

**CHILDCARE SERVICES
IN MEXICO:**
SCENARIOS OF DEMAND,
SUPPLY, AND FINANCING

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Childcare Services in Mexico:

Scenarios of Demand, Supply, and Financing

Abstract

Based on administrative records, the Labor Survey of 2017, and the Social Security Survey of 2017, this study produces ex-ante estimations of scenarios of interest for the provision and financing of childcare services in Mexico. One scenario is the reform to the Law of Social Security to broaden eligibility for childcare support—that currently only includes access for mothers—to fathers (men). Another scenario is the universalization of the Child Welfare Support Program, promoted by the federal government. Given the large participation gap in the labor market and the number of households lacking childcare access due to the current legal restrictions, reforming current laws, or granting every mother a cash transfer could have a significant impact on female labor force participation. We computed a bivariate probit model to analyze women’s employability and childcare-use decisions jointly. Our results showed that the implementation of these policies could have notable effects on both formal childcare use and female economic activity. While the reform to the Law of Social Security would yield small changes at a relatively low price, the universalization of social transfers has a broader scope of influence with more significant public spending. However, these costs should consider the long term benefits for the economy and the gains in human rights of the proposed policies.

Gender equality is essential for economic development, and it is a fundamental human right. The reduction of the prevailing economic disparities between men and women is necessary for the achievement of many long-standing development goals, such as the lessening of poverty and inequality and the improvement of health and education outcomes in children. However, there is still a need for increased knowledge on how to close these gaps, and on public policy alternatives that can effectively mitigate the problem (Mateo and Rodriguez, 2016).

One of the main challenges in furthering gender equality is the persistent participation gap in the labor market, as women are less likely to be in the workforce and more prone to experience lower-quality jobs. There is growing evidence that relates childcare access with higher female labor force par-

1 Gender Equality and Development

Childcare and Female Labor Force



ticipation — that is, support for childcare is crucial to enable the active engagement of mothers in the labor market (Farfan-Portet et al., 2011). During the last decades, several countries have expanded childcare services through a wide array of institutional arrangements, yielding valuable lessons to policymakers (Mateo and Rodriguez, 2016).

A combination of supply- (e.g., subsidies and transfers to service providers) and demand-side (e.g., fee rebates and cash benefits to the households) policies have shown to be a better option for financing childcare, fostering competition, and ensuring quality objectives (Mateo and Rodriguez, 2016). Generally, in well-regulated systems, the quality and affordability of such services should not be affected by the type of provision (e.g., public or private), although outsourced venues appear to be the most efficient (Mateo and Rodriguez, 2016). Moreover, universal programs could reduce the segmentation that reinforces inequalities, while decentralization of services might reinforce it in countries with extensive regional heterogeneity and inequality (Mateo and Rodriguez, 2016).

The transition between parental leave, childcare, and compulsory education has shown to be crucial to the probability of mothers returning to the labor market. However, in many countries, significant gaps across service provision still exist, thus frustrating policy objectives. Accompanying childcare provision with paternal leave and other policies that ensure smooth transitions across the different stages is needed to further female labor force participation (Mateo and Rodriguez, 2016). The adoption of unitary models can help integrate childcare and educational functions through the various stages of childhood and facilitate policy consistency (Mateo and Rodriguez, 2016).

Mexico faces substantial structural challenges in gender equality in all areas of development, and particularly in the labor market. Only 47.3 percent of working-age Mexican women participate in the labor force, which is the second-lowest rate in the Organisation for Economic Cooperation and Development (OECD) and well below the regional average of 60.1 percent (OECD, 2017, 2018). The country also lags behind other Latin American countries in this regard: Chile's, Colombia's, and Brazil's female labor force participation rates were 57.9, 62.9, and 61.1 percent in 2018, respectively (OECD, 2017, 2018).

In Mexico, the law grants childcare access to working mothers affiliated to the Mexican Social Security Institute (IMSS) or the Institute for Social Security and Services for State Workers (ISSSTE), but it does not do so to working fathers. The proposed reform to Articles 201 and 205 of the Law of Social Security, and Article 2-XIX of the Regulation of Care Services for Welfare

**Supply-side +
Demand-side Policies**

**Mothers Returning to
the Labor Market**

1.1. Mexican Context

**Childcare Rights to the
Fathers**



and Child Development of the ISSSTE Law to broaden eligibility for childcare support to men (fathers) is to reduce the prevailing gender gap in the labor market. Furthermore, the universalization of the Child Welfare Support Program promoted by the federal government intends to support women in this regard as well. This policy would virtually undo the link between formal employment and care provision that has persisted in the country.

Currently, the restricted access rights create a trap that mothers might fall into, and that could impede greater female labor force participation. On the one hand, women might not engage in economic activities because no one would take care of their children, and, on the other hand, they might not have access to childcare services because they are unemployed (or not employed in the formal economy). Allowing working men to enjoy these benefits might relieve the need for their spouses to be economically inactive as would the potential universalization of the transfer program. Therefore, these policies might have significant effects on childcare use and female labor force participation. However, the question remains of whether the increased labor supply would be captured by the formal or informal sectors, with the fiscal sustainability implications that this might beget.

Eluding the Trap

Legally speaking, access to formal childcare services is not granted to the children but their parents. That is, it is not a child's right but the child's legal guardian's right. Thus, a child may use such services and switch care providers if at least one of them is entitled to do so. Accordingly, given the current ISSSTE's childcare framework, any child who is 6 years of age or under could be a potential beneficiary, if administrative and legal requirements are appropriately met (primarily, when the parents are simultaneously affiliated with two or more social security institutions).

