcare programs; on the contrary, it affects social programs in general that are, often with the best intentions, supply driven. One shouldn't forget that at the origin of one of the most interesting and emblematic interventions designed during the 1990s in LAC, Conditional Cash Transfers (CCTs), lies precisely the need to solve a fundamental demand issue: how to get families to use preventive health services for children and how to keep those same children in schools.

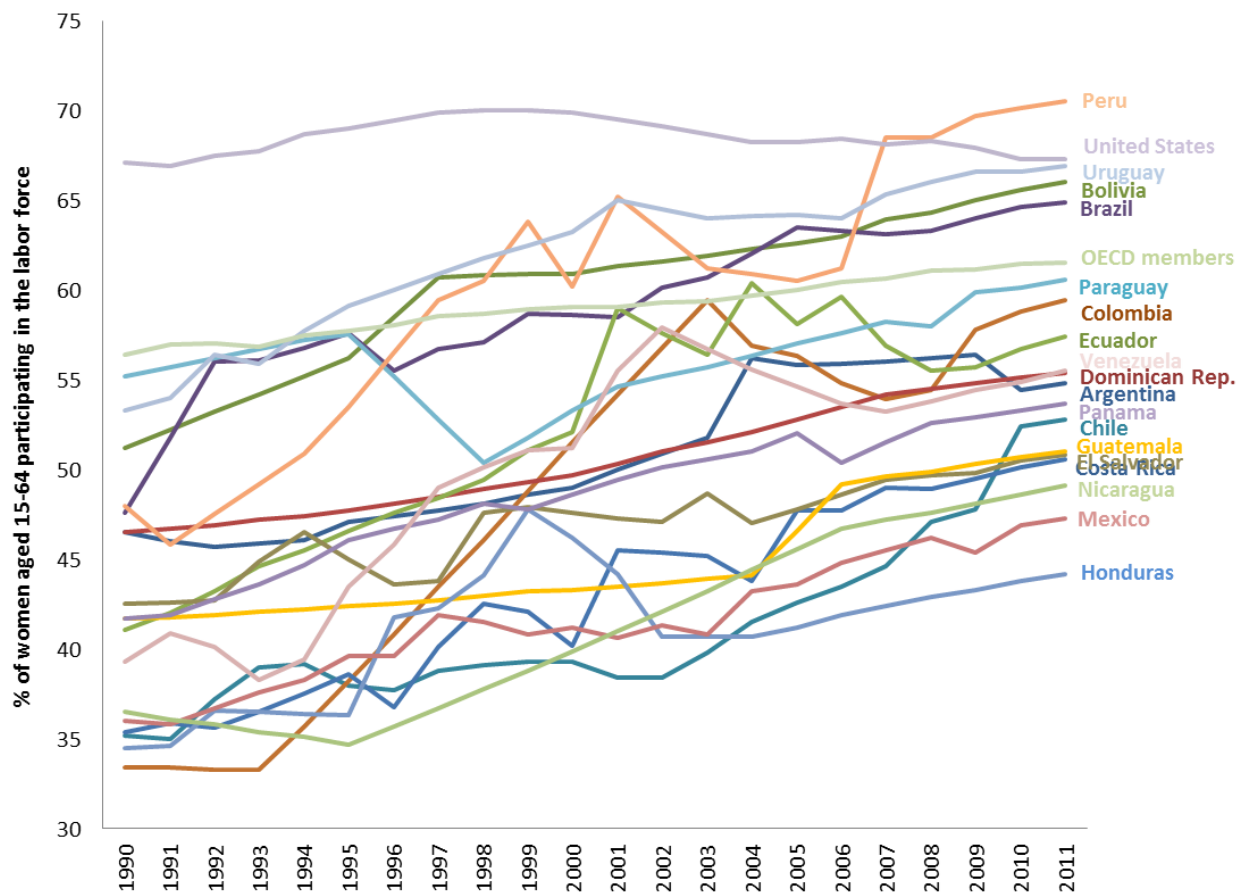
Going back to childcare, the evidence on the first dimension, i.e., impact, is quite extensive and consistent. There is however very little evidence on why mothers decide to use non-parental childcare. We provide in this note a review of the existing studies and discuss important implications for the research agenda. In the following, Section 2 discusses main trends in female labor participation in Latin America and the Caribbean. Section 3 presents a summary of the international evidence on childcare and women's labor supply. In Section 4 we present an overview of the existing evidence specific to Latin America and the Caribbean and a description of the main features of childcare programs and interventions for which the effects of women's labor participation have been studied. Section 5 focuses on the determinants of use of non-parental childcare arrangements and services. Concluding remarks are presented in the last section.

2 Trends in Female Labor Supply

Female labor participation rates have grown importantly in almost all countries in Latin America and the Caribbean over the past decades. Figure 1 shows the trends for countries in the region compared to the average in OECD countries and the United States. Women’s economic contribution to the household has also grown and ranges from about 28 percent in Guatemala to 41.3 percent in Nicaragua, and 44.3 percent in Uruguay, with generally lower percentages of female earnings in the bottom quintile than in the top quintile (Table 1).

Recent estimates suggest that women’s labor market participation rate in the region grew 15 percent from 2000 to 2010 and female labor income contributed 30 percent to the reduction of extreme poverty (World Bank, 2012). Evidence suggests significant macroeconomic gains to women’s involvement in paid work: Aguirre et al. (2012) estimate there are 865 million women worldwide who have the potential to contribute to their national economies and 93% of them live in emerging or developing countries. Estimates from Cuberes and Teignier (2012) suggest that the 33% labor force participation gender gap for Latin America as a region translates in an income loss of 17%.

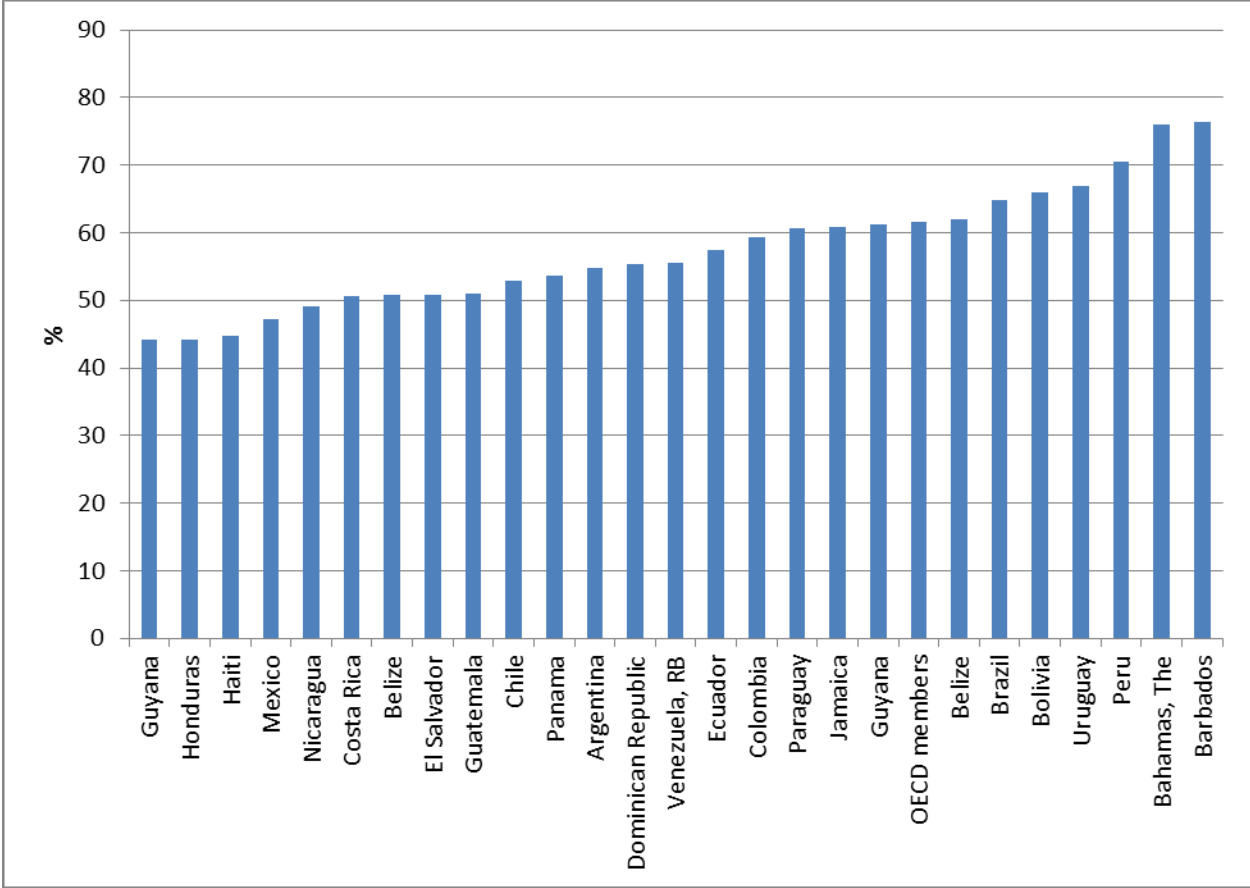
Figure 1. Female Labor Force Participation Rates in Latin American countries



