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A welfare state for all? An analysis of social inequalities in applications for and use of public childcare services, and the role of social policy in alleviating them

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Abstract

Early childhood education and care is seen as a key social investment policy for helping to mitigate social inequalities. The Matthew effect (ME from now on) is the process that explains how suffering social disadvantages leads to more disadvantages. Following the logic of the ME, it will be the most disadvantaged families that have proportionally less access to these services. This study investigates the mechanisms that produce these inequalities and to what extent they can be reduced by ECEC access criteria that promote equal opportunities. An analysis is carried out of a survey addressed to 1,219 mothers in Catalonia with children under 3 years of age about the use of different types of informal and formal care services. The results show that nursery services, through progressive access criteria, can significantly reduce inequalities that are due to the mother's income. Likewise, sliding-scale pricing and social services are effective public policies for reducing the ME. However, despite these measures, the mother's level of education and place of birth are factors that continue to lead to an unequal proportion of places being taken up, which is not explained by preferences expressed by the mother. Two possible causes are suggested: first, in a context of scarcity of supply, mothers with university studies have more resources for obtaining nursery places in the allocation system; second, mothers without studies or born outside of Spain often lack job stability and have to cope with atypical schedules.

Keywords: childcare; nurseries; early childhood; social investment; inequalities; Matthew effect; regulation; social policy; welfare state; formal care; local government

Resumen. *¿Estado de bienestar para todas? Análisis de las desigualdades sociales en las solicitudes y el acceso a las guarderías públicas, y el papel de la política social para aliviarlas*

Las políticas de atención a la temprana infancia son consideradas una inversión social clave para la mitigación de desigualdades sociales. No obstante, siguiendo la lógica del efecto Mateo (EM a partir de ahora) —el proceso que explica cómo las desventajas sociales conllevan más desventajas—, son las familias más desfavorecidas las que acceden proporcionalmente menos a estos servicios. El presente estudio se pregunta los mecanismos que producen estas desigualdades y la capacidad de los criterios sociales en el acceso para reducirlas. Se analiza una encuesta realizada en Cataluña y dirigida a 1.219 madres con niños/as menores de 3 años sobre el uso de distintos tipos de cuidado informal y formal. Los resultados muestran que las guarderías, mediante criterios sociales en el acceso, reducen significativamente las desigualdades respecto a los ingresos de la madre. Igualmente, la tarificación social y los servicios sociales son políticas públicas efectivas para la reducción del EM. No obstante, a pesar de estas medidas, persisten las desigualdades en el acceso respecto al nivel de estudios y el lugar de nacimiento de la madre. Las preferencias de la madre no explican estas desigualdades. Se ofrecen dos respuestas alternativas: primera, en un contexto de escasez de oferta, los mayores recursos de las madres con estudios universitarios para tener éxito en el sistema de asignación de plazas; segunda, la falta de estabilidad laboral y horarios atípicos de las madres sin estudios o nacidas fuera de España.

Palabras clave: guarderías; jardín de infancia; temprana infancia; inversión social; desigualdades; efecto Mateo; regulación; política social; estado de bienestar; cuidados formales; gobierno local

Summary

1. Introduction

The entry of women into the labour market and the shift in social policies towards the social investment paradigm have led to more interest being taken in Early Childhood Education and Care (ECEC), including its supply and quality, and the inequalities regarding access to it (Bonoli, 2013; León, 2017). These services have historically been designed to care for young children so that their mothers can work, and their strictly educational role has been largely neglected (Bonoli, 2013: 115). However, recent studies indicate that using these services has a positive effect on subsequent educational outcomes, especially for children from disadvantaged backgrounds (Magnuson et al., 2007; Felfe and Lalive, 2013 in Abrassart and Bonoli, 2015). In a review of studies on the United States, Esping-Andersen (2009: 133, in Abrassart and Bonoli, 2015) concludes that quality childcare services that focus on children at risk favour their social integration and foster them eventually staying in school for longer.

This article considers the importance of the educational role of nurseries, especially for children from disadvantaged backgrounds, and studies potential inequalities in accessing public nursery services and their possible causes, including whether the Matthew effect (ME) comes into play. In simple terms, the ME can be defined as the process that occurs in situations where social advantages lead to more advantages, while social disadvantages lead to more disadvantages. Over time, this situation leads to greater inequality (Rigney, 2010).

The existence of inequalities in childcare has been widely documented for different European countries. Empirical studies of the last decade show a strong presence of the ME regarding income in all EU countries (except in the Scandinavian countries and Austria): low-income families (the 30% of people with the lowest incomes in each country) are less likely to use childcare services (OECD, 2011: 144, in Abrassart and Bonoli, 2015; Felfe and Lalive, 2013; Abrassart and Bonoli, 2015; Lancker and Ghysels, 2012). Educational levels also explain the ME, since mothers with university studies in high-income households use these services more compared to families with lower incomes or with mothers with lower education levels (Ghysels and Lancker, 2011).

However, the studies that have been carried out to date have two main limitations. The first is that they study ME solely in terms of obtaining nursery places. Instead, a theoretical approach to the causes of ME should differentiate between two separate stages: firstly, the moment of applying for a nursery place, and secondly, the allocation and use of this place. This would make it possible to consider that the application process may lead to greater or lesser probabilities of accessing the service. In this way, we need to distinguish between two types of social policies: on the one hand, public spending policies that affect the number of applications (e.g. price reductions or an increase in the number of nurseries); on the other hand, regulation policies that determine who can access the system (e.g. lotteries or points awarded according to the socioeconomic characteristics of the mother). Although the previous studies consulted focus above all on spending policies (e.g. Lancker, 2018), this study considers that regulation also has a key role in the modern welfare state (Levi-Faur, 2014). Thus, my first research question is the following: *since there is a limited number of places available, how does the system in place to determine access to public nurseries influence the ME?* My hypothesis is that the access systems to public childcare are effective in reducing the ME that exists in the applications to access the service. Through a survey of mothers in Catalonia who have children aged 0-3 years and a model with logistic estimators, this article compares the ME in applications for a public nursery place with the eventual allocation and use of a place. In this way, some reasons for the ME in Catalonia and the potential effect of nursery access policies to reduce this ME can be obtained. However, the article does not go on to measure what kind of access policies produce this effect.

The second observation is that in the studies consulted, little quantitative research has been carried out into the reasons why mothers with higher socioeconomic levels obtain more access to early childhood services, especially those

with university studies. Thus, the second research question of the article is this: *what mechanisms regarding the mother's studies explain the ME in applications for public nursery places and accessing them?* Based on the data from the survey and secondary sources, an exploratory analysis is carried out of the reasons mothers with different educational levels have for not applying for or accessing a place. Here the second hypothesis is that the mother's preferences are not relevant in explaining the ME in public nursery care. Pavolini and Lancker's (2018) results hint at this, but the authors do not analyse why preferences are not important in explaining ME, nor do they offer alternative explanations. Regarding why preferences may not be important, this study assumes that, although mothers who have studied for longer might give more importance to earlier educational stages, mothers in a worse socioeconomic condition are forced to participate in the labour market and to use public nursery services if they exist (even though they might prefer private services). An alternative explanation to mothers' preferences is offered by Abrassart and Bonoli (2015). They indicate that an important variable that explains the ME is the lack of information available on how to access these services and to navigate the system effectively. This lack is caused by the lower social capital of certain families, such as those with fewer studies and who were not born in Spain. This study goes further by quantitatively exploring the extent to which information becomes a determining factor in guaranteeing access to nursery places.