We assessed childcare use through the National Survey of Social Security 2017 (INEGI, 2017), which is the only official source of information available on formal childcare use in Mexico. The database is an extension of the quarterly conducted National Labor Survey. Consequently, we found that 13.1 million children who are 6 years of age or under constitute the maximum number of potential users in 2017. According to the survey, only 4.4% of them attended formal care facilities (Table 1). In this regard, the available data was severely limited for the purposes of this paper. Information on childcare use was challenging to use and left out key aspects necessary for the analysis of female labor force participation. This handicapped the result presented hereafter and thus, they should be considered as approximations.

2 Childcare Use

Potential Users:
13.1 Million. Only 4.4%
Are Current Users



Of all non-users, 8.1 million children (64.5%) stayed at home with their *economically inactive* mothers (Table 2). The rest utilized informal care arrangements, either with family members or non-family acquaintances. Notably, the main reasons reported for not using childcare services were as follows: 1) they do not need it, 2) they do not trust the services offered, 3) they lack the money, and 4) they do not have the right (Table 2).

Non-user reasons:
 no need, no trust, no money, and no right

Age	Non-users	Users	%	Total
0	1,606,978	36,151	2.2	1,643,129
1	1,767,508	98,943	5.3	1,866,451
2	1,861,833	138,786	6.9	2,000,619
3	1,922,338	127,170	6.2	2,049,508
4	1,847,358	69,310	3.6	1,916,668
5	1,829,276	70,995	3.7	1,900,271
6	1,703,618	30,239	1.7	1,733,857
Total	12,538,909	571,594	4.4	13,110,503

Source: Own estimations with information from: INEGI (2017).

Table 1. Children with 6 years of age or less, by childcare usage

Reasons for non-usage	Non-users	Structural?
Mother doesn't work	8,086,686	No
No right	343,603	No
No availability	97,743	No
No trust	480,605	Yes
Kid with disabilities	3,448	No
No one to take them or pick them up	48,614	No
Too far or no facility	332,268	No
Lack of money	350,718	No
No need	1,133,523	Yes
Child goes with mother to work	1,449,606	No
Child is left alone	15,757	No
Other reasons	196,338	Yes (assumed)
Total	12,538,909	

Source: Own estimations with information from: INEGI (2017).

Table 2. Children under 6 years of age, by reasons for non-usage

Following Mateo and Rodriguez (2016), non-users were classified based on self-report. We identified **structural non-users** as those who had strong preferences for other care arrangements and who, therefore, might be difficult to induce to using formal childcare. Respondents who have no need for childcare, who stated a lack of trust, and who fell under the item "other reasons" as motives for not utilizing childcare were included in this category.

Additionally, **non-users at the margin** were those who were sensitive to service characteristics and supply factors, including availability, price, and benefits. Therefore, altering specific service features might prompt them to utilize childcare. Respondents who stated that they do not have access rights, that the facilities are too far or non-existent, and that they lack monetary resources as reasons for not using childcare were sorted into this category.

2.1. Classification of non-users



We did this as well when the children accompany their mother to work, when the children stay on their own, and when the children stay with their economically inactive mothers.

On that note, 85.6% of the non-users were *at the margin*, and the rest 14.4% were *structural* non-users (Table 2).

However, due to the complex and diverse household compositions in Mexico, many households have both *structural* and *marginal* non-users within them, as well as children that attend childcare facilities living alongside others that do not. Table 3 displays the average of childcare users in a household, along with the individual observations of the children. Similarly, Table 4 shows the average of children considered *structural* and non-users *at the margin* within a household.

Diversity of
 Reasons and Users
 Within a Household

Household average users	Non-users	Users	Total
0.00 (none)	12,462,877	-	12,462,877
0.25 (1 out of 4)	240	80	320
0.33 (1 out of 3)	11,676	5,838	17,514
0.40 (2 out of 5)	975	650	1,625
0.50 (1 out of 2)	58,670	58,670	117,340
0.67 (2 out of 3)	3,746	7,498	11,247
0.75 (3 out of 4)	722	2,166	2,888
1.00 (all of them)	-	469,692	469,692
Total	12,538,909	571,594	13,110,503

Table 3. Household average childcare use

Source: Own estimations with information from: INEGI (2017).

Household average structural non-users	Structural	At the margin	Total
0.00 (none)	-	10,621,114	10,621,114
0.20 (1 out of 5)	222	888	1,110
0.25 (1 out of 4)	6,724	20,172	26,896
0.33 (1 out of 3)	9,293	18,586	27,879
0.40 (2 out of 5)	1,626	2,439	4,065
0.50 (1 out of 2)	56,819	56,819	113,638
0.60 (3 out of 5)	552	368	920
0.67 (2 out of 3)	14,062	7,031	21,093
0.75 (3 out of 4)	1,794	598	2,392
0.80 (4 out of 5)	1,712	428	2,140
1.00 (all of them)	1,717,662	-	1,717,662
Total	1,810,466	10,728,443	12,538,909

Table 4. Household average structural non-users

Source: Own estimations with information from: INEGI (2017).



We met several challenges when attempting to identify the parents of the potential childcare users in the survey. As the dataset codes for kinship among household members relative to their relationship with the household head, only for the latter we could clearly and directly identify if he or she was the parent of a particular child (or on the rare occasion when the household head lived with a sibling who is under 6 years of age and their mother). Hence, we needed to make the following assumptions and use the following procedures to tag the mothers and fathers of all the other potential childcare users:

1. The oldest household head's daughter with children who was 55 years of age or less was the mother of all of the grandchildren living in the household.
2. If there were no household head's daughters (or none of them have had children), the oldest household head's son was the father of all of the grandchildren living in the household. We assumed that it is more likely for a child to live with his or her mother than with his or her father.
3. Similar assumptions apply for all other household head's relatives: great-grandchildren, nephews, siblings-in-law, cousins, godchildren, non-relatives, and domestic workers' children. We searched for the head's grandchildren, siblings, in-laws, uncles, and other relatives that could allow us to identify the children's parents.
4. Only when no household member had met the criteria above, the household head and its spouse (if any) were the children's legal guardians.
5. Once a mother, father, or legal guardian was identified, we searched for his or her spouse or partner in the household (if any).