Source: Own elaboration based on World Development Indicators 2012, The World Bank

Despite this positive trend, labor participation of women is still low in several countries in the region (Figure 2) and very important challenges remain: gender wages gaps persist (Atal, Ñopo and Winder, 2010), women remain more vulnerable to unemployment (Pagés and Piras, 2010) and female work is disproportionately concentrated in the informal and low-productivity sectors (World Bank, 2012).

Figure 2. Labor force participation rates, women aged 15-64



Source: Own elaboration based on World Development Indicators 2012, The World Bank

Table 1. Female economic contribution to the household

% of household labor income of adults contributed by females

	All individuals	Bottom quintile	Top quintile
Argentina (2011)	38.9	31.3	51.2
Brazil (2009)	37.4	30.7	42.5
Chile (2009)	35	34.8	37.7
Colombia (2011)	39.9	42.1	50
Costa Rica (2010)	37.1	36.9	48.5
Dominican Republic (2011)	34.4	30.9	42
Ecuador (2011)	32.3	26.6	39
El Salvador (2010)	42.8	49.6	47.6
Guatemala (2010)	28	22.2	37.1
Honduras (2009)	38.2	39.4	46.3
Mexico (2010)	32.8	25.3	42.9
Nicaragua (2010)	41.3	43.2	45.2
Peru (2011)	36.3	36	40.6
Panama (2010)	35.4	27.1	47.5
Paraguay (2010)	34.4	28.1	43.7
Uruguay (2011)	44.3	43.8	47.5
Venezuela (2010)	39.1	40.3	46

Source: Own elaboration based on Sociometro-BID (2012), available at <http://www.iadb.org/sociometro>

These conditions are especially accentuated when women have children: Arceo and Campos (2010) find that women with young children in Mexico are much more responsive to changes in wages than the average Mexican women; throughout the region, the gender wage gap is slightly higher among workers with children (Piras and Ripani, 2005; Pagés and Piras, 2010); mothers tend to move towards the informal sector, and they take on part-time jobs combined with longer work week hours distributed among both remunerated and nonmarket activities (Pagés and Piras, 2010). However, women with children show greater job satisfaction in full-time jobs, especially those from lower income families (López-Boo, Madrigal and Pagés, 2010).

Given their demographic structure, many countries in the region will have during the next years an opportunity to reduce dependency from social assistance programs and strengthen their social security systems through greater economic participation of women in the labor market. Especially in countries where female labor force participation (FLFP) is still low and the relationship between dependent age groups (children and older population) and the working-age group is falling, significant increases in FLFP over the next years would necessarily come from the incorporation to the labor market of women in the age group of 25 to 45 –where a majority of mothers to children from 0 to 6 is concentrated.

Reliable and affordable non-parental childcare is intimately related to female participation and other outcomes in the labor market given the conflicting demand for women’s time on both, work and care activities. In terms of policy, provision and subsidy of childcare services lift some of the time constraints and contribute to help families in the transition through the initial years of parenthood. Both from developed and developing countries, there is evidence that subsidized childcare increases enrollment and this in turn increases the probability for mothers to look for a job or to be employed. At the same time, compelling evidence demonstrates that investing in early childhood education has a significant impact on children’s cognitive and socio-emotional development as well as on longer-term outcomes.¹

Although coverage of early childhood care and education programs in Latin America is low, there is a variety of services operating under independent efforts, with different objectives and modalities.² Some of these interventions provide explicit or implicit childcare subsidies³ and affect the demand for women’s time in care activities.⁴

3 International evidence on childcare and women’s labor supply

A simple plot of the proportion of children aged 0 to 3 attending childcare, and rates of women’s labor force participation for European countries will show a strong relationship between both variables (Figure 3). As appealing as this positive relationship might be, it ignores the endogeneity of participation decisions.

Identifying the causal effect of access to childcare on parent outcomes is not straightforward given the nonrandom selection into childcare alternatives. However, and consistent with what Figure 3 suggests, existing rigorous empirical evidence from developed countries shows significant effects of use of childcare and pre-school programs on female labor participation and employment.

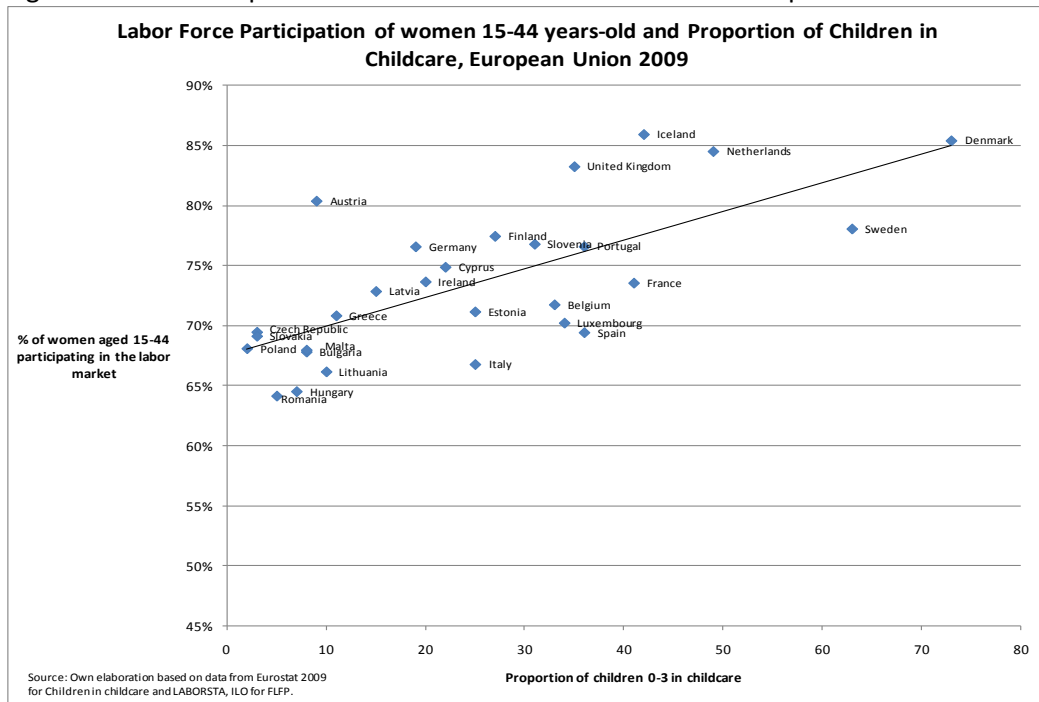
¹ See Nores and Barnett (2010), Baker-Henningham and López-Boo (2010) and Conti and Heckman (2012) for a review of this evidence.

