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THE MORE PUBLIC THE MORE PRIVATE? THE CASE OF THE ITALIAN CHILDCARE

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The More Public the More Private? The Case of the Italian Childcare*

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Abstract

Childcare availability is regarded as an important factor in the evaluation of public policies for both sustaining fertility and increasing women participation to the labour market. However, the recent empirical literature shows that the extension of the public supply of childcare mainly crowds out private providers. Italy is a case of special interest for testing the relationship between the public and private supply of childcare given that: 1) an increase in public childcare provision can be achieved through broadly conceived forms of out-sourcing; 2) public childcare for children less than 3 years old can be considered as a service with high redistributive goals, which determines a sorting mechanism of the demand between public and private providers. We use Italian data at the municipality level for the period 2000-2006 to explain the number of registered private providers of childcare as a function of 1) the public coverage of the 0-2 years old population, and 2) the main characteristics of the public service. We show that the public coverage positively affects the number of private providers. When the characteristics of public supply are considered, the effect of a sorting mechanism is confirmed.

JEL classification: H44, H53, H75, H77

Keywords: Child Care, Italian Municipalities, Private-Public Mix

1 Introduction

Childcare availability is regarded as an important factor in the evaluation of public policies for both sustaining the fertility and increasing women participation in the labour market. As a consequence the EU set out specific targets in terms of population coverage to be fullfilled by 2010: the Lisbon 2000 summit set a 33% coverage rate for 0-2 residents (or younger than 3), and a 90% target for the pre-schooling population. Recent statistics show that the two subsets of children receive very different levels of services across countries (OECD 2007) (*fig.1*): in general, the coverage levels for children younger than 3 are substantially lower. In some countries, such as Italy, the low coverage level is regarded as one of the main causes for low women participation rates to the labour market and it has been argued that an increase in public supply could be an effective tool to address this issue (Del Boca 2002; Del Boca et al. 2005).

However, the recent empirical literature, following quasi experimental approaches, shows that an expansion of public spending and public provision of childcare crowds out private providers (or other informal childcare) with an insignificant impact on women participation rates to the labour forces (Baker et al. 2008; Havnes and Mogstad 2009). The basic intuition is that the crowding out mechanisms takes place because of a substitution effect from the users' point of view: the two providers are substitutes in terms of the service characteristics except for the price. The subsidization level for public childcare users (i.e. lower fees for the same service) has been addressed by recent studies as the primary reason of an excess of demand for public providers (Wrohlich 2008; Banfi et al. 2009). The effect has been detected within institutional frameworks where private and public providers are juxtaposed, that is to say the public sector does not rely on private providers to supply the service.

Within the large literature on the private-public interactions with reference to local public services, Italy is a case of special interest for testing the impact of the public provision on the private supply of childcare for several reasons. First of all, an increase in public childcare provision can be achieved through both the building of new facilities and to broadly defined out-sourcing mechanisms (e.g. reserved seats in private crèches, public crèches run by external providers etc.). Secondly, access to the public crèches can be set according to redistributive goals, determining a sorting mechanism of the users' demand between public and private providers. In other words, municipalities typically enforce specific local welfare policies placing the facilities' slots according to "access criteria" which weigh social and economic conditions of distress more than work and family reconciliation goals. This is apparent in the method used to calculate fees which is based on an indexed income (*ISEE*)[1]: in general the public service is highly convenient in terms of price only for low-income percipients, whereas, as income increases, the private alternative can be equivalent in term of users' costs[2].

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[1]Sometimes ISEE income is used as a priority criteria when candidates have equal scores. ISEE= (family income+ 20% family property)/weighing parameter.

[2]Since 2005 an independent organization (Cittadinanza Attiva 2006-2008) has been running an yearly based survey to monitor the prices of public facilities. The survey calculates the fees for an

We test the relationship between private and public childcare[3] using two unique datasets at the municipal level. The first dataset is based on the register used by the Board of Trade of Milan. The register contains the total number of firms that provide private crèches from 2000 to the present: registration is compulsory for firms involved in this service. The data are recorded at the municipal level; although they could underestimate the private childcare (e.g. one firm can run more than one facility), they represent the only available official source[4]. The second dataset is based on the budget grids of Italian Municipalities (available through the Italian Ministry of the Interior), which provides information on the public crèches run by the municipalities. The latter dataset has been integrated with additional information on the years 2000-2006. We ended up with two samples of municipalities: the first sample containes an unbalanced panel of around 700 municipalities with a resident population larger than 10,000 inhabitants; the second sample consists of 144 larger municipalities (*capoluogo di provincia*), which were contacted between November 2008 and February 2009 in order to get their access criteria, average opening hours, and the flexibility of the service supply (broadly defined as users's options).