Thus, we found 9.5 million mothers and 7.8 million fathers, including the legal guardians of all potential users seen in Social Security Survey 2017 (Table 5). Only 41.1% of the mothers were economically active, while, in contrast, 96.4% of the fathers were (Table 6). This finding is consistent with other sources reporting low female labor market engagement in Mexico (Mateo and Rodriguez, 2016; OECD, 2017, 2018). Given the large participation gap and the number of households lacking childcare access due to the current legal restrictions, reforming current laws could have a significant impact on the female labor market.

3 Labor Force Participation of Mothers

Mothers, Fathers, and Children

Mothers	Fathers	Children
9,438,586	7,781,657	13,110,503

Table 5. Children's Potential Parents

Source: Own estimations with information from: INEGI (2017).



Economic Status	Mothers	Fathers
Inactive	5,562,220	279,132
Active	3,876,336	7,502,525
Total	9,438,586	7,781,657

Source: Own estimations with information from: INEGI (2017).

Table 6. Labor Force Participation by Gender

Regarding childcare rights, we assumed that all mothers affiliated to IMSS and ISSSTE had their access granted (when children meet the age criteria). Of the identified women, 37.3% reported having access to social security and thus to formal childcare services (90.3% of them enrolled in IMSS and 9.7% to ISSSTE). A further 53.9% had access through other institutions, and 12.1% had no access to childcare services at all (Table 7)¹.

IMSS	ISSSTE	Others	No Access
3,182,796	340,648	5,083,848	1,147,630

Source: Own estimations with information from: INEGI (2017).

3.1. Childcare Rights

Table 7. Mothers of potential users, by childcare access rights

This study produces ex-ante estimations of scenarios of interest for the provision and financing of childcare services in Mexico. **One scenario** is the proposed reform to Articles 201 and 205 of the Law of Social Security, and Article 2-XIX of the Regulation of the Care Services for Welfare and Child Development of the Law of ISSSTE to broaden eligibility for childcare support to fathers (men) under the package of social security benefits that currently includes only the mothers. An **additional scenario** is the universalization of the Child Welfare Support Program addressed to working mothers.

A notable concern while studying women’s employment and childcare-use decisions is the endogeneity issue arising from the joint causality of the phenomena. An increased probability of engaging in the labor market might be related to a higher likelihood of utilizing formal childcare and vice versa. Thus, traditional econometric techniques might produce biased estimation results (Del Boca, 2015).

Following Wetzels (2005), Viitanen (2005), Van Ham and Büchel (2006), Del Boca and Vuri (2007), and Borra (2010), we computed a **bivariate probit** model for all mothers and female legal guardians found in the database, assuming a joint determination of both decisions beforehand. The dependent variables

¹ Any given person can be simultaneously affiliated to two or more social security institutions.

4 Simulations of Scenarios of Interest

4.1. Methodological Approach

Bivariate Probabilistic: Childcare Use, and Labor Participation



were whether the mother lives in a household where there is at least one child who goes to a childcare facility (childcare use) and whether the mother is economically active (labor participation).

We would then compute changes in the childcare-use probabilities first, and later estimate the probability of a woman of working. To link both decisions, we used the dependent variable of the childcare equation as an explanatory variable for the labor force participation equation. The explanatory variables used for the regression were the following (see Table 8 for their descriptive statistics):

First, Childcare Use;
Second, Labor
Participation

CHILDCARE USE

1. Whether the household has access to childcare through IMSS.
2. Whether the household has access to childcare through ISSSTE.
3. Mean of structural non-users in the household.
4. The number of children in the household.
5. Per capita household income.
6. The number of children in the household.
7. Whether the household employs any domestic workers.
8. The father's years of schooling.
9. Whether the household is in an urban area.
10. Whether the household is in a rural area.
11. Whether the mother is a wage-earner or employer.
12. The percentage of potential children enrolled in public childcare facilities (by state).
13. Whether the household head's brother lives in the household.
14. Whether the household head's brother in law lives in the household.
15. Whether the household head's nephew lives in the household.

LABOR FORCE PARTICIPATION

1. Whether the household uses IMSS childcare services.
2. Whether the household uses ISSSTE childcare services.
3. Whether the household has access to IMSS childcare services.
4. Whether the household has access to ISSSTE childcare services.
5. Age and its squared term.
6. The number of children aged 4 or younger in the household.
7. Years of schooling and its squared term.
8. The regional female employment rate (by state).
9. Whether the father is working in the formal sector (it is 0 when there is no father in the household).



Variable	Mean	Std. Dev.
Childcare use	0.05	0.22
IMSS childcare service rights	0.27	0.44
ISSSTE childcare service rights	0.04	0.19
Mean of structural non-users	0.15	0.35
Number of children in the household	1.37	0.62
Monthly per capita household income	1,598.64	1,383.50
Domestic workers	0.03	0.16
Father's years of schooling	7.53	0.16
Urban household	0.42	0.49
Rural household	0.28	0.45
Wage-earner or employer	0.28	0.45
Potential children enrolled	0.01	0.00
Head's brother	0.00	0.01
Head's brother in law	0.00	0.02
Head's nephew	0.02	0.13
Labor force participation	0.41	0.49
IMSS childcare use	0.02	0.12
ISSSTE childcare use	0.00	0.06
IMSS access	0.27	0.44
ISSSTE access	0.04	0.19
Age	30.60	8.13
Number children aged 4 or less	0.99	0.66
Years of schooling	9.90	3.75
Regional female employment rate	0.30	0.08
Father is employed in formal sector	0.50	0.50
Marital status	0.83	0.38

Table 8. Independent variables' descriptive statistics

Source: Own estimations with information from: INEGI (2017).