² Araujo, López-Boo and Puyana (2013) provide a comparative analysis of early childhood programs (parental education programs, home visits and childcare centers) in LAC.

³ Examples of explicit childcare subsidies are government transfers to low-income families covering the cost –or part of the cost– of childcare; an example of implicit childcare subsidies is the implementation of a free preschool program of a given quality for a fixed number of hours.

⁴ For an overview of the existing childcare policies in LAC countries and the legislation governing maternity and childcare see: Mateo and Rodríguez-Chamussy (2014) and “Working Parents and Childcare: A database for Latin America and the Caribbean” at <http://www.iadb.org/en/research-and-data/female-labor-force/list-laws,8525.html>

Figure 3. Relationship between childcare use and FLFP in the European Union



Existing evidence on childcare and female supply can be divided in three groups: studies looking at FLFP elasticity to childcare costs; studies looking at the impact of specific public interventions; and studies looking at the effects of informal arrangements. For the purpose of this paper the evidence on public preschool will be presented separately. An important part of the literature focuses on the relationship between cost of childcare and FLFP, testing the theoretical prediction that the more affordable the service, the more is used, and therefore the higher the chances for those women to participate in the labor market. Both Anderson and Levine (2000) and Blau and Currie (2004) provide a detailed review of estimates for the elasticity of female labor supply with respect to the cost of childcare in the US. Most of the findings suggest that, as the price of childcare falls, maternal labor force participation increases. There is however a large variation in the magnitude of the estimates.⁵

Gustafsson and Stafford (1992) study labor supply response to childcare cost and availability in Sweden finding that high quality public childcare encourages labor market participation of women with preschoolers. They construct a measure of rationing and find that when high quality spaces are not rationed, a lower price encourages use. Similarly, Simonsen (2010) uses local variation between municipalities on availability and price of high quality publicly subsidized daycare in Denmark. Taking advantage of the fact that the system generates waiting lists in some municipalities while other guarantee open slots she identifies effects of limited access to publicly funded daycare and finds that guaranteed access has a significant and positive effect on employment for mothers of children between 0 and 1, and that the price effect is significantly negative.

⁵ Estimates vary between -0.36 and 0.06 with the great majority of studies finding a negative sign.

For Russia and Romania respectively, Lokshin (2000) and Fong and Lokshin (2000) model mother's participation in the labor force, working hours, and household demand for childcare and find that the decision to take a job and use childcare is sensitive to the price of the service.

Another group of studies look at how specific public interventions affect female labor supply. Baker, Gruber and Milligan (2008) study the expansion of subsidized provision of childcare for children 0 to 4 in Quebec finding a positive effect on maternal labor supply for married (and cohabiting) mothers. Bick (2011) looks at married (or in a long term relationship) women in West Germany, and finds that increasing the provision of subsidized childcare increases the maternal labor force participation rate when children are between zero and two.

One recent work finding no significant effect of childcare on maternal labor supply is Havnes and Mogstad (2011). This study uses a methodological approach similar to Baker, Gruber and Milligan (2008) to analyze the effects of the introduction of subsidized, universally accessible childcare in Norway but finds no impact on the employment rate of married mothers. The authors conclude that the expansion to universal childcare mostly crowded out informal care arrangements.

Possible explanations to this result –divergent from the general evidence in the literature- is that female labor supply may respond faster to a price adjustment of already existing facilities than to an expansion of the service with new childcare facilities. The study only identifies the response of mothers with children in childcare age right after the childcare expansion, which might not be externally valid in the long-run where firms and families adjust to the new childcare system.

Using a quasi-experimental setting where only prices change and childcare is widely available, Gathmann and Sass (2012) find that parents responded to a reform that raised the prices of public daycare in Germany by reducing use and increasing childcare at home; they also find that FLFP declined by 20%.

Finally, a third strand of literature analyzes the effects of informal childcare arrangements on FLFP. In a recent work using US longitudinal data, Posadas and Vidal-Fernandez (2012) find that grandparent's childcare increases maternal labor force participation by 15 percentage points on average. The authors argue that most of the effect is driven by families from socio-economically disadvantaged backgrounds. Similar results are found by Arpino, Pronzato and Tavares (2010) in Italy. Both, Compton and Pollak (2011) and Compton (2011) for the US and Canada respectively, show that close proximity to mothers or mothers-in-law has a substantial positive effect on the labor supply of married women with young children. Dimova and Wolff (2011) use data from 10 European countries and find that regular childcare by grandparents has a small positive effect on maternal labor force participation but has no effect on the type of employment (full-time or part-time). For the same countries, results by Zamarro (2009) only find a significant effect of availability of regular childcare arrangements on FLFP in Greece and the Netherlands. In addition to childcare, public school enrollment has also an effect on mothers' labor market outcomes. This effect is expected to be different given that school programs usually provide less hours of care (instruction) than a full-time schedule in a daycare, and children attending those programs are usually older. In an influential work, Gelbach (2002) finds that free public school enrollment of 5-

year-olds in the US increases labor supply among mothers whose youngest child is 5. His estimates range from 6% to 24% depending on the specification. Cascio (2009) finds that maternal labor supply increases with the introduction of kindergartens into American public schools but only for single mothers of 5-year-olds with no younger children. No significant effect on labor supply of other mothers with eligible children is found. Schlosser (2011) takes advantage of the staggered implementation of free public preschool in Israel to study the effects of a reduction in child care costs on preschool enrollment and Arab mothers' labor supply. Her results show a sharp increase in maternal labor supply, mainly among the more educated mothers.

Fitzpatrick (2010) extends the results by Gelbach (2002) using more data for the states of Georgia and Oklahoma and a regression discontinuity approach on the children's age. She finds that universal preschool availability increases preschool enrollment but has no effect on the labor supply of most women. As Fitzpatrick (2010) notes, a potential explanation for the differences with the previous literature which generally finds significant effects of universal subsidized childcare, are changes overtime of the profile of women at the margin of participating in the labor market.⁶ For instance, the baseline rates of maternal employment in previous studies were between 17% and 55%, while being 77% at the time of this study. These results may suggest that women who have already made the decision to participate in the labor market only readjust their existing childcare arrangements substituting them by cheaper formal care at the preschool.⁷

A summary of existing evidence shows significant effects of access to childcare on maternal labor supply or FLFP. Evidence is consistent regardless of the type of arrangement used for childcare. In other words: evidence suggests that women with young children need access to a reliable and regular source of childcare (formal or informal) if they want to be active in the labor market.

4 Evidence on childcare and women's labor supply in Latin America and the Caribbean

Rigorous evidence on access to childcare and maternal labor market outcomes in Latin America and the Caribbean (LAC) is quite recent, but shows interesting results.