Lastly, it should be mentioned that, beyond these empirical contributions, there are no survey analyses regarding the ME in Spain that allow us to study the mother's preferences or other of her characteristics, although studies have already been carried out on the causes of ME on the supply side. For example, Navarro-Varas (2019) has studied the impact of price escalation. The article is organised as follows: first I present the state of the art; in section 3, the data and methods, and in section 4, the results. In section 5 there is a discussion, and section 6 presents the conclusions.

2. State of the art

As Rigney (2010) explains, the ME pervades a wide range of social institutions and is an essential principle for understanding the social dynamics of inequality in general. The ME occurs in various social fields, including education (in all its stages), in the economy, in politics, and so on. Thus, the ME is a broad concept that can be applied in very different fields and sectors, and that ultimately seeks to describe, simply put, the way in which the rich get richer and the poor get poorer. This is something which allows us to recognize the origin of inequalities and to open up the debate about the need for public intervention. In the case of early childhood education (that of 0-6 year-olds), the greater purchasing power and the social and cultural capital of the families make it easier to offer their children more resources and educational knowledge. This would imply that the ME in the cognitive and relational capacities of the children begins at birth. In itself, the creation of a public nursery education

system should initially alleviate this type of ME for the 0-3 stage, by providing very young children with education and social integration in cases where it is difficult to ensure them at home (León, 2017). However, the ME can reappear when accessing public nursery places if the families with greater economic and social resources make up the majority of the users.

As mentioned above, empirical studies have conceptualised and categorised the ME with respect to family income (Bonoli and Vuille, 2013: 35; Abrassart and Bonoli, 2015), the mother's education level (Coneus et al., 2007) and the mother's job category (Pavolini and Lancker, 2018). The cause of the inequalities can derive both from the characteristics of the demand, i.e. the socioeconomic conditions and cultural aspects of the mothers or other family members, and from the characteristics of the supply, especially in terms of cost and availability.

On the demand side, the first important factor is employment. To the extent that most of the burden of care tends to fall on the mother, if she does not work, she will be less likely to seek formal care services, especially if they represent a significant economic cost for the household. On the other hand, mothers with more stable jobs are more able to plan and organise care for their children (Lancker, 2018). Thus, ME is reproduced through the mother's employment situation to the extent that her type of participation in the labour market is explained by her socioeconomic situation (Lancker and Ghysels, 2012; Coneus et al., 2007; Bonoli and Vuille, 2013: 35; Abrassart and Bonoli, 2015). Following the same logic, the mother's preferences regarding care and public nurseries can reflect the ME if these preferences vary according to a household's socioeconomic level. According to the literature, this occurs when mothers with lower levels of formal education or that come from social groups that are more socioeconomically disadvantaged, such as some migrant groups, are more likely to have traditional values regarding the role of women in the home or to relegate care to informal social networks in their community (Abrassart and Bonoli, 2015; Lancker, 2018). However, this would contradict Pavolini and Lancker's study (2018), which finds that as traditional values increase, all social strata similarly reduce the use of services.

In addition, the relationship between preferences and using nursery services is complex, as explained by Lancker (2018), based on data from the empirical study by Vandenbroeck et al. (2008). Preferences appear to be conditioned by the availability of the services themselves. When there is insufficient public investment in nurseries in more disadvantaged neighbourhoods, for example, households might claim that they would not choose this type of care simply because it is not common in their neighbourhood or among their friends and family.

Beyond preferences, families with higher levels of education may benefit from processes where there is competition for places. As Abrassart and Bonoli (2015) explain, we can expect families with higher educational levels and non-migrant origins to have greater access to information about the availability of these services, about services that they might use, and about the existence

of specific nursery places. These people will better understand how the formal procedure for assigning public places works and, therefore, they will be more successful in tackling the process (including possibly *jumping queues* by using persuasion techniques and connections). But although we are aware of the possible mechanisms regarding how information plays a role in explaining the ME, no quantitative empirical studies have been found that measure its degree of importance. Likewise, the role of public services, such as social services, has not been measured in its potential role of providing information and helping to alleviate this possible problem. These mechanisms are analysed in this article.

On the supply side, the availability of nursery places and the competition for them are important, as well as the cost of services – specifically, the sliding scale of prices with respect to family income (Abrassart and Bonoli, 2015). Sliding scales are important in cases of limited supply because, unlike a general reduction in the cost for all users, they encourage mothers with low incomes to use the services, while discouraging those with higher incomes. Quantitative studies show mixed results regarding the importance of the cost and the availability of places, which means that we can expect the relative importance of each factor to depend on the local context (Lancker and Ghysels, 2012; Abrassart and Bonoli, 2015; Pavolini and Lancker, 2018). Due to the fact that the degree of inequality in accessing the services is in part due to the existing supply (Pavolini and Lancker, 2018; Lancker, 2018), countries in southern Europe, including Spain, run the risk of suffering from high rates of the ME. These countries have enrolment rates and investment ratios over GDP that are well below their northern European counterparts, which in 2001 had already reached enrolment rates of 80% (León et al., 2019; Bonoli, 2013: 120). Historically, southern European countries have had less pressure to extend care services to children, not only because of the late entry of women into the workforce, but also because of the educational policies of each country (León et al., 2019). In addition, working women there have used alternatives to public services, such as care provided by grandparents and informal caregivers of migrant origin (Bonoli, 2013: 147, 180).

The cases of Spain and Catalonia are of interest because in the last two decades they have witnessed two opposing trends. On the one hand, the post-2008 austerity measures in regions such as Catalonia meant considerable cuts in the early years care budget (Síndic de Greuges, 2015). Although the Generalitat (Catalan regional government) has now once again taken on its share of the financing of these services, the effect of the cuts and the lack of central government financing over the last decade have entailed an increase in management costs for local authorities, which might eventually increase the price of services. Here the research by Navarro-Varas (2019) concludes that defamiliarisation in Spain has occurred more frequently among the upper social strata, especially since the economic crisis of 2008. She also points out that the decentralisation of the local administration creates a heterogeneous scenario of public supply where the municipality of residence conditions access to services. In fact, in the Metropolitan Area of Barcelona, the variation in prices for those

in the first quartile of family income ranges between €1,430 per year in Barcelona to €4,300 in other municipalities. León et al. (2019), using the *Living Conditions Survey*, show that by 2016 the use of formal care was much higher both for households with incomes above the median and those with higher education — it is 20 percentage points higher for those with university studies than those who only completed compulsory secondary education. In recent years, there has been a growth in public nurseries and in the use of sliding-scale pricing policies that could alleviate the ME. However, the Barcelona Metropolitan Area, which includes most of the population of Catalonia, contains very few municipalities, with Barcelona being one of them, that apply a rate for those with lower incomes that effectively reduces the cost of the service for those in the first quartile. Only Barcelona and one other municipality manage to implement a sliding-scale pricing system where the weight of the cost of services compared to annual family income is lower for the first family income quartile compared to the other quartiles (Navarro-Varas, 2019).