10. Marital status.

Thus, the equations were estimated as shown in 1.1 and 1.2.

$$\begin{aligned}
 \text{Childcare Use} = & \alpha + \text{IMSS Access Right} + \text{ISSSTE Access Right} + \\
 & \text{Structural HH} + \text{Number of Children in HH} + \text{HH Income} + \\
 & \text{Presence of Domestic Workers} + \text{Father's Schooling} + \text{High Urban HH} + \\
 & \text{Rural HH} + \text{High Quality Job of Mother} + \text{Regional Childcare Enrollment} + \\
 & \text{HH Head's Brother} + \text{HH Head's Siblings-In-Law} + \\
 & \text{HH Head's Nephew} + \epsilon_C
 \end{aligned}
 \tag{1.1}$$



$$\begin{aligned}
 \text{Labor Participation} = & \alpha + \text{IMSS Childcare Use} + \text{ISSSTE Childcare Use} + \\
 & \text{HH with IMSS Access} + \text{HH with ISSSTE Access} + \text{Structural HH} + \\
 & \text{Mother's Age} + \text{Mothers Age}^2 + \text{Number of Children under 4} + \\
 & \text{Mother's Schooling} + \text{Mother's Schooling}^2 + \text{Regional Female Employment} + \\
 & \text{Father in Formal Sector} + \text{Marital Status} + \epsilon_L
 \end{aligned}
 \tag{1.2}$$

The main variables of interest were the mother’s access to IMSS or ISSSTE child-care facilities and the per capita household income, as those are the relevant features of the proposed reforms. The other variables sought to control and incorporate the sociodemographic characteristics of the mothers and the households they live in, as well as relevant features of the labor and child-care markets they face. In particular, the regressors relating to the household head’s relatives are to identify for unconventional family structures, and they included family members under 6 years of age only.

The construction of some of the variables listed above requires further clarification. Due to data limitations, we had to manually reconstruct the monthly per capita household income by using secondary information on income in terms of minimum wages (e.g., up to one minimum wage, more than one and up to two minimum wages, and so on). We imputed the median of the range to each individual. As a large number of observations still displayed 0’s (i.e., no income reported), an average by state, size of the town of residence, and years of schooling was imputed to each individual accordingly.

Second, the regional female employment rate summarizes the percentage of employed women relative to their total in each state. The urban variable accounted for households living in areas with a population of 100,000 or more, while the rural one did so for areas with a population of 2,500 or fewer inhabitants. For the educational attainment of the parents, we took missing values as 0. Finally, the percentage of potential population enrolled was the number of children enrolled in IMSS and ISSSTE care facilities over the number of potential beneficiaries by state.

Table 9 shows the coefficients of the model and the correlation between the errors of both equations (ρ), which was negative and statistically significant. Thus, we cannot statistically accept that a mother’s childcare use and her labor participation decisions are independent of each other.

CHILD CARE USE OF MOTHERS For the childcare use equation, we found that having IMSS or ISSSTE childcare service rights, more children in the household, a higher income, domestic workers in the household, a higher education attainment of the father, living in a high urban area, being a wage earner or an employer, living in a state with higher childcare enrollment, and the presence of house-

Main variables

4.2. Probability Results



	Coefficient	P-value
Childcare use		
IMSS childcare service rights	0.293	0.000
ISSSTE childcare service rights	0.459	0.000
Mean of structural non-users	-1.511	0.000
Number of children in the household	0.072	0.088
Monthly per capita household income	0.000	0.000
Domestic workers	0.493	0.000
Father's years of schooling	0.031	0.000
High urban household	0.182	0.014
Rural household	-0.349	0.002
Wage-earner or employer	1.676	0.000
Potential children enrolled	18.029	0.029
Head's brother	1.308	0.000
Head's siblings-in-law	-4.124	0.000
Head's nephew	0.586	0.001
Constant	-3.743	0.000
Labor Force Participation		
IMSS childcare use	1.690	0.000
ISSSTE childcare use	1.566	0.002
IMSS access	0.222	0.000
ISSSTE access	0.457	0.000
Age	0.090	0.000
Age (squared)	-0.001	0.000
Number children aged 4 or less	-0.109	0.000
Years of schooling	-0.045	0.002
Years of schooling (squared)	0.004	0.000
Regional female employment rate	2.229	0.000
Father is employed in formal sector	0.170	0.001
Marital status	-1.026	0.000
Constant	-1.754	0.000
ρ	-0.313	0.001
Observations	19,378	

Table 9. Childcare use and labor force participation bivariate probit model

Source: Own estimations with information from: INEGI (2017).

hold head's nephew or brother increased the likelihood of the mother using childcare services. In contrast, having a larger percentage of structural non-users in the household, living in a rural area, and the presence of the head's brother in law living in the household decreased the probability.

LABOR PARTICIPATION OF MOTHERS As for the labor participation equation, being an IMSS or ISSSTE childcare user, having access to either of the institutions, a higher regional female employment rate, and having the father working in the formal sector increased the probability of a mother being economically active. In contrast, a larger number of children aged 4 or less decreased the probability of labor force participation. Moreover, the age and years of schooling of the mothers showed a nonlinear relationship to the likelihood of economic activity.



Nationwide, the base scenario represents 136,759 mothers (167,096 children) that demanded IMSS care services and 26,700 mothers (35,159 children) that did for ISSSTE services. This figure roughly matches with the administrative number of users in the institutions' financial and actuarial reports: 190,829 and 36,845 children for IMSS and ISSSTE, respectively (ISSSTE, 2017; IMSS, 2017). Furthermore, 145,838 mothers demanded childcare services from other institutions (181,412 children). Table 10 shows the distribution of these numbers between states.