For the purpose of this review, existing studies are also divided in two groups: i) studies on publicly financed childcare programs; and ii) evidence on preschool programs. Table 2 summarizes the interventions classified under these categories. The main operational features of each program are described and available evidence on their impact is presented.

⁶ For example, recent estimates of a declining elasticity of female labor force participation to wage suggest that women in the US have been getting increasingly attached to the labor market. See (Blau and Kahn 2007).

⁷ The author is not able to test for this hypothesis directly as the Census asks about preschool and respondents likely do not answer affirmatively if children are enrolled in a family daycare or are cared at a babysitter or grandmother's house.

Table 2. Programs in LAC providing explicit or implicit childcare subsidies, for which evidence of impact on FLFP is available

	General features	Programs
Childcare programs	<ul style="list-style-type: none"> • Programs offering full-time or part-time non-parental care for young children (0 to 5) • Designed either to provide access to childcare for working mothers or with educational and nutritional objectives • Financing of recurrent costs partially or totally covered by government 	<ul style="list-style-type: none"> • Hogares Comunitarios (HCP), Guatemala • Estancias Infantiles para Apoyar a Madres Trabajadoras (PEI), Mexico • Hogares Comunitarios de Bienestar Familiar (HCBF), Colombia • FODI-Centro de Desarrollo Infantil, Ecuador • Municipal public daycare in Rio de Janeiro, Brazil • Public daycare provision by JUNJI and INTEGRA, Chile
Preschool programs	<ul style="list-style-type: none"> • Usually part of the education system • Offer an implicit childcare subsidy for families with older children • Enrollment age ranges between 3 and 5 years old 	<ul style="list-style-type: none"> • National Preschool Program in Argentina

4.1 Childcare programs

4.1.1 Hogares Comunitarios (HCP), Guatemala

Description. *Hogares Comunitarios* (HCP) is a home-based, community childcare program for children from birth to age 7 of working women in poor communities. A pilot program was established in 1991 in Guatemala City as a strategy to alleviate poverty by providing working parents with low-cost, quality childcare within their community.⁸ The pilot program rapidly expanded to both urban and rural areas of all 22 departments of the country. By 2011, HCP operated 818 *hogares comunitarios* (community daycare centers) that cared for approximately 16,100 children.⁹

The operational model of HCP is based on the parent’s identification of a neighborhood woman to act as a *madre cuidadora* (“caretaker” mother). This mother then receives up to 10 children in her home, 12 hours a day, Monday to Friday. For safety reasons, the program limits the number of children younger than 1 year old to one per home. The program provides initial training for the caretaker mothers, furniture, cooking equipment, and educational supplies. On a monthly basis the program gives money to purchase food for the children, gas and educational supplies. The program also gives the caretaker an “incentive” per child per month, which is complemented by a per child contribution from the parents.¹⁰

⁸ Ruel et al (2002)

⁹ Araujo, López-Boo and Puyana (2013)

¹⁰ Ruel et al (2002)

Evidence of impact. The International Food Policy Research Institute (IFPRI) carried an assessment of operational aspects and quality of services delivery in addition to an evaluation of the program's impact. The main objective of the impact evaluation was to determine the effect of the program on children's nutritional outcomes. A second objective was to determine impacts on employment and other labor market outcomes for mothers.

For the impact on children, a survey to beneficiaries and matched controls was implemented. Outcomes of a treatment group comprised of randomly selected beneficiary children and their households in one urban area of Guatemala City were compared to outcomes of a control group selected by individually matching neighborhood nonparticipating children with beneficiary children based on age, gender and maternal employment. Findings showed higher quality diets for beneficiary children, especially in terms of micronutrient amounts.

A cross-sectional survey of a random sample of households with children between 0 to 7 years of age residing in the area of study was used to look at the impact of childcare costs and traveling time on both, the choice of formal care and maternal labor supply. Using this random sample data Hallman et al. (2005) find that reductions in formal childcare prices do not predict mother's labor force participation but have a large positive effect on labor hours. These results suggest that reductions in travel time to the centers or in cost of childcare can increase the number of paid work hours of those who already participate, but do not necessarily result in more mothers economically active.

4.1.2 Estancias Infantiles para Apoyar a Madres Trabajadoras, Mexico

Description. In 2007, the Mexican government created the *Programa de Estancias Infantiles para madres trabajadoras* (PEI) with the objective of facilitating entry and stability of low-income mothers in the labor market. The program, administered by the Ministry of Social Development (SEDESOL) targets mothers with children between 1 and 4 years old (up to 6 years old for children with disabilities) and household incomes below the poverty line defined by the government, providing a subsidy paid directly to the daycare center and based on monthly attendance records. The amount of the subsidy depends on the household income up to a maximum of MX\$850 (approximately US\$70) per child per month and MX\$1700 (approximately US\$141) for children with disabilities.¹¹

On the supply side, the program supports the expansion of available childcare services by giving an initial subsidy for either new centers or the improvement of existing facilities. These centers, called *estancias*, are generally rented locales or home additions adapted to meet the program requirements. They operate for a minimum of eight hours a day, five days a week, receiving up to 60 children, and are required to have a maximum ratio of 8 children per staff person. Children enrolled full-time receive two hot meals and a snack based on menus that have been prepared by a nutritionist. The main caretaker or "*responsable de estancia*" is a community member –or a private childcare operator- who self-selects and

¹¹ There have been changes overtime to the eligibility criteria and the amount of subsidies provided. For a summary see Angeles et al. (2011)

complies with the application process to participate in the program through the decentralized offices of SEDESOL in the each state. The program requires that caretakers have a minimum level of secondary education or certification in childcare. A basic training is required, which includes instruction on the rules of operation of the program, operations of basic safety, health care and recreation activities.

The program has rapidly expanded; by 2011 it comprised 9,255 centers across the country enrolling 265,425 beneficiary children benefiting 248,282 mothers and single fathers.

Evidence of impact. Impact evaluation of the program by Ángeles et al. (2011) finds an 18% increase in the probability of employment and an increase of 6 hours in the average number of hours worked per week. These effects are mainly explained by the entry into the labor market of women who previously did not work. For mothers who worked before joining the program they find an 8% increase in the permanence in their job. No effect on income was found. Additionally, mother's mental health indicators such as depression and stress showed no impact after participation in the program. Regarding children's well-being, this evaluation finds in average no effect of the program on development or dietary diversity, although there is a positive effect on diversity of diet for those children whose mother did work before attending *Estancias Infantiles*.

The impact evaluation is based on a methodology of pipeline¹² that allows comparing beneficiaries – treatment group- with families with children in waiting lists –control group-. Given that people in the waiting lists are also eligible, it is assumed that both groups, treatment and control, are similar and therefore comparable in terms of outcome variables of interest. This design deals with the main selection problem given that interest in participating in the same estancia has been expressed; however results are valid only for the centers with excess demand –which could differ in a number of characteristics from those centers without excess demand-.

Positive effects on female labor force participation are also found in Calderón (2011). She studies the impact of the program based on its progressive roll-out and finds that the average increase in childcare spaces (1.2 spaces for every 10 eligible children), increased women's probability of working by 1.8 percentage points, which represents an increment of 5.17% over the mean (average intent-to-treat effect). The results of this study also show an average increase in mothers' labor income of 20%.

4.1.3 Hogares Comunitarios de Bienestar Familiar (HCBF), Colombia

Description. Implemented by the Colombian government in 1984, HCBF is currently one of the largest programs of its kind in Latin America with approximately 80,000 *hogares comunitarios* across the country and more than one million beneficiary children.