However, beyond the cost and the availability of the service, the literature mentioned does not make any empirical estimates on the effect of policies for accessing nurseries, such as the points systems used by nurseries when the demand is greater than the supply. So the studies measure the use of services and the social spending on them, but they leave out what happens at the application stage and the stage of being allocated a nursery place (or not). However, as Levi-Faur (2014) indicates, the power of the welfare state to distribute resources through its rules and regulations should not be underestimated. Furthermore, the regulatory figure of the state becomes even more important when its role in terms of public spending is limited by a context where austerity policies have been implemented. This was true in the case of Catalonia when the central government and the Generalitat (regional government) cut their investment in public nurseries in the aftermath of the 2008 financial crisis, while the local governments have had the power to establish access criteria to help the most vulnerable. Thus, instead of focusing on public spending, this article studies the effect of access systems (without going into the type of system used), in order to contribute to a better understanding of the ability of regional and local policies to use regulations to limit the ME.

3. Data and methods

3.1. Data

The data used comes from a survey of 1,219 mothers in Catalonia with children born between 2016 and 2019. The survey was conducted in mid-late 2020, within the frameworks of the *Investment in early childhood: policy, policies and results* project of the Ministry of Science and Innovation (CSO2017-88906-R) and the RecerCaixa's *Models of 0-3 education and care* project. The survey reconstructs the working trajectories of parents and their care options in the first three years of a child's life. Although the design of the survey was

supposed to be face-to-face and carried out in collaboration with schools in Barcelona, the school closures caused by the COVID-19 pandemic restrictions in the months following March 2020 meant that the data collection method had to be modified and different distribution channels had to be used.

In the end, 60.4% of the sample was configured as follows: an online survey, distributed through schools (14%), social networks (46.3%), a survey panel (24.7%), recruitment through mothers (14.4%) and by telephone from schools (0.6%). The survey could be answered by all mothers residing in Catalonia. The result is a sample in which 43% of the mothers live in Barcelona, which represents an overrepresentation of the area (according to Idescat data, in 2020, only 23% of the women in Catalonia aged between 20 and 49 lived in Barcelona). By socioeconomic level, 48% of mothers in the sample completed university studies, while the data shows that in 2011 the equivalent figure for women between 20 and 49 years old in all Catalonia was 24%. In part this is due to Barcelona being so overrepresented; according to the 2011 census, the equivalent figure there reached 48%.

3.2. Method

To answer the first research question —on access mechanisms to alleviate the ME—, the probability of applying for and accessing a nursery place (dependent variables) are compared according to different socioeconomic variables regarding the mother (independent variables). In other words, in order to analyse the effect of a nursery access system that alleviates the ME, the probability of applying for a place is compared with the probability of being allocated one and using it, according to the different socioeconomic variables of the mother. To do this, two models are compared – in one, the dependent variable is a dichotomous variable reflecting being allocated a place and, in another, the dependent variable is making an application. This variable has a positive value if the mother has accessed or has applied for a place (according to the model) while their child is 0-3 years old. If the difference in probabilities of applications for places of mothers in different income brackets with different levels of studies is reduced when looking at the places accessed, then the access systems are effective. However, since a mother with a lower socioeconomic status could reject a place if it is allocated if they cannot afford it, we must take this estimation of how effective the access systems is as a lower limit. It should be noted that although it is true that this difference in probability between applications and access could be reduced because mothers who have high socioeconomic status change their minds or turn down a nursery place, the probability of this event is very low.

In order to ensure that the models are statistically efficient, that is, to minimise the number of regressors in the estimation model, the estimation method uses four pairs of models with different independent variables depending on whether they are statistically significant. The pair of models with the most complete specification are the following (although variations of this are shown in the results):

$$NurseryApplication_i = a_i + \beta_j MothersIncome_i + \beta_j MothersEducation_i + \beta_j MothersIncome_i * MothersEducation_i + \beta_j MothersWorkSituation_i + \beta_j MothersWorkSituation_i * MothersIncome_i + \beta_j HouseholdVariables_i + \beta_j OpinionsNursery_i + \beta_j OpinionsNursery_i * MothersWorkSituation_i + \beta_j PlaceOfBirth_i + \beta_j LargeFamily_i \beta_j Age_i + \varepsilon_i \quad (1)$$

$$NurseryPlaceAllocated_i = a_i + \beta_j MothersIncome_i + \beta_j MothersEducation_i + \beta_j MothersIncome_i * MothersEducation_i + \beta_j MothersWorkSituation_i + \beta_j MothersWorkSituation_i * MothersIncome_i + \beta_j HouseholdVariables_i + \beta_j OpinionsNursery_i + \beta_j OpinionsNursery_i * MothersEducation_i + \beta_j PlaceOfBirth_i + \beta_j LargeFamily_i + \beta_j Age_i + \varepsilon_i \quad (2)$$

whereis the constant and the error. The two independent variables used to detect the presence of the ME are the mother's education level ("MothersEducation"), categorised as a dichotomous variable between mothers with and without university studies, and the annual income of the mother before the birth of her child, ("MothersIncome"), categorised into bands of €0-14,000, €14,001-25,000, €25,001-35,000, and over €35,000. In each pair of models it is included an interaction between these last two variables. A higher probability of applications from mothers with higher incomes or places allocated to them will indicate the ME occurring with respect to income, while a greater probability of applications from mothers with university studies or places allocated to them will indicate the ME occurring with respect to education level. The interaction between both variables allows us to see if the effect of one is mediated by the other; for example, if a mother with a higher income is more likely to apply to a nursery because she has a university degree.

The remaining independent variables try to control for other characteristics held by the mother that could affect the probability of her applying for or being allocated a nursery place. Including them makes it possible to reduce the risk of bias due to the omission of variables from the estimators of income and studies of the mother, as well as making it possible to estimate variables of interest in the probability of applying for or being allocated a nursery place. To control for the employment status of the mother ("MotherWorkSituation"), a dichotomous variable is included for each period of the child under-three's life (4 months to 1 year, 1 to 2 years and 2 to 3 years); this is positive if the mother worked during the period in question. Being in employment increases the probability of using childcare services. To control for household socioeconomic status, other variables are included. They have been simplified by grouping them together as "HouseholdVariables" in the models above, but they include the couple's income (categorised as the mother's) and their studies (whether or not they have university studies), their housing (categorised as a property without a mortgage, a property with a mortgage, rental property, or other), a dichotomous variable according to whether they have applied for benefits in the three years prior to the interview, and a dichotomous variable according to whether they have paid a bill late in the twelve months before the interview.

It should be mentioned here that the relationship between the socioeconomic variables of the mother and those of her partner may well be correlated due to the processes in which people find partners with the same social status. Even so, the benefit of studying the ME by the mother's income is that it can capture the variations in childcare applications that are due to the relative price of childcare, as well as the opportunity costs of leaving the labour market in the event of having a partner who is in employment. Furthermore, by including education level and income in the same model, we can better separate the effects that are due to the cost of services (measured as income) and the effects that are due to the mother's possible social capital (measured as education level).