Using count data analysis, we explain the number of firms providing private childcare as a function of 1) childcare public coverage for the larger sample, and 2) the main features of the public service for the smaller sample. Results show that private and public suppliers coexist only when the level of public coverage is considered, thus answering to different kind of users' preferences. When we control for the characteristics of the public service related to potential competitive elements with the private sector (i.e. opening hours), a displacement effect can take place for users indifferent towards the two providers. However, if the specific local welfare policies (i.e. access criteria) are evaluated, different demand functions seem to operate in relation with the provider nature.

The paper is organized as follows. In the first part, we presents the institutional framework and the main elements of the Italian public childcare provision. In the second part the methodology is explained and results of the empirical analysis adopted on the two samples are presented.

2   The Italian Case Study

In Italy, like in other unitary-but-decentralized states, childcare public policy develops at both central and local level of government. The State determines the essential levels

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ideal typo of family: two working parents with a single child under 3, with a family gross income equal to 44.200 (*ISEE* income= 19,000 euro) the median price of a month in the Italian larger cities (*capuloghi di provincia*) for the school year 2006/07 was around 300 euro. It is difficult to develop more in depth analysis on this point given that more simulations are needed and there is no possibility to compare potential results with data from the private sector, which are lacking at the moment.

[3]From now on we use childcare as referring to crèches services.

[4]A recent survey of the Bank of Italy has tried to reconstruct a dataset on private and public créches with data from 57 municipalities (Zollino 2010, 173).

of performances (LEP)[5], i.e. the minimum level of supply for public childcare could be set equal to the 33% of the resident 0-3 population, and is in charge of the *ex post* monitoring of the policy enforcement. Municipalities handle the direct provision of local services.

The normative framework developed in the course of time has in part modified the original view on the nature of childcare service. The first law introducing crèches in the Italian system (Law n. 1044/1972) defined crèches as "a *social service* of public interest aimed at the temporary care of children in support of work-family responsibilities and promoting female participation in the labour market". The Crèche Law created a Special Fund to finance the building and management of 3,800 crèches from 1972 to 1976. Changes in the Italian socio-economic scenario during the following years created an excess in the demand for childcare with respect to the available supply. In order to cope with the increase in demand, the law 285/ 1997 law raises the childcare supply by diversifying the types of services available to meet existing demand. The law aims also to promote, among other things, additional services (with educational and ludic goals) for childhood, which are different from crèches because of their greater (organizational) flexibility (e.g. they might be family run) and shorter opening hours. these additional services are generally known as baby parking, micro-crèches or family baby sitters funded by the municipalities as alternative solutions to traditional day care. Additionally, as of 2003-04, crèches in the working places also started to provide extra supply, especially in Northern regions (Landuzzi 2005). Nowadays it is possible to define the Italian childcare system as a mixed system. While for several realities it stands mainly public, it is more and more common to find agreements between municipalities and private providers: the municipalities can "book" a certain number of slots in private facilities, they can pay part of the fees for users of private slots, or they can allow for private providers to manage part of their supply while the access to and the price of the service stands under the public administration control.

Generally speaking, crèches can be regarded either as social services or as a part of an educational track. The latter is the basic feature of pre-schooling while the former sticks quite strongly to services for younger children. From the users viewpoint, if childcare does not belong to an educational track it might not be regarded as a proper substitute compared to informal childcare solutions (e.g. baby sitting, relatives, etc.). From the local administration viewpoint, the social service nature of childcare can be interpreted as a tool that can be used either to purse social integration and cope with economic distress (redistribution at the local level) or to reconcile work and parenthood.

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[5]The first fiscal federalist reform (2001) and the most recent one (2009) have stressed the necessity to introduce minimum levels of public services (in quantitative terms), but so far the efforts' success has been jeopardized by a sort of institutional inability to define clear intergovernmental relationships and the wanted targets (Ambrosanio et al. 2009).

2.1 Access Criteria

The criteria to regulate the access to public slots are often very strict: according to the said criteria an absolute priority is given to applications of children with handicap, a consequence of the 1992 national legislation on this issue. Other than that, each administration establishes a list of criteria, which seldom make it difficult for a family made up of two working parents without any specific problems to get their application accepted.