At the beginning, the *Instituto Colombiano de Bienestar Familiar* (ICBF), responsible agency for the program, targeted poor localities encouraging parents with children aged 0 to 6 and belonging to the

¹²The pipeline design or stepped-wedge is a quasi-experimental method for evaluation; it implies a sequential roll-out of the intervention. In this case the sequence is given by the existence of a waiting list, assuming that: i) the order in which participants are assigned into beneficiaries and waiting lists is random; and ii) since they all are eligible, treatment and control groups are similar.

low-income strata (as defined by the SISBEN indicator), to form “parents associations” and elect a community mother (*madre comunitaria*) with basic education and a home large enough to receive up to 15 children of parents belonging to the parents association.¹³ Children receive food (purchased by the government) and care. Families pay a small monthly fee which is used to pay a salary to the *madre comunitaria*. The main objective of this program was to improve the nutritional status of poor children; additionally, the provision of childcare aims at fostering mothers’ labor force participation as a way to improve household income.

Evidence of impact. Attanasio and Vera-Hernandez (2004) use distance from the household to the nearest *hogar comunitario* as instrument for participation into the program. Their results suggest that the program increased by 31 percent the average probability of employment from 0.12 to 0.37. The average hours of work also showed a significant increase. Also, a more recent evaluation of HCBF by Bernal and Fernandez (2013) suggests that the program is well-targeted, given that the poorest children are those that select into the program.

4.1.4 Fondo de Desarrollo Infantil (FODI) –Centros de desarrollo infantil-, Ecuador

Description. The Children’s Development Fund (FODI) supports two modalities of intervention for children 0 to 6 years old: home visits and childcare centers. It is an early childhood development program targeted to poor families and delivered through NGOs at the neighborhood level.

The home-visit modality is a 1 hour per week individual visit of an adviser working according to guidelines set by FODI aimed to teach mothers how to improve stimulation and interaction with their young children. In the childcare centers modality, services are subsidized by FODI and run by non-profit organizations providing daycare 8 hours per day, 5 days a week throughout the entire year, together with nutrition (breakfast and lunch) and educational activities. A trained teacher is assigned to a group of 8 to 10 children to follow a curriculum designed by FODI. The annual cost of this modality is US\$ 488 per child and is fully subsidized by the government with no fee paid by parents.¹⁴

Evidence of impact. Rosero and Oosterbeek (2011) evaluate the impact of the two components of FODI: home visits and childcare centers both on children and mothers. Using a discontinuity in the allocation of program’s funding scheme they compare outcomes of children and their mothers above and below the threshold at which the intervention was implemented. Their findings, suggest a trade-off between child outcomes and mother’s emotional well-being on the one hand, and maternal labor participation and family income on the other hand. Their results show that childcare centers increase mothers’ labor market participation with no effect on family income. Home visits have a positive impact on children’s cognitive and motor outcomes, they reduce the likelihood of anemia and increase the mother’s emotional well-being. On the contrary, childcare centers show the opposite results with an increase in the probability for children to be underweight and for increased depression and stress in mothers. These findings however, need to be considered with caution, first considering that are conditional on the

¹³ SISBEN is an indicator measuring economic well-being based on different household socio-economic variables that is used to target the welfare programs in Colombia.

¹⁴ Rosero and Oosterbeek (2011)

quality of the studied interventions; and second, given some methodological concerns related to potential endogeneity of the funding scheme used as instrument for the analysis

4.1.5 Public daycare provision by Junta Nacional de Jardines Infantiles (JUNJI) and Fundacion INTEGRA, Chile

Description. Public daycare is provided in Chile through two different agencies: JUNJI, a public institution created in 1970 with the objective of planning, promoting and operating daycare centers for infants and toddlers of low-income families; and Fundacion INTEGRA, a non-profit organization created in 1990 also operating nurseries and educational centers for young children. Both institutions offer free childcare for children 3 months old to 5 years old under the modality called *sala-cuna* for infants up to 2 years old and *jardines* for children 2 to 5. In 2009, there were 2,010 *salas-cuna* and 2,109 *jardines* across the country with capacity for 58,816 and 118,667 children respectively. Both JUNJI and INTEGRA share the objective of providing quality care and have an educational focus.

Evidence of impact. No experimental or robust quasi-experimental evidence exists for the Chilean case. Two attempts at measuring the impact of a substantial increase in public childcare supply are Medrano (2009) and Encina and Martínez (2009). The results, in both cases, show no significant effect on female labor supply however, these have to be taken cautiously given the potential methodological drawbacks. A recent study by Contreras, Puentes and Bravo (2012) examines the hypothesis that adequate provision of childcare services, in terms of closeness and compatibility between hours of operation and labor hours, has an effect on FLFP. Using an extensive survey designed to measure factors related to childcare they simulate a scenario in which 50% of women would benefit from adequate provision of childcare and find that labor participation would increase between 1 and 8% and household per capita income would increase 6 to 8%. The authors also find that women who take advantage of the adequate provision policies would come from middle-income households, which is consistent with previous results that indicated that the expansion of childcare centers for low-income families did not have an effect on FLFP.

4.1.6 Rio de Janeiro's public daycare program, Brazil

Description. Rio de Janeiro's public day-care program is an integrated Early Childhood Development service for children ages 0-3 living in low-income neighborhoods. This program, implemented by the municipal government of Rio de Janeiro, consists of several free center-based interventions, including full time daycare, health services, food, and provision of educational material for children.

Evidence of impact. A first study by Deutsch (1998) carried a survey and showed that increased mothers' labor force participation and earnings are consistently associated with the use of childcare outside the home in poor neighborhoods in Rio de Janeiro. More recently, Paes de Barros et al. (2011) are able to identify a causal relationship between access to childcare and maternal labor market outcomes taking advantage of a lottery carried by the municipal government in 2007 to assign the 10,000 available spaces among the approximately 24,000 applicants for the 2008 enrollment period. They study a sample of 4,348 applicant children whose families were interviewed four to eight months after services started; half of them were lottery winners and the other half were placed in waiting lists. The results suggest a

large increase in the use of childcare (from 51 to 94 percent); an increase in labor force participation rates of 8% (from 74 to 79 percent), and an increase in mothers' employment of 27% (from 36 to 46 percent); this increase in employment is particularly important for those mothers not working before the lottery (almost doubling from 9 to 17 percent). No effect on the extensive margin is found but estimates suggest a modest increase in household income, which is much smaller than the cost of childcare per child. Given this result on income impacts and the evidence found that public provision of free childcare crowds out private provision even in low income neighborhoods, the authors suggest that direct transfers via vouchers for childcare may be more cost-effective than direct public provision.

4.2 Preschool programs

Most countries in Latin America have a public preschool program but rigorous evidence of their impact on maternal labor market outcomes exists only for Argentina. Berlinski and Galiani (2007) assessed the impact of the expansion of preschool infrastructure in Argentina on maternal employment finding a positive impact on the probability of maternal employment of between 7 and 14 percentage points for an increase in the new stock of preschool rooms from 0 to 1. For the same program, Berlinski, Galiani and Gertler (2009) found substantial effects of preschool attendance on medium-term learning outcomes, with bigger gains for children in less advantaged municipalities.

Berlinski, Galiani and McEwan (2011) study the effect of early school attendance on maternal labor market outcomes using a regression discontinuity approach on the enrollment cutoff age for the preschool program in Argentina. Their findings suggest that, on average, for every 100 children starting preschool, 13 mothers start working. For enrolled children that are not the youngest in the household, results from the study show no effect of preschool attendance on mothers' labor participation. It is important to note that, in most cases, preschool is only part time therefore, working mothers still need to find other childcare arrangements. The expected impact on maternal labor force participation might then be different from childcare programs providing full-time services.