Base scenario

Entity	Childcare Service Demand	Beneficiary children	% Labor Force Participation
Nationwide	163,459	202,255	41.1
IMSS	136,759	167,096	
ISSSTE	26,700	35,159	
Other institutions	145,838	181,412	
Aguascalientes	4,304	5,126	42.1
Baja California	8,694	10,019	51.4
Baja California Sur	2,090	2,381	56.8
Campeche	885	969	42.1
Coahuila	7,771	9,856	47.9
Colima	2,929	3,386	53.4
Chiapas	1,076	1,199	22.2
Chihuahua	13,995	16,784	49.9
Ciudad de México	10,616	12,654	50.0
Durango	3,044	4,041	42.6
Guanajuato	10,749	15,791	40.2
Guerrero	3,092	4,948	41.4
Hidalgo	785	886	34.9
Jalisco	8,774	10,997	45.8
México	14,174	18,073	41.6
Michioacán	4,224	5,626	34.9
Morelos	2,939	2,939	37.1
Nayarit	2,458	3,149	52.9
Nuevo León	7,640	8,343	43.8
Oaxaca	1,528	1,528	44.5
Puebla	2,055	2,359	40.2
Querétaro	1,439	1,972	34.1
Quintana Roo	2,803	2,961	44.3
San Luis Potosí	5,977	6,862	38.1
Sinaloa	5,688	6,267	45.6
Sonora	7,460	10,585	49.2
Tabasco	1,449	1,662	32.2
Tamaulipas	11,500	14,604	46.1
Tlaxcala	315	315	42.4
Veracruz	4,890	4,890	31.4
Yucatán	5,361	6,529	46.4
Zacatecas	2,755	4,554	33.3

Table 10. Base Scenario

Note: The number of childcare users and beneficiary child refer to IMSS and ISSSTE facilities only, unless otherwise specified.

Source: Own estimations with information from: INEGI (2017).



Identification of new users and workforce

For the identification of the new users of childcare services, we computed mothers' probabilities, given their simulated individual characteristics. We then sorted them from highest to lowest, keeping the total number of observed childcare users, to then find the probability threshold where the predicted and observed values were equivalent. Thus, we found that the number of observations above 49.6%, 66.4%, and 30.1% probabilities for IMSS, ISSSTE, and other care providers, respectively, was equal to the observed amount in the database. Similarly, a 41.0% probability amounted to the observed labor force participation.

We assumed that all individuals above those thresholds were users and participants; conversely, those below them were non-users and non-participants. This computation caused some of the mother's decisions to be misidentified, although the error was somewhat symmetrical across the two tails. Still, some deviation persisted as observations at the extremes of the distribution have different socioeconomic characteristics — the difference between the observed numbers and the predicted ones before the simulations are to be taken as margin errors (Table 11).

Variable	Error	Percentage, relative to base scenario
Childcare users, IMSS	76	0.1
Beneficiary children, IMSS	-131	0.1
Childcare users, ISSSTE	628	2.4
Beneficiary children, ISSSTE	-1,086	3.1
Childcare users, other institutions	-548	0.4
Beneficiary children, other institutions	93	0.1
Economically active mothers	4,879	0.1

Source: Own estimations with information from: INEGI (2017).

Table 11. Margin Errors

FURTHER ASSUMPTIONS When computing the simulations, we assumed that all the household's children would attend childcare facilities if the mother ended as a user and that the supply of childcare facilities was perfectly elastic. Furthermore, for the budgetary estimations, we assumed that the unit cost would remain constant after the interventions. Finally, we assumed that if a household is entitled to both IMSS and ISSSTE childcare services, they would choose an ISSSTE facility.

To check for the robustness of our results, we computed a sensitivity analysis including only those mothers whom we could directly identify in the database for the bivariate estimation (thus, not needing the identification assumptions stated in section 3). The results followed similarly to those described above. Moreover, the means of the dependent variables are almost identical for both samples (Table 12). Thus, that suggests that our assumptions regarding the identification of mothers were reasonable.

Sensitivity Analysis



	Mothers identified without assumptions	Mothers identified with assumptions
Number of observations	13,377	19,378
Mean of childcare use	0.05	0.05
Mean of labor force participation	0.38	0.41

Source: Own estimations with information from: INEGI (2017).

Table 12. Bivariate model specifications

The potential beneficiaries of the proposed reforms to the laws of social security are the mothers that do not have childcare access to IMSS or ISSSTE, but whose partner does (when their children are within the respective legal ages). In our sample, 390 thousand and 25 thousand mothers, respectively, were found not to have IMSS and ISSSTE access rights, but living with a partner who does. Furthermore, almost 90 thousand of them were found not to have access to either institution and to live with a partner who does to at least one of them. Altogether, 4.4% of the identified mothers were potential beneficiaries of the reform.

The reform could increase the number of women utilizing childcare services, and thus, the number of children enrolled (Table 13). Under this scenario, there would be an additional 9,216 and 7,659 mothers who would demand childcare from IMSS and ISSSTE facilities, respectively (an overall 10.3% increase), and who would enroll an 9,667 and 7,580 additional children, accordingly (an overall 8.5% increase). However, practically all of the change arose from a substitution between service providers- women’s switching from private to public childcare because of the expansion of the access rights. In other words, there would be 17,112 fewer mothers and 20,099 fewer children demanding childcare services from other institutions.