We obtained information on the access criteria for 144 municipalities with uniform distribution across the country:100 administrations use *cardinal* criteria (i.e. a score is given to each entry), 22 municipalities use *ordinal* criteria that only provide priorities, and 22 do not use any criteria regulating the access to the service in a total discretional way. The access criteria differ from one city to the next, but there is a common core: for example, working parents, parents with temporary work, characteristics of the parent jobs or parents' physical or psychological conditions. To make the analysis easier, we have reclassified the adopted criteria into 21 homogeneous categories (*tab.1*): 10 categories are related to the family-work reconciliation and 11 stand for social and economic distress of either the child or the child's family. The 1992 national legislation has not be considered as a distinctive criterion, since it equally affects the entire set of municipalities.

Let x_i (i=1, 2...10) be the scores given by the municipalities to the first 10 categories; the scores of the remaining 11 categories is indicated by y_j, (j=1,2...11). Starting from these two sets of homogeneous criteria, we calculate the weight that each local government gives to the two sets. For this purpose, we use the following two indexes.

$$I_{WF}^k = \frac{\sum_{i=1}^{10} x_i^k}{\sum_{i=1}^{10} x_i^k + \sum_{j=1}^{11} y_j^k} \qquad (1)$$

$$I_{SEU}^k = \frac{\sum_{j=1}^{11} y_j^k}{\sum_{i=1}^{10} x_i^k + \sum_{j=1}^{11} y_j^k} \qquad (2)$$

I_{WF}^k represents the index of the work-family reconciliation (WF) for municipality k, and it is the ratio of total scores for the 10 WF categories to the total score given by the 21 categories[6]. The index I_{SEU}^k is calculated analogously. Normalizing allows us

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[6]The score a child application should get if it would have all the recalled characteristics considered by that municipality.

to compare the indexes of different units and, consequently, to understand whether the local government conceives of the childcare service mainly as an instrument to reconcile work and family responsibilities rather than a pure social service aiming for social inclusion and/or social integration of children coming from a stressful environment.

The I_{WF}^k index is dominant ($I_{WF}^k > 0.5$) only for 13.19% of the municipalities included in the sample, while the 56.24% of them considers the I_{SEU}^k index as the main indicator to prioritize the access ($I_{SEU}^k > 0.5$)[7].The choice to weigh more one rather than the other component can in turn be affected by the social and cultural background of the local community as well as the preferences for redistribution. All in all, there seems to be no significant difference through the Italian macro areas: municipalities tend to conceive of childcare as a tool to provide assistance towards social integration and in kind redistribution.

From a local finance point of view, this characterization can affect the funding of the service in terms of users' fees. The way in which fees are calculated rely on a calculation of the income which includes a patrimonial component and weighs the characteristics of the family (*ISEE*). The lower is the so-derived income the lower the contribution required to the user the higher the redistribution.

3 Methodology

Since the dependent variable represents a count of events, the number of private firms, we can try to assess the impact of public coverage and public supply characteristics on the private market using Poisson and negative binomial models. In the Poisson model the probability of an event occurring λ is constant during a period of time and proportional to the duration of time (Jones 2000). Its probability mass function is equal to

$$\Pr(Y = y) = \frac{e^{-\lambda}\lambda^y}{y!}, \ \text{y=0,1,2...} \tag{3}$$

where λ is the intensity parameter. However, the Poisson model rely on the so-called *equidispersion property* that can rarely holds in real data, given that it means (Cameron and Trivedi 2009)

$$E(Y) = Var(Y) = \lambda = \exp(x'\beta) \tag{4}$$

When equidispersion does not hold, we have to deal with overdispersion and excess of zeros problems. Consider the distribution of the number of registered private firms in the two samples we use. In the first larger sample 81.18% of the observations have no registered firms (i.e. zero events), while only 1.34% of the observations have more than 10 firms. The skeweness of the distribution looks milder for the second smaller dataset,

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[7]We are considering the municipalities using cardinal criteria. They represent the 69.43% of the total sample (144 cities)

where even if a large proportion of units counts zero, the majority of the observations are associated to municipalities with a positive number of firms (*tab.2*). Excess of zeros are generally related to heterogeneity at the unit level (municipalities): there might be some unobserved characteristics which makes more probable to have private providers in some municipalities rather than others.