4.3 Discussion of main findings in Latin America and the Caribbean

Given the incipient number of experimental or rigorous quasi-experimental evaluations for childcare interventions in the region, meta-analysis to examine the existing studies along comparable dimensions and outcomes is still ambitious. However, an initial discussion of available findings provides a perspective on their general effects on maternal labor outcomes for LAC.

As described in Sections 4.1 and 4.2, evidence in the region shows broad consistency of a positive effect of access to childcare on FLFP either on the intensive or the extensive margin. The majority of quasi-experimental and random assignment studies find a strong significant effect in either women's entry to the labor market, the number of hours worked, or the probability to be employed (See Table A1).

Evidence in terms of the effect on income is mixed: for *Estancias Infantiles* in Mexico, Angeles et al. (2011) find no effect on labor income while Calderon (2011) finds a significant effect on female labor income but no effect on household income. Her hypothesis is that husbands of women with better labor income try to transition to better jobs and may reduce their working hours while job searching. For the

case of publicly provided daycare in Rio de Janeiro, Paes de Barros et al. (2011) find that the rise in maternal employment is associated with an increase of 16% in household income. In contrast, Rosero and Oosterbeek (2011) find no significant estimated income impact of FODI in Ecuador, although they find an increase in FLFP.

Tables 4, 5 and 6 provide a classification of the available studies by type of evidence found and by characteristics of the specific childcare intervention they analyze. Table 3 summarizes the information presented in those three tables. Categorizing the available evidence along the different dimensions is useful to define relevant questions to assess the most effective way to help mothers of young children balancing conflicting demands from care and work activities. According to this summary, there is more evidence of a positive impact when the services are free, they operate on a full-time basis, and have direct public provision.

Table 3. Summary table of results on maternal labor outcomes by characteristics of childcare service

			Characteristics of the childcare service							
			No fee	No fee but small contribution of either money or time	Fee	Hours of operation: part time	Hours of operation: full-time	Public provision	Private provision with public subsidy	Community organization with public subsidy
FLFP	Effect	Participation	3				3	2	1	
		Employment	2	1	2	2	3	2	2	1
		# of hours worked	2	2		1	3	2		2
		Income	1		1		2	1	1	
	No effect (or not significant)	Participation	1			1			1	
		Income	1		1		2		2	

Note: Numbers represent studies. A detail of the studies providing experimental or quasi-experimental evidence is presented in Table A1.

Table 4. Study results on maternal labor outcomes by type of tuition charged for the service

Findings/intervention characteristic	Characteristic of the intervention: Fee paid by parents		
	No fee	No fee but small parents' contribution of either money or time	Fee
Effect on labor participation (intensive margin)	<p>Deutsch (1998)⁺ studying public daycare in Rio de Janeiro, Brazil.</p> <p>Paes de Barros et al. (2011) studying public daycare in Rio de Janeiro, Brazil.</p> <p>Rosero and Oosterbeek (2011) studying FODI, Ecuador.</p>		
Effect on employment	<p>Berlinski and Galiani (2007) studying preschool program, Argentina.</p> <p>Berlinski, Galiani and McEwan (2011) studying preschool, Argentina. Only for mothers whose youngest child is 5, and starts preschool</p>	<p>Attanasio and Vera-Hernandez (2004) studying HCBF, Colombia.</p>	<p>Calderón (2011) studying <i>Estancias Infantiles</i>, Mexico.</p> <p>Angeles et al. (2011) on <i>Estancias Infantiles</i>, Mexico.</p>
Effect on number of hours worked	<p>Berlinski, Galiani and McEwan (2011) studying preschool, Argentina. Only for mothers whose younger child is 5 and starts preschool</p> <p>Paes de Barros et al. (2011) studying public daycare in Rio de Janeiro, Brazil.</p>	<p>Attanasio and Vera-Hernandez (2004) on HCBF, Colombia.</p> <p>Hallman et al. (2005)⁺ studying <i>Hogares Comunitarios</i>, Guatemala.</p>	
Effect on income	<p>Paes de Barros et al. (2011) studying public daycare in Rio de Janeiro, Brazil. (Increase in household income)</p>		<p>Calderón (2011) studying <i>Estancias Infantiles</i>, Mexico.</p>
No effect on FLFP (or not significant)	<p>Medrano (2009), Encinas and Martinez (2009)⁺ studying JUNJI and Fundacion INTEGRAL, Chile.</p>		
No effect on income	<p>Rosero and Oosterbeek (2011) studying FODI, Ecuador.</p>		<p>Angeles et al. (2011) studying <i>Estancias Infantiles</i>, Mexico.</p>

⁺ Evidence not from quasi-experimental or random assignment study.

Table 5. Study results on maternal labor outcomes by hours of operation of the childcare service

	Characteristic of the intervention: Hours of operation	
Findings/intervention characteristic	Part-time	Full-time
Effect on labor participation (intensive margin)		<p>Deutsch (1998)⁺ studying public daycare in Rio de Janeiro, Brazil.</p> <p>Paes de Barros et al. (2011) studying public daycare in Rio de Janeiro, Brazil.</p> <p>Rosero and Oosterbeek (2011) studying FODI, Ecuador.</p>
Effect on employment	<p>Berlinski and Galiani (2007) studying preschool program, Argentina.</p> <p>Berlinski, Galiani and McEwan (2011) studying preschool, Argentina. Only for mothers whose younger child is 5 and starts preschool</p>	<p>Attanasio and Vera-Hernandez (2004) studying HCBF, Colombia.</p> <p>Calderón (2011) studying <i>Estancias Infantiles</i>, Mexico.</p> <p>Angeles et al. (2011) studying <i>Estancias Infantiles</i>, Mexico.</p>
Effect on number of hours worked	<p>Berlinski, Galiani and McEwan (2011) studying preschool, Argentina. Only for mothers whose younger child is 5 and starts preschool.</p>	<p>Paes de Barros et al. (2011) studying public daycare in Rio de Janeiro, Brazil.</p> <p>Attanasio and Vera-Hernandez (2004) studying HCBF, Colombia.</p> <p>Hallman et al. (2005)⁺ studying <i>Hogares Comunitarios</i>, Guatemala.</p>
Effect on income		<p>Paes de Barros et al. (2011) studying public daycare in Rio de Janeiro, Brazil.</p> <p>Calderón (2011) on <i>Estancias Infantiles</i>, Mexico.</p>
No effect on FLFP (or not significant)	<p>Medrano (2009), Encinas and Martinez (2009)⁺ studying JUNJI and Fundacion INTEGRAL, Chile</p>	
No effect on income		<p>Rosero and Oosterbeek (2011) studying FODI, Ecuador.</p> <p>Angeles et al. (2011) studying <i>Estancias Infantiles</i>, Mexico.</p>

⁺ Evidence not from quasi-experimental or random assignment study.