The budgetary costs of providing the additional demand for childcare services were determined using the unit costs per children of the IMSS and ISSSTE facilities. We obtained the latter’s information from the financial and actuarial report, while we estimated the former’s from the institution’s childcare spending and the number of enrolled children. Under this scenario, IMSS’s childcare budget would need to increase by MXN\$518 million annually, an increase of 5.1%. Furthermore, ISSSTE’s budget would have to increase MXN\$354 million annually — 13.3% of the institution’s yearly budget for social benefits. Altogether, government spending in childcare would need to grow by MXN\$926 million, roughly to 0.2% and 0.4% of IMSS’s and ISSSTE’s total annual budget, respectively. The total costs of the reform would amount to barely 0.0042% of the country’s Gross Domestic Product (GDP) for 2017.

4.3. Law Reform Simulation

Beneficiary children

Budgetary costs



Entity	Childcare Service Demand	Beneficiary Children	% Labor Force Participation
Nationwide	180,334	219,502	41.2
IMSS	145,975	176,763	
ISSSTE	34,359	42,739	
Other institutions	128,726	161,313	
Aguascalientes	4,136	5,304	43.2
Baja California	11,841	13,467	53.8
Baja California Sur	3,154	3,555	59.6
Campeche	1,428	1,512	41.2
Coahuila	7,691	9,411	54.3
Colima	4,677	5,525	63.5
Chiapas	3,648	3,936	19.2
Chihuahua	17,522	21,550	48.8
Ciudad de México	12,354	14,907	68.6
Durango	3,597	4,635	39.9
Guanajuato	7,615	13,076	34.2
Guerrero	1,293	1,480	28.4
Hidalgo	1,516	1,771	30.4
Jalisco	10,692	13,944	49.6
México	13,563	18,130	41.7
Michioacán	3,721	4,226	27.7
Morelos	1,308	1,436	43.4
Nayarit	3,533	4,167	49.1
Nuevo León	13,640	13,640	55.5
Oaxaca	1,093	1,500	32.2
Puebla	2,099	2,099	29.5
Querétaro	2,102	2,713	35.7
Quintana Roo	2,919	3,323	49.2
San Luis Potosí	4,914	6,004	43.0
Sinaloa	8,338	9,755	50.9
Sonora	11,741	14,641	57.1
Tabasco	481	481	28.9
Tamaulipas	7,647	9,085	52.2
Tlaxcala	187	187	37.1
Veracruz	3,728	3,728	29.4
Yucatán	5,792	6,352	45.1
Zacatecas	2,364	3,962	32.0

Table 13. Law Reform Scenario

Note: The number of childcare users and beneficiary child refer to IMSS and ISSSTE facilities only, unless otherwise specified.

Source: Own estimations with information from: INEGI (2017).

Finally, once we had the childcare-use estimations, we computed the number of mothers that could eventually be part of the labor force market. The results show that the reform would prompt an additional 7,648 women becoming economically active, a 0.2% increase. Thus, potentially, almost 1 out of every 2 new female IMSS and ISSSTE childcare users would participate in the labor market.

Impact on Labor Participation



Due to the inherent limitations of the available data and the process used for the simulations, the results here presented are only significant at a national level. Thus, the regional analysis follows only in a substandard manner. The northern region of the country would be the most strongly affected by the reform. Nuevo León, Sonora, and Chihuahua would incorporate 81% of the new demand for childcare services. Other states such as Jalisco and Mexico City would also grow considerably in demand.

Regional Analysis

The universalization of the Child Welfare Support program would entail every mother with children from ages 1 to 4 a monetary transfer of MXN\$1,600 per infant every two months, and MXN\$3,600 if the child has any disabilities (SEGOB, 2019). For the simulation of this scenario, we assumed that the extra income perceived would be given exclusively to the mothers. We further analyzed a universalization scenario where children under 1 would also be considered. Finally, we assessed an alternative version of the program where families would receive a voucher redeemable for private care services, with an equal monetary worth as the bimonthly transfer. In this case, we assumed that the effect of a voucher on family decisions would be identical to that of a cash transfer, that is, demand would grow by the same amount, regardless of the instruments. Further, demand and use of public facilities was assumed to remain constant. Thus, only the budget costs of both alternatives would differ.

4.4. Universalization Simulation

For the simulation, we assumed that the extra income perceived would be given exclusively to the mothers and that the added demand would be directed exclusively to private facilities. The process followed as previously described; only, in this case, the household's income was changed to compute the new probabilities of childcare use and labor participation. The error margin and the assumptions above are also applicable to the present scenario.

As for the impact of the proposed policy on female labor force participation, it is crucial to consider that the estimated changes only account for the impact indirectly caused by augmented childcare use. Table 14 summarizes the results.

5 million mothers would receive a transfer for their children of ages 1-4, while 99 thousand would get benefits for their handicapped children up to 6 years of age. Under this scenario, there would be an additional 78,854 mothers that would demand childcare services, representing a further 113,520 enrolled children. It is assumed that newcomers would attend private care facilities exclusively. Thus, childcare service demand and use would increase by an overall 25.5% and 29.6%, respectively.