To take into account unobservable heterogeneity we could either use a Poisson model where only the mean is assumed to be correctly specified, $E(y|x) = \exp(x'\beta)$, and the equivariance assumption is released using a robust (sandwich) covariance matrix (Poisson Maximum Likelihood)(Greene 2008) or a negative binomial model (NB), which controls for overdispersion assuming that the individual error term comes from a particular distribution. As a matter of fact, the NB model is based on a probability mass function, which defines the intensity parameter as in the Poisson model, while an additional parameter, α, is inserted to model the overdispersion as follows

$$\Pr(Y = y|\lambda, \alpha) = \frac{\Gamma\left(\alpha^{-1} + y\right)}{\Gamma\left(\alpha^{-1}\right)\Gamma(y+1)}(\frac{\alpha^{-1}}{\alpha^{-1} + \lambda})^{\alpha^{-1}}(\frac{\lambda}{\lambda + \alpha^{-1}})^{y} \tag{5}$$

$$E(Y) = \lambda \text{ and } Var(Y) = \lambda + \alpha\lambda^{2-k} \tag{6}$$

When $\alpha = 0$, the NB model becomes a Poisson model. If k=1 we have NB1 models, where the variance is proportional to the mean, whereas if k=0 we have NB2 models where the variance is a quadratic function of the mean (Jones 2000). The latter specification is regarded as a very good approximation to a more general variance function (Cameron and Trivedi 2009). Hence, we use the NB2 specification in addition to the Poisson model with robust standard errors.

4 Explaining the Public-Private Mix

4.1 The Role of the Public Supply

The larger sample allows to address the general trend of both the private firms and the public coverage. During the considered time span (2000-2006) the number of private registered firms (on average per municipality per macro area) increased almost by 250% in the North West, 84% in the North East, 171% in the Center, 176% in the Southern part of the country. Checking how many municipalities are represented in the register between 2000 and 2006, a considerable increase can be detected especially in North Western regions (+541%) followed by Central Regions (+407%), the South (+270%), and finally the North East (+244%) (*fig.2*).

The trend in the supply in publicly provided seats is much smoother with the South and the Islands experiencing a dramatically understated supply level. In 2006 the available slots per 0-2 residents (so called *public coverage*) show a remarkable distance of the South from the rest of the other macro areas: 9% of coverage against the 14% of the Center, the 13% of North West, and the 17% of the North East area (2006

values) (*tab.3*). The average public coverage of the entire dataset is around a 13% of the resident population (*tab.7*).

Finally, the management form can be a relevant component in order to get a better understanding of the interaction between public and private sector: public or not-public governance (e.g. private managing with the municipality participation/cost sharing etc.) are the adopted solutions by the local administrations. Non-direct public management prevails in smaller municipalities (<10,000) (Antonelli and Grembi 2009)[8], while direct public management tends to prevail as the municipality size increases. From the 2000 to the 2006, Italian municipalities switched from a direct management to some sort of outsourcing, with stronger variations for the North East (-15.5%) and the North West (-12.5%) (*tab.4*)[9].

We run separate regressions using both Poisson with robust (sandwich) standard errors and negative binomial regression (NB2) in a linear-log specification for pooled data. For each approach we run two sets of regressions whether or not the provincial unemployment female rate is included. In fact, data on female unemployment rate are missing at the municipal level but for the census 2001 data. Therefore we use the provincial level which gives the flavour of the market conditions for women in the area: higher level of unemployment should affect negatively the presence of private providers. However this correlation could be captured by the average taxable income (the higher the income, the higher the dimension of the private sector), which is considered as well. We control for the municipality size using the resident population and its square, given that this allows for introducing characteristics of the population not otherwise available at the municipality level such as the educational level. As matter of fact the correlation between municipality size and percentage of higher degree (graduates) residents is equal to 0.98 (2001 census data). The demographic composition of the resident population is taken into account using the proportion of old people (older than 65) on the total resident population. The higher the old people quota the lower the incentives for private investors to open structures pointed to younger and working people. Finally, we take into account possible interactions between public and private sectors, given by the governance of the public crèches. If the municipality runs the facilities mainly through a non-direct (public) management, this could affect positively the presence of private firms providing the service. The reverse should be true if the management is direct. However, using the management dummy in the larger sample we could capture also some of the features of the public service for which we cannot control otherwise (e.g. access criteria). If this is the case, a direct-public management, for instance, might define municipalities more concerned of redistributive issues.

Regressions' results show that the public coverage has a positive impact on the

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[8]Which cannot afford to directly provide this expensive service.