In order to control for the mother's preferences, two dichotomous variables ("OpinionsNursery") are incorporated in order to explain the ME. One variable measures whether, in response to the statement "nursery is only an option chosen by families who cannot take care of their children", the mother has chosen one of the following options: "somewhat agree", "agree" or "strongly agree". The other variable also measures whether the "somewhat agree", "agree" or "strongly agree" options were chosen in response to the statement "nurseries offer an option that is not appropriate for children under three". Both variables take a null value if the mother chooses the "strongly disagree" option in response to these statements. The models where these preferences are included also incorporate an interaction with the mother's education level, in order to find out if the preferences mediate the differences in applications for nursery places made by mothers with different studies, and the allocation of these places. Finally, control variables for other characteristics held by the mother are also included, such as the age of the mother and a dichotomous variable regarding whether the household is a large family (with three or more children). The age of the mothers is incorporated because, once a woman makes the decision to have their first child, she can remain outside the labour market until her fertility cycle ends, and the probability of the fertility cycle ending increases with age (Nollenberger and Rodríguez-Planas, 2015). Being a large family is relevant because the public administration usually gives families in this category reduced prices and easier access to services, increasing the probability of them being allocated a place. The administration also gives points to users if they have siblings enrolled in the nursery, but this variable has not been included because it did not yield significant results. In addition, the mother's place of birth (in Spain or outside Spain) is included, since other studies mentioned ab indicate that this factor could cause a reduction in her using nursery services. Finally, a dichotomous variable is included that has a positive value if the mother has used private services such as private nurseries or childminders, since both services are usually substitutes for a public nursery.

Due to the dichotomous nature of the dependent variable, the estimation method used is the logistic method with standard errors clustered by postal code to control for the correlation of the residuals in mothers who reside in the same municipality and are faced with the same supply characteristics.

Regarding the second research question —about the mechanisms that could explain the ME according to the mother's education level— the effect of the mother's preferences in the models is taken into consideration, but in addition, an analysis is also carried out of the survey questions in an attempt to ascertain the reasons why a mother has not applied for a place or has not been allocated one. Including these questions allows us to discern the different reasons for applying for a place or using one depending on the mother's level of education. In the discussion, there is an assessment carried out of the responses, together with some secondary studies that allow us to generate plausible hypotheses about the persistence of the ME in Catalonia with respect to a mother's education level.

4. Results

4.1. Descriptive data of the sample

Table A1 in the appendix presents the descriptive data related to the sample, distinguishing between the complete sample and the portion that contains only the mothers who lived in Barcelona at the time of the survey. In this way, we can tackle the possible bias that can be produced by the overrepresentation of Barcelona in the sample. 51% of the entire sample applied for a nursery place at least once when their child was 0 to 3 years old, while 35% were allocated a place for at least one school year. In Barcelona, the demand was higher, but the rate of places allocated was the same as for the complete sample, which indicates that there was more unfulfilled demand there. If we look at applications and places allocated by income, in both the complete sample and the Barcelona sample there was an increase of 10% between the first and second income bands, while between the second and the third bands, the percentage of applications also increased but the rate of places allocated was the same in both. In Barcelona, the reduction in places allocated for families in the second and third income bands fell more sharply, indicating a greater reduction in ME between applications made and places allocated. In contrast, regarding the mother's education level, there would also be indications of the ME in the applications, but with less reduction of it in the allocation of places. Here the percentages are similar in both samples. Therefore, Barcelona being overrepresented in the sample would mean overestimating the effect of the access criteria in reducing income-related inequalities. The bias does not appear to occur for education-related inequalities.

As for other socioeconomic variables, including the mother's partner's education level and if the mother worked before the child was born, despite the greater number of applications made in Barcelona due to greater demand, the percentages are similar. The data have not been included in the table, but in the total sample, the percentage of mothers in employment in the first year of the child's life drops to 65%, and then goes back up to 81% between the first and second year of the child's life. Here it is worth pausing a moment to

examine the relationship between the mother's employment status and her education level: the first is a variable that affects the probability of applying for a nursery place and that could be highly related to the socioeconomic level of the household. Crossing the mother's employment with her educational level, we find that between the child's first and third year of age, there is a gap. If on average, 70% of mothers with university studies work when their child is between 4 months and a year in age and this figure reaches 90% when they are between a year and 2 years of age, in the case of mothers with no university studies, the average in the first stage is 57% and in the second stage is 65%. It is in this transition, from when the child is one year old, where employment could be a variable that would explain the ME. Finally, in table A1, we see that there are almost no differences in the applications between mothers born in Spain and outside it, but that places allocated fall sharply for the latter (far more in the entire sample than in Barcelona). Investigating why this detrimental effect occurs for mothers not born in Spain is important, as it may be an issue related to demand, or a discriminatory barrier in the access system.

4.2. Presence of the ME in terms of education level and income in applications to and allocation of places

Table 1 shows the results of the estimates performed for the four pairs of models. Control variables have been included in each model depending on whether the estimators were significant for each of them. The coefficients of the interactions have not been included for reasons of space. Before explaining the results, we should mention that as a measure of robustness for each model, a mixed logistic estimate has been replicated, in which the lower level is the postal code of the area where each interviewee lives. At the end of Table 1, a hypothesis test is shown to verify if the estimators of the simple logistic model are biased due to not controlling for the sample design. Although the hypothesis is rejected at the 5% confidence level for the application models, except for the most complete one, it has been decided to show only the results of the simple logistic model, for the following reasons: many municipalities only contribute one observation and there are more than 250 groups per postal code for a sample of 1,219 observations; the models are more comparable using the same estimation tool and, again, the more complete models do not reject the null hypothesis; there is very little difference in the coefficients and standard errors between the mixed model and the logistic model.

If we look at the coefficients in Table 1, we see that for the variable that measures the mother's education level, the results are significant for most models, and in some models the null hypothesis is rejected at the 1% confidence level. In addition, both for the probability of applying for a place and of being allocated one, the size of the coefficients remains similar. Regardless of the mother's education, the effect is similar if the mother's partner has completed higher education. To measure the possible effect of the access system reducing the ME, Table 2 computes the marginal effects of having university studies for