Beneficiary children



Entity	Childcare Service Demand	Beneficiary Children	% Labor Force Participation
Nationwide	224,692	294,932	41.3
Demand remitted from public institutions	43,268	61,239	
Aguascalientes	2,094	2,916	43.1
Baja California	9,387	10,024	54.0
Baja California Sur	2,872	3,333	59.6
Campeche	710	874	41.2
Coahuila	7,197	8,416	54.4
Colima	3,714	4,836	62.8
Chiapas	4,129	5,542	19.2
Chihuahua	13,060	14,503	48.9
Ciudad de México	16,483	21,479	69.3
Durango	2,720	3,936	40.0
Guanajuato	3,119	3,848	34.3
Guerrero	1,281	2,001	28.4
Hidalgo	622	892	30.4
Jalisco	16,584	20,793	50.2
México	34,167	43,410	41.8
Michioacán	5,397	10,914	27.7
Morelos	1,162	1,798	43.4
Nayarit	3,718	5,008	48.9
Nuevo León	10,999	13,461	55.6
Oaxaca	2,286	2,781	32.2
Puebla	2,826	3,669	29.5
Querétaro	2,668	3,542	35.7
Quintana Roo	3,738	5,197	49.2
San Luis Potosí	3,499	5,041	43.0
Sinaloa	5,461	6,868	50.9
Sonora	6,369	7,503	57.1
Tabasco	2,648	2,973	28.9
Tamaulipas	6,937	10,454	52.9
Tlaxcala	258	258	37.1
Veracruz	1,694	2,583	29.4
Yucatán	2,717	3,806	45.1
Zacatecas	908	1,034	32.0

Table 14.
Universalization
 scenario

Note: The number of childcare users and beneficiary children refer to private facilities only.

Source: Own estimations with information from: INEGI (2017).

Where the benefit to accrue to mothers of children aged less than 1, then 6 million mothers would receive benefits for their children ages 0-4, while 100 thousand would get transfers for their handicapped children under 6 years. In this case 94,707 mothers would newly demand care services, representing an additional 138,368 children, amounting to an overall increase in care demand and use of 30.6% and 36.1%, respectively.

The budgetary costs consider both the total transfers and the financial requirements for the additional childcare provision. We used the same approach as for the law reform scenario. The Childcare Welfare Program would

Budgetary costs



need MXN\$58 billion for the benefits. If the cash transfer were substituted by a redeemable private care voucher, the cost would be reduced to MXN\$1 billion.

Where mothers of children less than one to be considered, the cost of the program would amount to MXN \$73 billion². The voucher handout would cost MXN \$1.3 billion under this scenario.

The results show that the universalization would grow female labor force participation by an additional 16,038 women (a 0.4% increase). If the children under a year of age were to be considered the labor force participation of women would grow by 18,302. If children under 1 were to be considered, labor force participation would increase by 18,302 (a 0.5% growth). Under both scenarios, roughly 1 out of every 5 new female childcare users would participate in the labor market.

As previously stated, the estimations are only significant at a national level. The regional analysis here presented is thus substandard. Only the first variation of the universalization scenario is considered. México Jalisco and Mexico City would accumulate most of the additional demand for care services (31.7%). These states would also house 26.6% of the new care users³.

Figure 1 displays childcare services demanded by women under the scenarios of interest. Figure 2 shows the number of beneficiary children. Finally, Figure 3 the budgetary costs of the proposed policies.

Impact on Labor Participation

Regional Analysis

4.5. Summary results

This investigation estimated the effects of the proposed reform to the Law of Social Security and the universalization of the Child Welfare Support Program on childcare use and female labor force participation. Additionally, we assessed the budgetary costs of these policies. Our results showed that the implementation of these proposals could have notable effects on formal childcare use and female economic activity in the country. Altogether, the implementation of the policies considered in this paper would have a much more significant effect on care use than labor market participation in relative terms.

Besides the intrinsic value of gender equality, supporting female labor force participation would create economic gains in terms of the added productivity and additional national income. Although the impact of the reform to the Social Security Law would alter labor market engagement only slightly, it would

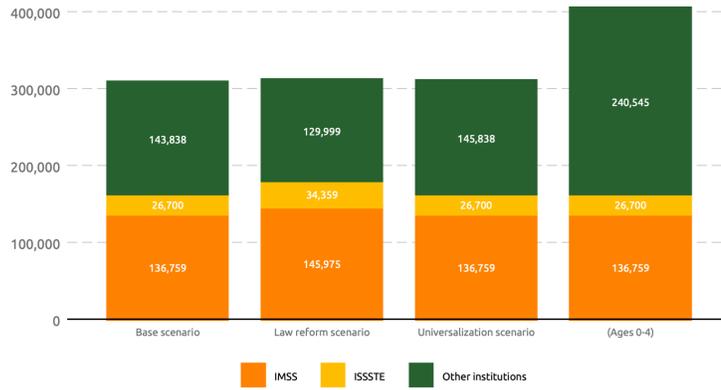
5 Final Remarks

² We assumed that the transfer and the childcare costs for children under 1 years old would be equal to those of older children, although costs might be higher for younger children.

³ The demand remitted from the public services was not assigned to any region in particular.



Figure 1. Childcare demand under different scenarios



Note: The universalization scenario is presented under two variations. From left to right: Universalization including children of ages 1 to 4 and 0 to 4.

Source: Own estimations with information from: INEGI (2017).

Figure 2. Childcare users under different scenarios

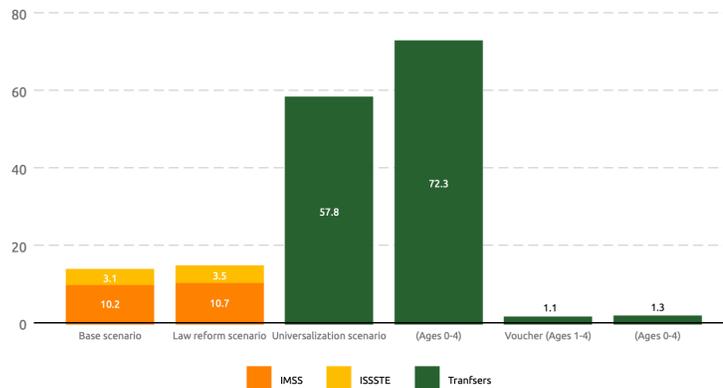


Note: The universalization scenario is presented under two variations. From left to right: Universalization including children of ages 1 to 4 and 0 to 4.

Source: Own estimations with information from: INEGI (2017).