Table 6. Study results on maternal labor outcomes by provision model

	Characteristic of the intervention: Provision model		
Findings/intervention characteristic	Public provision	Publicly subsidized services provided by private sector	Community organization with public subsidy
Effect on labor participation (intensive margin)	Deutsch (1998) ⁺ studying public daycare in Rio de Janeiro, Brazil. Paes de Barros et al. (2011) studying public daycare in Rio de Janeiro, Brazil.	Rosero and Oosterbeek (2011) studying FODI, Ecuador.	
Effect on employment	Berlinski and Galiani (2007) studying preschool program, Argentina. Berlinski, Galiani and McEwan (2011) studying preschool, Argentina. Only for mothers whose younger child is 5 and starts preschool.	Calderón (2011) studying <i>Estancias Infantiles</i> , Mexico. Angeles et al. (2011) studying <i>Estancias Infantiles</i> , Mexico.	Attanasio and Vera-Hernandez (2004) studying HCBF, Colombia.
Effect on number of hours worked	Berlinski, Galiani and McEwan (2011) studying preschool, Argentina. Only for mothers whose younger child is 5 and starts preschool. Paes de Barros et al. (2011) studying public daycare in Rio de Janeiro, Brazil.		Attanasio and Vera-Hernandez (2004) studying HCBF, Colombia. Hallman et al. (2005) ⁺ studying <i>Hogares Comunitarios</i> , Guatemala.
Effect on income	Paes de Barros et al. (2011) studying public daycare in Rio de Janeiro, Brazil. (Increase in household income)	Calderón (2011) studying <i>Estancias Infantiles</i> , Mexico.	
No effect on FLFP (or not significant)		Medrano (2009), Encinas and Martinez (2009) ⁺ studying JUNJI and Fundacion INTEGRAL, Chile	
No effect on income		Angeles et al. (2011) studying <i>Estancias Infantiles</i> , Mexico. Rosero and Oosterbeek (2011) studying FODI, Ecuador.	

⁺ Evidence not from quasi-experimental or random assignment study.

5 Evidence on the determinants of childcare demand

Some of the studies reviewed present suggestive evidence of imperfect take-up rates, and therefore important inefficiencies in the childcare programs evaluated. For instance, the evaluation of HCBF in Colombia, by Attanasio and Vera-Hernandez (2004), shows that attendance rates are low (less than 50% of eligible children) in contrast with a general belief that most children from eligible strata were attending *hogares comunitarios*.

Angeles et al. (2011) mention an average of 16 available spaces per childcare center (*estancia*) in Mexico, indicating that the eligible population is not necessarily taking up the service to the level originally intended. This study, as well as Paes de Barros (2011) for the public daycare provision in Rio de Janeiro, compares outcomes for beneficiaries and families of children in waiting lists in those centers with excess demand. However, the fact that there are centers operating without excess demand is not irrelevant to the research question. One could argue that findings of these studies are valid and applicable only for those childcare centers with excess demand and do not represent an average treatment effect, as there may be important differences between centers with and without excess demand.

Evidence about factors that affect the demand for childcare services and other arrangements is relatively scarce. And yet, one cannot look at the impact of childcare on children and mother's outcomes without first having some clear idea of the drivers of use of these programs. If there is such a thing as selective take-up, counterfactuals for evaluation are basically altered. Using randomization as an instrument for treatment will not provide unbiased estimates of the mean impact (Ravallion, 2011; Heckman, Urzua and Vytlačil, 2006).

Even if existing evidence on determinants of childcare demand is limited, there are some consistent findings in studies from developed and developing countries:

- 1) Determinants of the demand for childcare related to household/child/mother's characteristics:
 - a) The presence of alternative caregivers in the households has been shown to reduce the demand for formal childcare services (Deutsch, 1998; Attanasio and Vera-Hernandez, 2004). Hallman et al. (2005) show that residence of females 45 years and older in the household increases utilization of informal care and reduces the use of formal care while resident adult males show the opposite effects. Some of the studies looking at the effects of childcare on FLFP examine whether there is heterogeneity in the impact depending on household and mother's characteristics. It is consistently found that the presence of other female relatives in the household increases maternal labor supply (Connelly et al., 1996; Hallman et al., 2005).
 - b) Children's age increases probability of enrollment (Urzua and Veramendi, 2011; Bernal and Fernandez, 2013). Informal arrangements and care by family members is preferred for infants while the demand for center-based formal care increases during the child's second year of life (Leibowitz et al. 1992). The age of children is positively associated with maternal labor participation, especially if the child is the youngest and among more educated mothers (Schlosser, 2011).

- c) Mother's education shows a positive relationship with probability of enrollment. Hallman et al. (2005) find that mother's education significantly increases the use of both formal and informal daycare arrangements. Urzua and Veramendi (2011) find that mother's numerical IQ and extraversion increase the probability of enrollment. Bernal and Fernandez (2013) find greater children attendance to HCBF among better educated mothers.
 - d) Female-headed households are more likely to be eligible and participate in subsidized childcare programs. Herbst (2008) shows evidence for the US that households headed by a woman are 52% more likely to be eligible and 23% more likely to participate in the subsidized childcare program than male-headed households.
 - e) Evidence on whether poor households have higher participation rates is inconclusive. In the US, eligibility and take-up rates are higher among households below the poverty line (Herbst, 2008). The evaluation of HCBF in Colombia shows that it is more likely that participants of the program come from the lowest income quintile among the eligible population (Bernal and Fernandez, 2013). However, Gertler, Galiani and Seira (2012) find that families taking up subsidized childcare (*Estancias Infantiles*) in Mexico used to pay for childcare previously and are those with better income within the eligible population. Similarly, in the Chilean case, Contreras, Puentes and Bravo (2012) find that provision of childcare services that are close to home and have compatible hours of operation with the mother's labor hours attracts mostly middle-income families.
- 2) Determinants of the demand for childcare related to the characteristics of the service:
- a) Higher own-price usually reduces demand, although it is difficult to control for quality and it is possible that high prices correlate with demand when they imply high quality. (Lokshin, 2000; Fong and Lokshin, 2000).
 - b) Distance to childcare center is negatively related to enrollment. Attanasio and Vera-Hernandez (2009) find that distance from the household to the nearest childcare center is highly predictive of enrollment. Urzua and Veramendi (2011) also find a significant and negative effect of distance to childcare center on attendance. The direct relationship between characteristics of the childcare services and women's labor participation has been less studied. Motivated by previous literature showing the lack of effect of childcare expansion policy in Chile on maternal labor participation, Contreras, Puentes and Bravo (2012) model the labor participation decision and using a survey specially designed to answer childcare related issues find that physical proximity to a childcare center increases the likelihood of labor participation.
 - c) Contreras, Puentes and Bravo (2012) find that having access to childcare centers that operate for the same hours as typical working hours also increases participation in the labor market.

6 Conclusions

Public provision and financing of childcare services represent interesting policy options to promote equity in the access to quality services and can potentially boost the economic participation of women, reducing gender inequalities in the labor market. This note has presented an overview of the available evidence on the effects of childcare programs on maternal labor force participation, with a special emphasis on LAC countries.

Many countries in the region have subsidized non-parental childcare programs, either with the explicit objective of supporting working mothers, or to improve children's nutrition, education and early development. A growing body of impact studies of such interventions shows a consistent and strong positive effect of access to childcare on maternal labor force participation.

At the core of the design, replication and scaling-up decisions for childcare programs, there is a need to understand the factors that influence access to childcare and maternal labor force participation. In particular, demand has to be placed in the context of other available arrangements (i.e. private services, informal arrangements and the use of family networks) and the characteristics of the services. The bottom line is that more childcare appears to be conducive to higher female labor supply. However, a review of the literature shows that this relationship is more complex than it appears at face value. Several issues need to be factored in: the characteristics of the services; the characteristics of the labor market; and the characteristics of the target population, i.e., mothers of young children. For instance, going back to the example of Chile, one possible explanation for the lack of positive evidence after the expansion of childcare access can be that new free public centers were merely substituting preexisting informal arrangements already used by working mothers. If that is the case, the features of the services offered were appealing for those mothers already working, but seemed to be insufficient to mobilize the other non-working mothers (or at least a segment of those). In that sense, assessing whether public provision is more cost effective than subsidizing the use of private providers, via vouchers for example, depends on whether public provision crowds out private provision, and whether there is heterogeneity in households' response depending on their socio-economic status.