Table 1. Results of the estimations using a logistic estimator

Variables	(1) Application for a public childcare place	(2) Use of a public childcare place	(3) Application for a public childcare place	(4) Use of a public childcare place	(5) Application for a public childcare place	(6) Use of a public childcare place	(7) Application for a public childcare place	(8) Use of a public childcare place
Economic Variables								
Mother's income before birth of child								
1. 0-14,000 €	(Reference)	(Reference)	(Reference)	(Reference)	(Reference)	(Reference)	(Reference)	(Reference)
2. 14,001-25,000 €	1.47* (0.232)	1.45* (0.229)	1.35 (0.240)	1.18 (0.245)	1.18 (0.446)	0.78 (0.357)	1.38 (0.251)	1.22 (0.255)
3. 25,001-35,000 €	1.86*** (0.333)	1.43 (0.295)	1.78** (0.364)	1.21 (0.256)	1.28 (0.628)	0.42 (0.297)	1.70** (0.349)	1.17 (0.249)
4. Over 35,000 €	1.14 (0.270)	1.18 (0.299)	1.18 (0.322)	1.12 (0.378)	0.91 (0.886)	0.73 (0.954)	1.19 (0.339)	1.15 (0.403)
Mother is employed when child is 1-2 yrs of age			1.73** (0.293)	2.70*** (0.533)	1.55* (0.328)	1.93* (0.502)	1.56** (0.265)	2.46*** (0.486)
Late bill payment	1.51* (0.265)		1.61* (0.304)		1.61* (0.303)		1.72** (0.325)	
Receives benefits		1.39* (0.225)		1.72*** (0.284)		1.73*** (0.284)		1.94*** (0.338)
Income from partner	Not included	Not included	Included	Included	Included	Included	Included	Included
Education and preferences variables								
Mother has university studies	1.47** (0.217)	1.59** (0.233)	1.60** (0.260)	1.65** (0.312)	1.59 (0.468)	1.88 (0.660)	1.88** (0.381)	1.69* (0.430)
Partner has university studies			1.61** (0.279)	1.54* (0.266)	1.61** (0.273)	1.55** (0.265)	1.66** (0.285)	1.57** (0.272)
Opinion 1: Nursery only an option if no family care							0.61*	0.36***
Opinion 2: Nursery not a good option for infants							0.77 (0.148)	0.83 (0.188)
Interactions								
Opinions * Mother's education							Included	Included
University studies * Mother's income	Not included	Not included	Not included	Not included	Included	Included	Not included	Not included
Mother works when child is 1-2 yrs of age * Mother's income	Not included	Not included	Not included	Not included	Included	Included	Not included	Not included

Table 1. Results of the estimations using a logistic estimator *(continuation)*

Variables	(1) Application for a public childcare place	(2) Use of a public childcare place	(3) Application for a public childcare place	(4) Use of a public childcare place	(5) Application for a public childcare place	(6) Use of a public childcare place	(7) Application for a public childcare place	(8) Use of a public childcare place
Controls								
Use of private services	0.53*** (0.076)	0.20*** (0.035)	0.41*** (0.063)	0.13*** (0.024)	0.41*** (0.064)	0.13*** (0.024)	0.36*** (0.059)	0.10*** (0.022)
Large family	2.92 (1.670)	5.66** (3.387)	2.90 (1.730)	5.57* (3.827)	2.87 (1.717)	5.39* (3.750)	2.97 (1.800)	6.13** (3.963)
Age of mother	1.04*** (0.011)	1.04*** (0.012)	1.03* (0.012)	1.03* (0.014)	1.03* (0.012)	1.03* (0.014)	1.03* (0.011)	1.03* (0.014)
Mother not born in Spain	1.02 (0.205)	0.62* (0.125)	0.96 (0.203)	0.63 (0.166)	0.96 (0.203)	0.63 (0.168)	0.98 (0.197)	0.64 (0.158)
Constant	0.19*** (0.078)	0.11*** (0.048)	0.16*** (0.074)	0.05*** (0.030)	0.17*** (0.080)	0.06*** (0.036)	0.28** (0.131)	0.12*** (0.071)
Observations	1.219	1.219	1.115	1.115	1.115	1.115	1.115	1.115
Pseudo R-squared	0.0395	0.0931	0.0694	0.150	0.0700	0.154	0.0940	0.192
LR test vs. logistic regression	0.0212	0.0876	0.0142	0.0619	0.0306	0.0568	0.0683	0.2419

Note: Coefficients are reported as odds-ratio and standard errors as log-odds. Figures in parentheses show the robust standard errors of the mother's place of residence (postal code).

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Source: author's own elaboration.

models 3 and 4, applications and allocation and use of places, respectively. It is estimated that if the mother has a university education (and the effects are similar for the partner), both the conditional probability of applying for a place and of being allocated one increase by approximately 10 percentage points. According to this evidence, the access system would not be able to reduce the ME that occurs in the applications with respect to education levels.

In the case of the mother's income, the coefficients in Table 1 are also relevant and significant for a majority of the models when the probability of applying for a nursery place is measured. However, in terms of allocation of places, they are lower and cease to be significant. Regarding the variable that captures the interaction of the mother's income and her education level, no statistically significant estimators were obtained, which indicates that it is not necessary to take a possible mediating effect between both variables into account. As for the mother's income, Table 2 also computes the marginal effects. We see that the increase in the mother's income from the €0-14,000 to €14,001-25,000 band increases applications by about 7 percentage points. This then goes up a further 6 points when moving to the €25,001-35,000 band. With an income of over €35,000, applications are estimated to drop 9

Tabla 2. Marginal effect of the mother's income and education level on the conditional probability of her applying for a public childcare place and accessing it when the child is 0 to 3 years old

	Mother with university studies		Mother's annual income before the birth of the child			
	No	Yes	0-14,000 €	14,001-25,000 €	25,001-35,000 €	Over 35,000 €
Probability of applying for a public childcare place	0.49	0.6	0.49	0.56	0.62	0.53
Probability of using a public childcare place	0.32	0.43	0.36	0.39	0.39	0.38

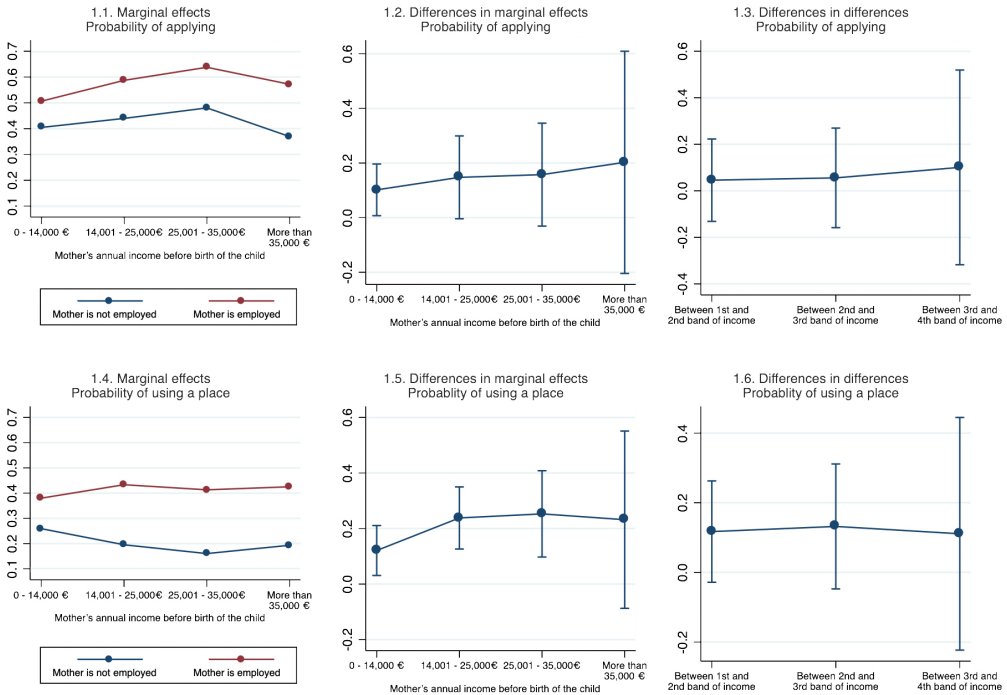
Source: author's own elaboration from the results of the estimations of models 3 and 4 in Table 1.

points. However, as far as places allocated go, income becomes less relevant in explaining the ME. For example, going to the €14,001-25,000 band from the category below it, there is an increase of only 3 points.