[9]As assessed in a previous work by Fazioli and Filippini (1997) on a sample of Italian municipalities, forms of out-sourcing seem to diminish the variable cost of providing the service even for those municipalities in which the service continues to be run from the public sector. This is due to the fact that alternative forms of governance allow to have references in terms of performance and employment of the workers not available when the service is only run entirely at the public level.

number of registered private firms (*tab.5*): an increase of 1% of public coverage is associated to a statistically significant increase in the number of registered private firms in a range between 0.18 and 0.26. NB2 regressions estimate a higher impact than Poisson specifications (*tab.6*). The positive correlation addresses a phenomenon of coexistence of the two sectors rather than of displacement or substitution. The interpretation of the management coefficient seems to capture the nature of the service as far as the public sector is concerned: when the management is run directly this affects positively the number of registered private firms. We go in depth to this intuition with the second analyzed sample. In terms of predicted probability the NB2 model seems to perform slightly better, given an overdispersion parameter of 0.67-0.64 (*tab. 5*), predicting the probability to have zero registered firms in the 80% of the time against the 77% of the Poisson case, when the actual zero observation are equal to 81%.

4.2   The Role of the Public Supply Characteristics

For a second sample made by 144 larger municipalities, we recollected more detailed information regarding the main characteristics of the public childcare provision in terms of access criteria, average opening time, and supply complexity. The goal of the present analysis is to deal with both the conceptual framework within which the service is delivered by the public and its potential competitive characteristics with the private sector. The 44% of the municipalities included in this sample weighs more than 60% the applicants' socio and economic distress, when applications need to be prioritized according to the access criteria (*seu*) (*tab.8*).The majority of municipalities with such score are placed in the Center and the South and the Islands. We expect that the more the service is conceived as a local welfare tool for social inclusion and/or social integration of children coming from stressful environments the higher the number of private firms. If this is confirmed, the priorization of applicants on the base of so defined access criteria sorts the demand in a twofold way: 1) people with low scores according to the *social* access criteria tend to direct their demand to the private sector, and 2) the choice for an alternative private solution can be guided by the parents' concern of a peer effect.

We control for the characteristics of the public supply, which can define a measure of competition with the private sector, using a complexity index and the average opening time. To define complexity we count the options given to applicants in the application papers: there may be just a single option (i.e. leave the child from 8.00 a.m. to 2 p.m.) up to 7 options (e.g. part-time, full-time, Saturday morning, full time early entrance etc.). More than 2 options are generally given to municipalities other than Southern and the average complexity of the sample is equal to 2.2 (*tab.9*). An approximation of the opening time is provided by the information on the average openings at the municipal level (e.g. the overall public childcare structure provides a certain amount of hours per day in a municipality). The average opening time is around 7.5 hours, with the majority of Southern cities offering part time solutions (on average 6 hours)(*tab.10*). Longer opening hours and more available users' options for public slots should affect

negatively the number of registered private firms.

Once the main characteristics of the public service are taken into account the row measure for public service, the coverage, losses most of its significance (*tab.11*). In fact, the characteristics coefficient have the expected signs: regarding the competitive features the average opening time plays a more crucial role than the supply complexity. The access criteria (*seu*) are positively correlated with the number of private firms. The complete set of extra information absorbs both the effect played in the first dataset from the public coverage and the management form[10]. The difference in estimation performance between the NB2 and the Poisson robust model is detectable even for this sample, but the overdispersion problem looks-as stated- significantly smaller (around 0.24).

5   Concluding remarks

The relationship between the private and the public sector as far as childcare is concerned is generally addressed by the literature in mutually exclusive terms: an increase in highly subsidized public service should crowd out private providers, being the two services equivalent in everything else but the users' copayment quota. In Italy, several differences can be addressed between private and public providers first of all in terms of access opportunities. Whereas, many empirical evaluations of the relationship between private and public suppliers come from countries where the rationing of the public provisions is basically enforced through slots undersupply, in Italy public crèches are also rationed through access criteria and redistributive price settings. Additionally private providers are sometimes directly involved by the municipalities in the provision of slots on behalf of the public sector, which might be equally unusual in the experience of other countries. Controlling for the management form and other characteristics at the municipal level, we detect a positive impact that the public coverage has on the number of private providers. When the operational elements of the public supply and the access criteria are considered, a more competitive running of the service (i.e. longer opening hours) make the public provider an alternative to the private sector.

A more in depth investigation would require data on the coverage of private providers-number of slots per children- as well as information on private crèches on the workplace. However this first step shows that interactions at the local level in terms of private-public mix is a quite rooted when local public services are analyzed. In this sense, an extension of public coverage would probably determine a change in the number of private providers the direction of which depends on the welfare policies enhanced by the municipalities.

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[10]Which turns out to be negative consistently with the fact that a publicly run public childcare affect negatively the number of private supplier.Yet it is not significant, meaning that the decision to operate in the sector as a private is not mainly determine by the governance statute of the public sector.