Answering the fundamental question of what types of programs are cost-effective and, in particular, what are the basic requirements in terms of investment to make childcare provision an effective and sustainable strategy for FLFP implies understanding the demand for such programs and identifying the reasons behind participation (take-up). The evidence on the determinants of demand and use of non-parental childcare in the region is scarce and indicates an urgent need for carefully designing new evaluation studies that shed some light into this fundamental question, in an area that is capturing growing shares of the social investment in the region.

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Table A1. Summary of random assignment and quasi-experimental studies on the impact of childcare on female labor outcomes (Part 1)

Study	Country	Intervention	Methodology	Comparison group	Sample Characteristics	Outcomes	Effect size on Female labor outcomes	Notes
Angeles et al. (2012)	Mexico	Estancias Infantiles para Apoyar a Madres Trabajadoras (SEDESOL)	Pipeline design: Comparing outcomes for mothers of enrolled children and mothers of children in wait lists	Mothers of children in wait lists	236 Estancias (centers) with wait lists in 7 states. 2,284 households with beneficiary children or children in wait lists. Response rate of 77% (1,573 households)	Mother's labor market outcomes: -Probability of being employed -Work hours -Mother and household income Mother's time use Mother's mental health Children's health Children's nutrition Children's development	18% increase in probability of being employed; 6 hours per week increase in the amount of work hours; No effect is job stability for mothers; No effect on mother's or household's income; Reduction of 7 hours per week in mother's time allocated to care	Estimations only valid for centers with wait lists
Berlinski, Galiani and McEwan (2011)	Argentina	Preschool	Regression discontinuity using exact birthdates and the plausibly exogenous variation in the probability of attendance to identify the effect of early school attendance	Children born one day later than the cutoff birth date for enrollment in (compulsory) kindergarten (Children who must wait a full year to enroll)	22,974 mothers aged 18-49 with at least one child aged 4 on Jan 1st of the year of the survey (Encuesta Permanente de Hogares 1995-2001)	Mother's labor market outcomes: -Employment -Full time employment -Number of hours worked	13 mothers start to work for every 100 youngest children in the household that start preschool; Mothers are 19.1 percentage points more likely to work for more than 20 hrs a week, and to work on average 7.8 hrs more a week as a consequence of their youngest offspring attending preschool; No effect of preschool attendance on maternal labor market outcomes for children who are not the youngest of the household	

Table A1. Summary of random assignment and quasi-experimental studies on the impact of childcare on female labor outcomes (Part 2)

Study	Country	Intervention	Methodology	Comparison group	Sample Characteristics	Outcomes	Effect size on Female labor outcomes	Notes
Paes de Barros et al (2011)	Brazil	Rio de Janeiro's free public childcare	Random assignment into treatment and control groups. This study takes advantage of a lottery carried by the municipal government of Rio de Janeiro in 2007	Children who did not win the lottery and were placed in waiting lists	4,348 applicant children of which half were lottery winners and the remaining were placed in waiting lists	Mother's labor market outcomes: - Maternal employment rates - Labor force participation rates - Unemployment rates - Hours worked Enrollment in privately paid centers Household income	Increase from 51% to 94% in the use of public centers; increase from 36% to 46% in mother's employment; Increase from 9% to 17% in employment of mothers who were not working before lottery; No impact on hours worked for mothers who were already employed	There are some centers without excess demand (no lottery performed there). Study only on those centers that have excess demand
Calderon (2012)	Mexico	Estancias Infantiles para Apoyar a Madres Trabajadoras	Difference-in-difference-in-difference approach adapting the Synthetic Control Method to a repeated cross-section data	Synthetic controls replicating the pre-treatment behavior of the eligible individuals	2,162,860 observations of women who are household heads of spouses and have children older than 1 and younger than 4 years of age. From repeated quarterly cross-section data from 2000 to 2010	Labor outcomes -Probability of being employed (mother and father) -Use of time for care (mother, father) -Hours worked -Job stability	Women with average additional exposure of 0.12 increase their probability of working by 1.8 percentage points; Women who reduced the amount of time in child rearing by one hour increased monthly labor income by \$72 real 2008 pesos; No evidence of an increase in total household income	Estimates are mostly Intention-to-Treat (ITT) effects
Medrano (2009)	Chile	JUNJI and Fundacion Integra	Difference-in-difference using variation in the number of day care centers by county given by the expansion of existing programs to compare labor participation of eligible mothers in counties with different degrees of treatment.	Mothers in counties yet to be treated	1,517 mothers of children younger than 2 years old (from Employment and Unemployment Survey for periods June 2003-2005 and June 2007-2008)	- Maternal labor force participation - Female employment rate - Hours worked	2.6% to 10% increase in female labor participation, effect disappears when controlling for observable family and individual characteristics; No effect on employment or work hours	High probability that expansion in daycare centers is not exogenous. Eligibility is proxied with income quintile that may be endogenous to labor participation. Limited sample size

Table A1. Summary of random assignment and quasi-experimental studies on the impact of childcare on female labor outcomes (Part 3)

Study	Country	Intervention	Methodology	Comparison group	Sample Characteristics	Outcomes	Effect size on Female labor outcomes	Notes
Rosero and Oosterbeek (2011)	Ecuador	FODI	Regression discontinuity design using threshold for childcare funding application	Children (and their mothers) enrolled in centers that are not part of the program	2,572 children in 99 centers; 38 providing child care centers and 61 home visits. 899 children in childcare centers: 411 in non eligible centers and 478 in eligible centers	Children: - Cognitive, motor and socio-emotional development - Physical development: height for age and weight for age - Hemoglobin levels Mothers: - depression and psychological stress - Responsiveness to children - Participation, working hours and income	Probability that the mother works increases in 22 percentage points; Working hours increase approx. 7 hours per week; Effect of childcare centers on mothers' income is positive but not significant; Effect on income of household head is significantly positive	The threshold used for the regression discontinuity may not be exogenous
Attanasio and Vera-Hernandez. (2004)	Colombia	Hogares Comunitario de Bienestar (HCB)	Instrumental variables approach: using distance from the household to the nearest center, and this distance averaged at the town level as instruments for participation into the program (treatment)	Mothers of non-participant children using the distance of the house of residence to the nearest center as an instrument for participation	The baseline consisted of 4,689 households, which included 4,147 children between 0-6. All were SISBEN 1 and eligible for Hogares Comunitarios. The follow-up consisted of 4,462 of the same households	For children 0-6: - Height - Weight - Leg length (all standardized) For older children already out of the program: - Are they currently attending school? - Whether they progressed a grade between baseline and follow-up For mothers: - Female employment rates - Hours of work	Probability of employment increases from 0.12 to 0.37; Program increases the number of hours worked by 75 hours per month	Exclusion restriction may not hold
Berlinski and Galiani (2007)	Argentina	Preschool	Difference-in-difference strategy using variation in intensity of construction of preschools across provinces	Mothers with at least one child between 3 and 5 years of age in provinces where preschool expansion happened at a later date	For the period 1994–2000, the sample includes 29,817 mothers aged 18–49 and at least one child between 3 and 5 years of age	Pre-primary school attendance in households with at least one child aged 3–5; maternal labor outcomes	Average increase in the probability of pre-primary school attendance is approximately 7.5 percentage point. One additional school room with full take-up of the new place impact the likelihood of maternal employment by 7 percentage points	