Table 1 also shows relevant coefficients —both in applications and in places obtained— of the estimator that measures whether the mother is employed when the child is between 1 and 2 years old. And we also see that, despite including this variable, the mother's studies have a statistically significant coefficient both when applying for and obtaining a place, which indicates that the ME due to studies cannot be explained solely by whether the mother is employed. For the other age groups for the child, the coefficients of the mother's employment were not significant and have not been included. Similarly, part-time work and the type of work contract held before the birth of the child did not give any relevant and statistically significant coefficients either and therefore they have not been included in Table 1 either.

In order to better understand the relationship between employment and the ME, we are also interested in knowing if being in employment exercises a possible mediating effect between the mother's socioeconomic level and her probability of applying for or obtaining a nursery place. That is, if not having a job affects the probability of applying for a place and obtaining it, according to the socioeconomic level of the mother. To do this, in models 5 and 6, the interaction between income and employment in the child's second year is taken into account, while in figures 1.1. and 1.4, the evolution of the marginal effects of working is shown for each income bracket and for applications and access. We see that as income increases, the places allocated to mothers who do not work falls further. However, this does not happen with applications. Regarding the statistical values, in figures 1.2 and 1.5 we see that the interactions are relevant and the differences in the marginal effect for each income level are significant in terms of obtaining a place. This would be like the effect seen in table 1 of having a job, but for each income level. Now, to correctly estimate whether the differences between working or not

Figure 1. Estimation of the marginal effects, the differences, and the differences in differences in earnings by employment status of the mother when the child is between 1 and 2 years old (models 5 and 6 in Table 1)



Source: author's own elaboration. 95 % confidence intervals.

working between income levels are significant, an estimate of the difference in differences is required. This is because the confidence intervals of the points in Figure 1.5 cannot be compared in order to establish whether the differences in the effects of employment are significant, since to make such a statistical inference, it is necessary to take into account the density distribution of the differences. The differences in differences are calculated by firstly calculating, for each income level, the difference between working and non-working mothers in the marginal probabilities of applying for/obtaining a place. Then, the difference between this difference in income levels is calculated, as well as the confidence intervals. The results are shown in figures 1.3. and 1.6. We see that the 95% confidence interval of the first point—the difference between the first and second income brackets—would contain the null value. Therefore, we cannot reject the null hypothesis that being in employment is not a mediating variable between income and obtaining a place. The way that the calculation is set up means that this is the same result that we obtain with the coefficients in the estimator of the interaction between income and obtaining a place in Table 1.

Once we have examined the effects of the mother's education level, income and employment on the ME, we can observe other explanatory variables regarding the socioeconomic condition of the household that could yield interesting results regarding our first research question on the allocation system's effect on reducing the ME. First, we find coefficients regarding the partner's income that are not particularly relevant and not significant in all the models, thus giving relevance to the weight of the mother's income in the household when studying the ME. Second, applying for benefits has a positive and significant effect. We can interpret that, once controlled by income, applying for benefits implies knowledge of and contact with the public administration and social services, which allows the family access to a system that can allocate places based on the vulnerability of the family. Third, in the case of a late bill payment, the positive effect could also be indicating that at certain levels of economic vulnerability there is a greater probability of being in touch with social services. One of the questions that the survey asks is how the mothers found out about the childcare services available in their neighbourhood, and the answers lead in the direction of my hypothesis: 10% of the mothers who requested public assistance and 14% of mothers who were late with a bill payment stated that social services told them about the nursery services available, compared to 4% who did not apply for benefits and 3% who had no delays in bill payments.

Finally, and following what was seen in the data description, although the mother's place of birth does not affect the probability of applying for a place in any of the models, in the second model in Table 1 there are inequalities in obtaining places and these are significant, with mothers not born in Spain bearing a penalty of 10 points. The effect is similar and consistent in all the models, and although they cease to be significant at the 5% level, they do not exceed the 10% margin. This phenomenon is especially evident for mothers born in a Latin American country (the sample is very small for other continents).

4.3. Mechanisms that could explain the ME in terms of the mother's education levels and her place of birth

As for the second research question about the relationship of the ME to education level, the results of models 7 and 8 in Table 1 indicate that the mother's preferences about nurseries have no effect here. Although both variables regarding opinions about children in nurseries reduce the probability of applying for and obtaining a place and are significant at the 1% level, the interactions are not significant, which indicates that the preferences do not mediate either the applications or the allocation of places. To investigate other mechanisms that may explain differences in applications and places obtained, the survey included specific questions about the motivations and reasons for not applying for or not taking up a nursery place. In the appendix, Figures A1 and A2 include the responses according to the mother's studies. Regarding the reason for not

applying for a place in a public nursery, we see that it is not that mothers without university studies do not apply because they have different preferences or less information about the available services. While it is true that a higher percentage say they do not like public nurseries compared to mothers with higher education levels, it is a small difference (8% vs. 3%), especially when compared to the differences in the response about not being able to afford the services (17% vs. 3%). There are also no significant differences regarding whether the application process for a nursery is complicated or if there is a lack of supply. A phenomenon to take into account is that mothers with more resources sometimes move house in order to obtain a place where they calculate that they are more likely to obtain one, but in the survey almost no mothers confirmed having moved for this reason.

Regarding reasons for not taking up a place despite having applied for it, nearly 80% of mothers with university studies stated that they did not obtain a place, compared to 45% of mothers without university studies. A small percentage of mothers without university studies indicated that they did not take up a place because they could not afford it. But why, then, did women with lower education levels not take up a place? On the one hand, 10% of mothers without university studies chose the option that their employment situation has changed (compared to 1% of those with university studies). Thus, for this segment of the population, job instability, perhaps beyond being in employment or not, is a conditioning factor when it comes to being able to access services. On the other hand, 23% indicated that they had changed their minds (compared to 8% of mothers with university studies). However, this last option could be ambiguous and also include economic and employment-related factors.

As for the reasons given by the mothers born outside of Spain for not accessing places they had obtained, they frequently stated that they did not take up the nursery place allocated because it was far from their homes, that it did not fit with their work schedules or those of their partner, or that their employment status meant that they no longer needed the place. In this sense, studying the working conditions within the sample, women born outside Spain are more likely to have a temporary employment contract or not have a formal contract at all compared to those born in Spain.

5. Discussion

The results obtained partially confirm the first hypothesis: *municipalities manage to reduce the ME with respect to income in the process that occurs between applying to and accessing public nurseries.* Although the probability of making an application is higher as income increases, the probability of accessing a place is the same for mothers of all income levels. In this sense, the results would partially go against what was found in Abrassart and Bonoli (2015) for the Swiss case, where income is given more importance to explain inequalities regarding obtaining places. Examining the interaction between the employment and

income variables has allowed us to confirm Pavolini and Lancker's results (2018), and to see that having a job has less importance as a mediating variable that increases the ME. In any case, the effect is the opposite and decreases the ME. Not being in employment reduces a mother's probability of applying for a nursery place similarly across all income levels, but the probability of accessing a place decreases as income increases (up to middle incomes). This result can be understood as further evidence of the possible equalising effect of the allocation system. In this case, mothers with low incomes and who are out of work, who are therefore more vulnerable, would be favoured. However, despite the relevance of these results, they are not statistically significant and it may be necessary to have a larger sample.