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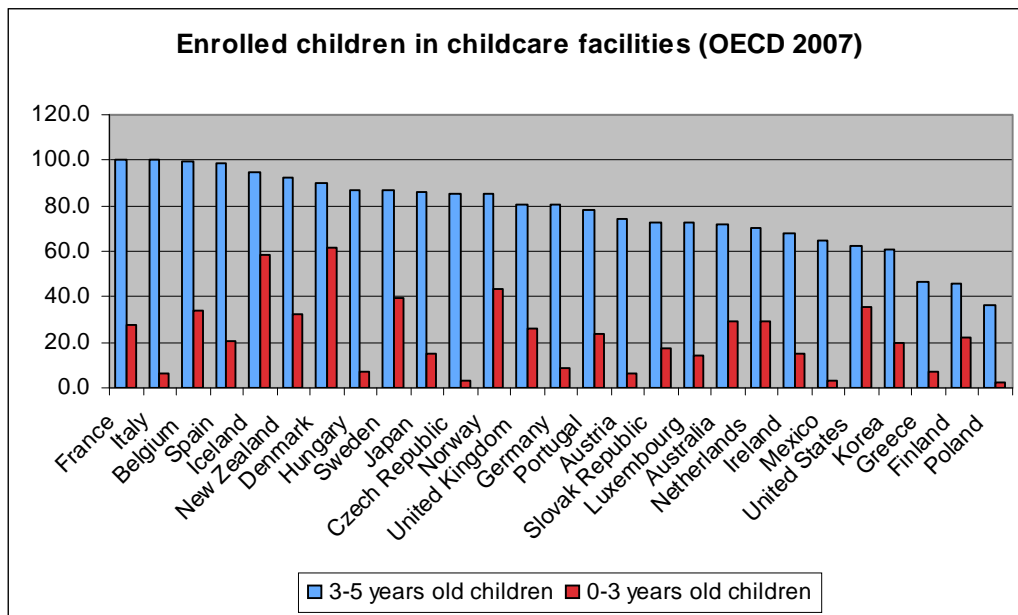
Figure 1. Source: OECD Family Databasee and OECD Education Dataset

Table 1: Access Criteria Categories

Work&Family Reconciliation	Socio&economic Conditions	Other
Twin	Relative with Handicap (e.g. parents, siblings)	In waiting list the previous year
Other siblings attending	Orphan	Already attending the facility the previous year
Pregnancy	Forstered child	Residency
Other child younger than 3	Economic distress of the family	ISEE
Both parents working	Both parents unemployed (or unstable employement)	Grandparents
Only one parent working	One parent unemployed (or unstable employement)	
Full time working parents	Unemployed and single parent	
Part time working parents	Social distress of the family	
Communiting	Specific Parental Problems (e.g. criminal charges)	
Turns at work	Single Parent (Widow, Single father or mother)	
	Single Parent (Divorced or Separated)	

Municipalities with registered childcare services
(Mean values per Area)

Figure 2

Table 2: Frequency distribution of registered private childcare

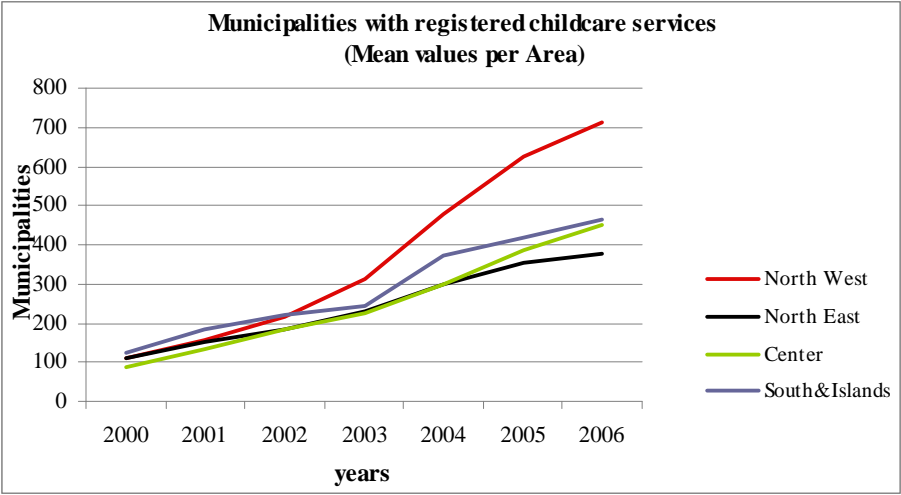| registered private childcare	Entire Dataset freq.	Entire Dataset percent	144 Municipalities freq.	144 Municipalities percent
0	4,043	81.18	231	23.72
1	371	7.45	214	21.97
2	160	3.21	137	14.07
3	123	2.47	115	11.81
4	79	1.59	74	7.6
5	35	0.7	34	3.49
6	42	0.84	42	4.31
7	31	0.62	31	3.18
8	20	0.4	20	2.05
9	10	0.2	10	1.03
10	66	1.34	66	6.77