Figure 3. Budgetary costs of the proposed policies, in billion MXN



Note: The baseline costs refer to IMSS' childcare budget and ISSSTE's social benefits budget, respectively. For the Law Reform scenario, the additional costs estimated were added onto the aforementioned amounts. The universalization scenario is presented under four variations. From left to right: Universalization including children of ages 1 to 4, 0 to 4, and voucher handouts including children ages 1 to 4 and 0 to 4.

Source: Own estimations with information from: INEGI (2017).

do so at a considerably low cost. Nonetheless, the policy could be regressive as it would entail a substantial substitution between care providers, allegedly from private to public facilities. Thus, it would subsidize households who might have previously paid for childcare. As for the universalization of the Child Welfare Support Program, the budgetary costs draw a scenario of substantial public spending. However, these costs do not consider the long-term benefits for the economy and the gains regarding human rights. Furthermore, this policy would successfully untie the link between care provision and formal employment that has persisted in the country.

Our results also showed that including children under one in the Child Welfare Support Program would extend its coverage significantly. This would also increase the costs of the policy, nonetheless, where the transfers to be substituted with the handout of redeemable vouchers, these would be substantially reduced.

The results presented in this paper are a first step to the understanding of gender disparity and the effective policies for alleviating it and provide powerful insights on the role of childcare in the employment decisions of women. However, given the considerable limitations of the available data, our results need to be taken with caution. The outcome of the simulations was quite sensitive to model specification. Thus, the results here presented are susceptible to an error margin and are to be understood as approximations. Further



research on the subject needs better and more readily available data to produce more accurate information about the phenomena surrounding the prevailing gender gap. Thus, there remains a task for the authorities to finance and promote the implementation of ad hoc surveys on gender issues.

Acronyms

GDP Gross Domestic Product

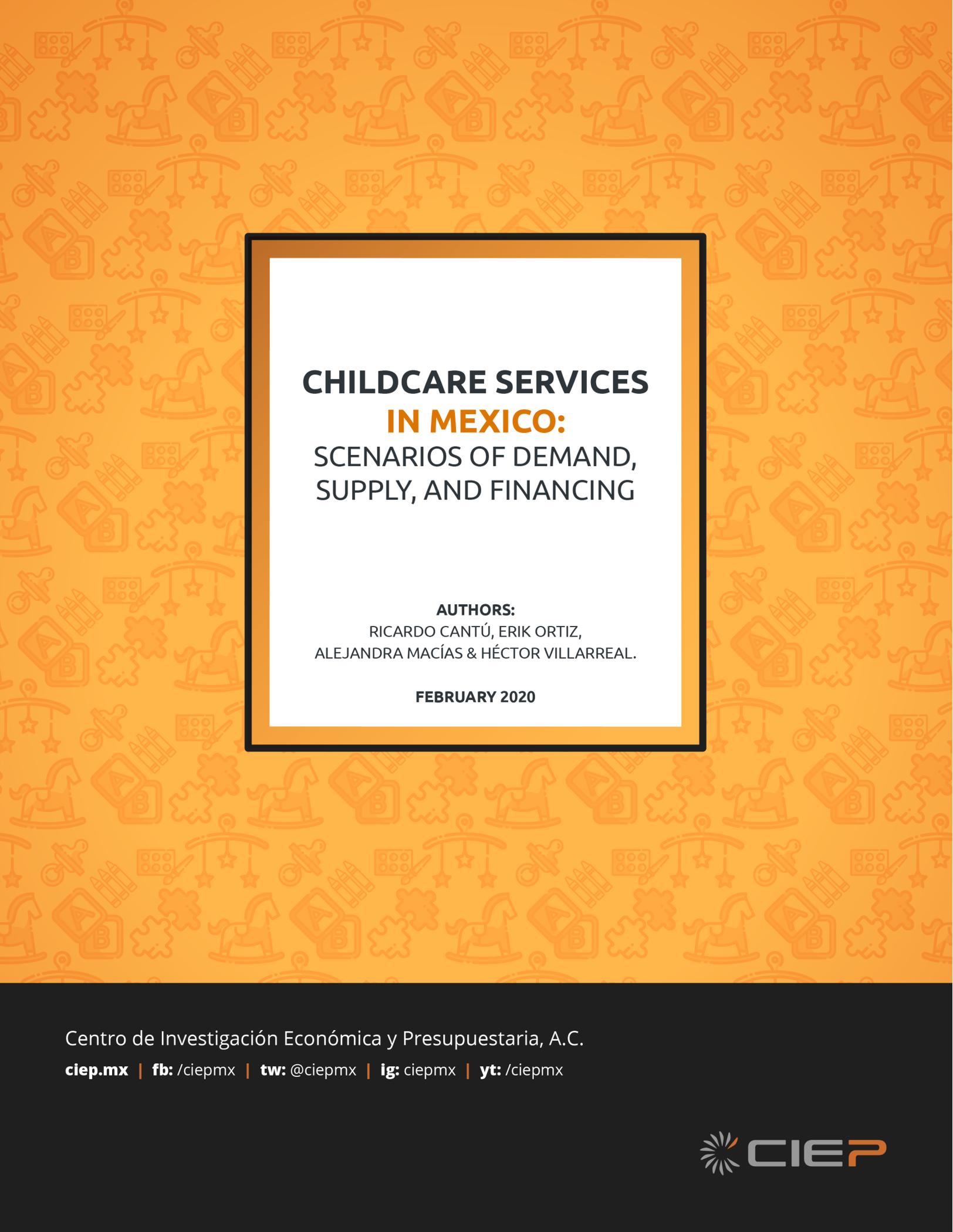
IMSS Mexican Social Security Institute

ISSSTE Institute for Social Security and Services for State Workers

OECD Organisation for Economic Cooperation and Development

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