However, the results of the study indicate that the inequalities in applications according to the studies of the mother and her partner, once their socioeconomic situation has been controlled for, are maintained with respect to allocation of places. The importance of the mother's education level in explaining ME is in line with the results in Coneus et al. (2007). In addition, we have found that the systems in place to obtain a place also seem to negatively affect mothers born outside Spain. Despite having the same probability of requesting a place as those born in Spain, the former are less likely to access one than the latter. Thus, while Abrassart and Bonoli (2015) and León et al. (2019) find that women born outside Spain obtain fewer places and interpret it in part as if they also apply less for places, this interpretation might be incorrect. There are mechanisms that prevent them from accessing a place despite wanting one. These barriers to applications and access are analysed in the second research question posed in the introduction.

We have seen that, of the reasons for not applying for a nursery place, the factor that most differentiates mothers without university studies from the others is that a higher percentage of the former indicate that they cannot afford these services. This may indicate a limitation in the study, where the study variable could be capturing a household income effect (despite having controlled for household income and other economic variables in the regressions). In any case, price appears to be the most important barrier when applying for a place. Then, in line with Pavolini and Lancker's results (2018) and our second hypothesis, preferences regarding nurseries would not explain the ME, since no significant results were found in the estimation of the interaction between the mother's studies and her preferences.

Regarding whether the information available to the mother is a relevant variable that explains the ME, the data partially refute this hypothesis. The level of knowledge about the existence of public childcare services is similar between different social strata. Of course, an important source of information for vulnerable families comes from social services, which surely also indicates their key role in helping those groups access the services, either by assisting with applications or giving financial aid. There is however one variable about the available information that is not captured by the survey: the knowledge that each person has of the functioning of the access system to the services.

Access to schools and nurseries in Catalonia and its municipalities follows the Boston mechanism. This system takes into account families' strategies to secure places (Ivàlua, 2020; Calsamiglia and Güell, 2018). Families make an application by putting nurseries in order of preference and, if they do not obtain a place in the nursery they have put as their first option, they only have the possibility of obtaining a place in their other options once the first round is complete. Thus, for a family, it is crucial to know what the demand for the nursery was for the previous school year in order to maximise the chances of obtaining their first option place. However, this information is not readily available. Some households do not go to the open day events of the nurseries (e.g. due to time constraints, lack of resources or irregular work schedules), do not contact the nursery workers directly during the registration period, or do not receive a response from them (Ivàlua, 2020: 99). The families' ability to obtain this information also depends to a great extent on their social networks and economic and cultural resources (Abrassart and Bonoli, 2015). To explain this, a paradigmatic case in our survey may be that of mothers born outside of Spain. Despite requesting places, they might have less access to services because they do not have information networks on how the system works or do not know who to contact in the nurseries to find out about demand in previous years. In addition, when it comes to accessing this information, it cannot be ruled out that there might be discrimination against foreign women and exclusion of them exercised by those who manage the access processes in the nurseries, in a more or less unconscious way.

Finally, in addition to lack of information and the cost of services, there is an additional barrier. Mothers with no university studies and not born in Spain affirm more frequently that they have not accessed a place because of a change in their employment situation. Thus, in line with Lancker (2018), mothers without university studies find that their more vulnerable and changing conditions in the labour market make it difficult to opt for a nursery in a "permanent" way. The inclusion of variables on the type of employment contract in the regressions carried out did not yield statistically significant results, but the variables included were measuring their situations *before* the child was born, so could not capture changes in the employment situation. Future qualitative research may find more information about how mothers' precarious work lives affect their choices regarding their children attending a public nursery long term.

Here it is necessary to point out the limitations of the present study. Data reliability problems need to be taken into account, as well as whether the variables used and the model specified have been identified correctly. On the one hand, part of the household's socioeconomic level and the mother's employment situation might be captured in the variables related to her educational level. For example, it may be difficult to recall annual income for the three years prior to the survey. In addition, economic capacity might be determined by the wealth and financial capacity of the household, but these have not been captured. However, the use of other of the household's socioeconomic variables, such as the ownership of the first home, should have reduced the variable omission bias. In

the case of the mother's employment situation, it has been a problem to find an independent variable by year when the dependent variable captures decisions made for the entire 0 to 3 year old stage. This may produce reverse causality, since deciding to work when the child is between 1 and 2 years old may be determined by having gained access to a public nursery the previous year. It would be ideal to have panel data for the mother applying for a place, obtaining and using a place, and income, as well as her employment status. However, this survey presents limitations on operating estimators used with panel data that we have not been able to employ here. For example, according to Hausman's (1978) test, the "random effects" estimators of models 7 and 8 in Table 1 produce biased estimators, which would indicate that our model's independent variables would be correlated with some of the mother's uncaptured idiosyncratic characteristics. And although the "fixed effects" estimator would not be correlated with these characteristics, it has the limitation of eliminating variables that do not change over time, which is the case of the majority of variables in the survey. In addition, there is very little variation between periods regarding the mother's income, which greatly reduces the variability of the sample.

Secondly, the results must also be treated with caution due to the overrepresentation of Barcelona in the sample. This could have biased the differences found between the probabilities of applying for and obtaining and using a nursery place in Catalonia. Three factors can be taken into account here. First, the higher percentage of mothers with university studies in Barcelona compared to the rest of Catalonia would produce an upward bias in the ME. Second, the sliding-scale pricing in Barcelona applied in 2016 meant a reduction in the real cost of public nurseries for low-income families (IERMB, 2021. It is worth considering if this may have been what motivated the fall in the ME between applications being made and obtaining and accepting a place. On the one hand, although it would increase the probability of low-income families applying for a place, it would also increase the probability of obtaining and accepting a place, without causing the differences in ME that we have found between these two moments in time. This would be the case if we assume that people that request a place do so because they can afford it. Now, even if this were the case, there might be families who knew the future cost when they apply for a place, but when they were allocated it, their economic situation had changed and they ended up rejecting it. This situation could be captured in the high percentage of families without university studies that in graph A2 say have changed their minds as a justification for not taking up a place. In these cases, sliding-scale pricing and the real price reduction it leads to could increase the probability of taking up a place with respect to applications. If this is a common case, we would have to conclude that progressive access criteria is less important in reducing the ME.

Thirdly, families living in Barcelona that have more resources may have different probabilities of applying for and obtaining and accepting a place to families living in the rest of the municipalities. On the one hand, the high population density increases the supply of private services per inhabitant, which

reduces the probability of applying for and being allocated a public place. But this effect would only produce an upward bias in the importance of progressive criteria in the access requirements if there are families who apply for a public place but then, despite receiving one, reject it and use a private nursery. We can expect this to be a rare case, since public nurseries tend to be cheaper and, since there is a sufficient private supply with no waiting lists, it would also make little sense to apply for a place in a public nursery and then reject it.