Table 3: Average Public Coverage

Macro Area	2000	2001	2002	2003	2004	2005	2006	Total
North West	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
North East	0.16	0.16	0.16	0.16	0.17	0.16	0.17	0.16
Center	0.12	0.12	0.13	0.13	0.14	0.14	0.14	0.13
South and Islands	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.08
Italy	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13
Municipalities	652	658	670	667	697	704	698	4746

Table 4: The management of the public childcare

Macro Area	2000	2001	2002	2003	2004	2005	2006	Total
North West	0.88	0.86	0.84	0.83	0.80	0.79	0.77	0.82
North East	0.84	0.83	0.79	0.76	0.77	0.76	0.71	0.78
Center	0.75	0.75	0.73	0.75	0.73	0.72	0.70	0.73
South and Islands	0.85	0.83	0.80	0.80	0.77	0.79	0.77	0.80
Italy	0.83	0.82	0.79	0.79	0.77	0.77	0.74	0.79
Municipalities	676	687	689	679	702	703	692	4828

Table 5: Entire sample regression results

VARIABLES	Poisson		NBREG	
	1	2	1	2
Public Coverage	0.26***	0.24**	0.31***	0.31***
	(0.07)	(0.07)	(0.06)	(0.07)
Income	1.95***	2.09***	1.31***	1.36***
	(0.35)	(0.38)	(0.32)	(0.36)
Proportion of Old	-0.72***	-0.75***	-0.13	-0.07
	(0.20)	(0.22)	(0.21)	(0.24)
Resident Population	9.25***	9.91***	9.90***	11.11***
	(0.46)	(0.49)	(0.48)	(0.52)
Resident Population Squared	-0.34***	-0.36***	-0.36***	-0.41***
	(0.02)	(0.02)	(0.02)	(0.02)
Management	0.06	0.08	0.17*	0.21*
	(0.07)	(0.07)	(0.08)	(0.08)
Female Provincial Unemployment		-0.05		-0.14
		(0.13)		(0.13)
Constant	-79.98***	-85.60***	-77.01***	-84.74***
	(4.07)	(4.61)	(4.10)	(4.65)
alpha			0.668	0.643
lnalpha			-0.40***	-0.44***
			(0.10)	(0.10)
Macro Area Fixed Effects	Yes	Yes	Yes	Yes
Years Fixed Effects	Yes	Yes	Yes	Yes
Observations	4577	3952	4577	3952
pseudo-R-squared	0.63	0.66	0.29	0.31
log likelihood	-3179	-2696	-2906	-2441
Wald chi2	3591	3296	2924	2667

*** $p<0.001$, ** $p<0.01$, * $p<0.05$ Robust standard errors in parentheses

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Table 6: Marginal Effects (entire sample)

VARIABLES	Poisson		NBREG	
	1	2	1	2
Public Coverage	0.19	0.18	0.24	0.26
Income	1.42	1.62	0.98	1.13
Proportion of Old	-0.52	-0.58	-0.09	-0.06
Resident Population	6.7	7.67	7.42	9.24
Resident Population Squared	-0.25	-0.28	-0.27	-0.34
Management	0.05	0.06	0.14	0.2
Female Provincial Unemployment		-0.04		-0.12

Table 7: Descriptive statistics

Variables	Entire Sample					144 Municipalities				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Private firms	4980	0.69	2.83	0	85	974	3.27	5.67	0	85
Public Coverage	4746	0.13	0.07	0.01	0.60	957	0.13	0.08	0.01	0.40
Income	4942	17523	2510	9964	30405	967	18795	2363	11057	28441
Old	4976	0.19	0.04	0.06	0.56	974	0.20	0.04	0.09	0.29
Fem Prov Unem	4277	10.23	7.88	2.30	42.60	834	12.20	8.74	2.30	42.60
Resident Pop	4976	42746	127090	5728	2705603	974	135334	267390	5728	2705603
Management	4828	0.79	0.41	0	1	952	0.84	0.37	0	1
Seu						974	0.44	0.50	0	1
Complexity						962	2.22	1.22	1	7
Avopentime						962	7.42	1.12	6	10