6. Conclusions

Unlike previous studies, this article, using the case of Catalonia, has investigated the presence of the ME not only in the allocation of public nursery places, but also in applications to them. This has made it possible to analyse the socioeconomic reasons for the ME at both stages (when applying and when taking up a place). In addition, by comparing the probabilities of taking up an allocated place and applying for one with respect to different socioeconomic variables, it has been possible to study the potential capacity of the access system to reduce the existing ME in the applications. Among the main results, we have seen that, on the one hand, the mother's income and the high costs of public nursery services are important barriers to applying for services. However, Catalan nurseries are correcting part of the ME through their access system, making the service available to more vulnerable mothers, which shows the potential of the regulatory state in equal access to public services (Levi-Faur, 2014).

Thus, local public administrations have tools (other than spending tools) that can be effective. Even so, social spending continues to be key in order to lower costs for families —by increasing supply or reducing prices—, to improve the quality of nurseries —thus avoiding segregation— and to strengthen a social services network that provides information, access and public aid. Here sliding-scale pricing is an important measure that can facilitate families taking up places. Future research could expand this analysis by taking into account supply factors to explain the ME in Catalonia, through a study of municipal public policies, including both social criteria in allocation and in prices. This would not only allow us to know the allocation criteria that alleviate the ME in the most effective way, but also to study the particularities of the municipalities according to their level of spending power.

But, beyond income, the other significant explanatory factors that make up the ME in applications and take-up of places are the mother's and her partner's education levels, and the mother having been born outside of Spain. Contrary to what has been shown in previous studies that only observe data on taking up places, mothers born outside Spain apply for nursery services at the same rate as Spanish mothers, but in the end they take up the places less frequently. Here we have tried to understand the mechanisms that explain these differences. Both this study and others indicate that the mother's preferences about nurseries are not very relevant. This study points to two main barriers beyond prices: the applicant's ability to understand how the system works, and their working

conditions. First, mothers with lower education levels and non-Spaniards might have less capacity to obtain information that allows them to optimise a strategy to obtain a place. The access system used by public nurseries follows a form of prioritisation in which it is important to know where there is more probability of obtaining a place. In addition, it cannot be ruled out that unfair practices exist that favour certain families due to their social status. The ability of some mothers to be more successful and guarantee themselves a place appears to show the failures of the state regulation system. Its aim to foster equal opportunities can fail if there is not enough transparency and monitoring of the processes to prevent information becoming an asset for some that leads to inequalities. Second, despite the fact that after taking into account that the ME does not fall if the mother is not employed, the lack of job stability and the atypical hours worked by mothers born outside Spain and who have no university studies may be a determining factor that forces them to reject a place despite being allocated one. Here, in the absence of structural changes in the labour market, the public childcare system should offer more flexibility for mothers who have precarious job structures or who work atypical hours.

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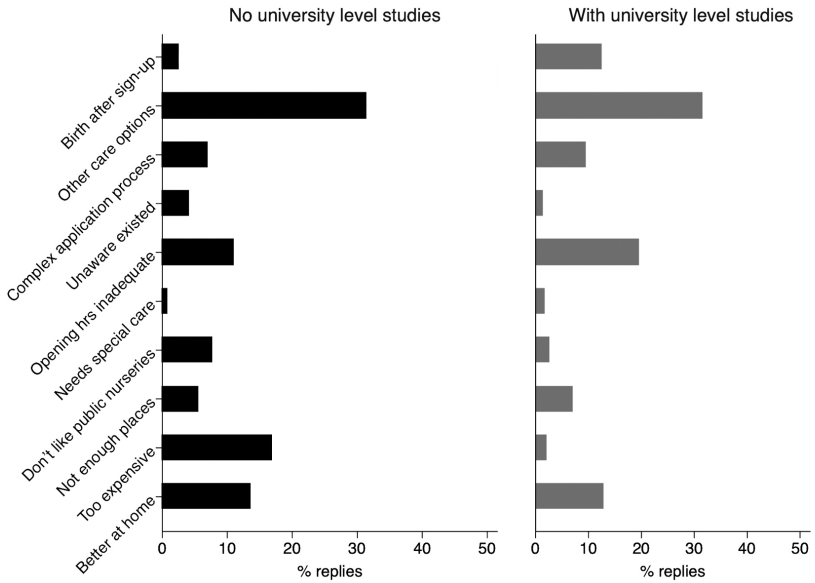
Appendix

Table A1. Descriptive data of the sample, in percentages

		Application for public childcare services		Use of public childcare services	
		Full sample (N = 1,219)	Barcelona (N = 524)	Full sample (N = 1,219	Barcelona (N = 524)
Variable	**Categories**	**51.2**	**58.2**	**35**	**34,7**
Mother's annual income before birth of the child	0-14,000 €	43.8	52.1	29.2	31.4
	14,001-25,000 €	54.3	63.1	38.3	40
	25,001-35,000 €	61.8	63	39.6	34.4
	Over 35,000 €	50.4	48.6	33.9	27.1
University studies	No	47	52.3	31.5	28.5
	Yes	56.7	61.6	38.7	38.4
Partner with university studies	No	46.9	53.3	32.2	31.1
	Yes	57.5	61.9	38.3	37.5
Worked before the birth	No	46.9	54.6	36.7	36.4
	Yes	52.1	58.5	34.8	34.6
Born outside Spain	Yes	50.3	61.4	25.8	33
	No	51.9	57.6	36.4	35.1

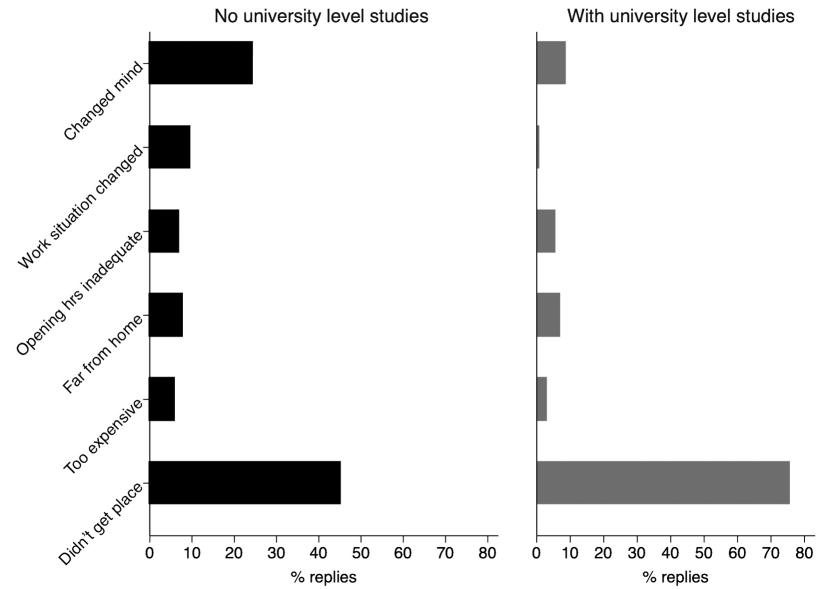
Source: author's own elaboration from survey (N = 1,219).

Figure A1. Percentage of replies about reasons for not applying for a public nursery place, according to mother's education level



Source: author's own elaboration from survey (N = 1,219).

Figure A2. Percentage of replies about reasons for not taking up a public nursery place despite having been allocated one, according to mother's education level



Source: author's own elaboration from survey (N = 1,219).