Table 8: Socio and Economic Weight

Seu	North West	North East	Center	South and Islands	Total
0	202	139	150	235	726
1	35	40	83	90	248
Total	237	179	233	325	974

Regressions: 144 municipalities

Table 9: Complexity

complexity	North West	North East	Center	South and Island	Total
1	7	42	63	237	349
2	63	48	76	61	248
3	90	62	54	20	226
4	49	27	21	7	104
5	7	0	14	0	21
6	7	0	0	0	7
7	7	0	0	0	7
Total	230	179	228	325	962

Table 10: Average opening time in public childcare

avopentime	North West	North East	Center	South and Island	Total
6.0	0	0	7	235	242
6.5	7	20	7	0	34
7.0	49	55	21	14	139
7.5	69	42	68	7	186
8.0	56	35	70	27	188
8.5	7	0	13	14	34
9.0	28	13	35	14	90
10.0	14	14	7	14	49
Total	230	179	228	325	962

Table 11: 144 sample regression results

VARIABLES	Poisson		NBREG	
	1	*2*	*1*	*2*
Public Coverage	0.13	0.10	0.16**	0.12
	(0.07)	(0.07)	(0.06)	(0.07)
Income	1.81***	1.80***	1.07**	1.08**
	(0.37)	(0.39)	(0.33)	(0.34)
Proportion of Old	-0.99***	-0.99***	-1.04***	-1.05***
	(0.22)	(0.23)	(0.23)	(0.25)
Resident Population	4.08***	3.95***	3.74***	3.48***
	(0.57)	(0.59)	(0.59)	(0.61)
Resident Population Squared	-0.14***	-0.13***	-0.12***	-0.11***
	(0.02)	(0.02)	(0.02)	(0.03)
Complexity	-0.02	-0.04	-0.04	-0.07
	(0.09)	(0.10)	(0.08)	(0.08)
Average Opening Time	-0.91**	-0.89**	-0.72**	-0.69**
	(0.28)	(0.28)	(0.24)	(0.25)
Seu	0.12*	0.13*	0.07	0.08
	(0.06)	(0.07)	(0.06)	(0.06)
Management	-0.03	-0.01	-0.03	-0.01
	(0.08)	(0.08)	(0.08)	(0.08)
Female Provincial Unemployment		-0.14		-0.20
		(0.11)		(0.11)
Constant	-44.04***	-43.11***	-35.20***	-33.65***
	(5.00)	(5.47)	(4.78)	(5.11)
alpha			0.241	0.239
lnalpha			-1.42***	-1.43***
			(0.13)	(0.14)
Macro Area Fixed Effects	Yes	Yes	Yes	Yes
Years Fixed Effects	Yes	Yes	Yes	Yes
Observations	920	790	920	790
pseudo-R-squared	0.45	0.45	0.18	0.17
log likelihood	-1882	-1692	-1771	-1587
Wald chi2	1392	1270	1134	1012

*** p<0.001, ** p<0.01, * p<0.05   Robust standard errors in parentheses

Table 12: Marginal Effects (144 sample)

VARIABLES	Poisson		NBREG	
	1	2	1	2
Public Coverage	0.44	0.37	0.54	0.45
Income	6.05	6.61	3.50	3.89
Proportion of Old	-3.32	-3.64	-3.42	-3.78
Resident Population	13.63	14.52	12.24	12.56
Resident Population Squared	-0.46	-0.49	-0.41	-0.41
Complexity	-0.05	-0.15	-0.12	-0.26
Average Opening Time	-3.03	-3.28	-2.36	-2.50
Seu	0.44	0.52	0.24	0.31
Management	-0.09	-0.04	-0.10	-0.02
Female Provincial Unemployment		-0.51		-0.73

Table 13: Variables Definition

Source: Italian Ministry of the Interior	
Seats	Public available slots per younger than 3 residents
Management	Dummy=1 if direct municipal management, 0 otherwise
Income	Per Capita Average Taxable Income
Source: Italian National Institute of Statistic (ISTAT)	
Old	Residents over 65 years old out of the total resident population (Years 1997-2005)
Fem Unem Prov	Female unemployment rate at the provincial level (Years 1997-2005)
Municipality Size	Resident population (Years 1998-2006)
Source: Municipalities (Our Surveys)	
Seu	Dummy= 1 if the Municipality weights socio and economic uneasiness above 0.6, 0 otherwise
Complexity	Dummy=1 if the number of options associated to the crèches supply is above the average (2), 0 otherwise
Average Opening	Municipal average opening time of public facilities