

Access to childcare services : the role of demand and supply-side policies.

Abstract

Different demand-side or supply-side instruments can be used in order to encourage the use of formal childcare. With the budgetary constraints of the last two decades, some countries have changed their childcare policy leading to implement demand-side rather than supply-side instruments. In Belgium, the introduction of demand-side subsidies to encourage the use of formal childcare was a major change. Indeed until 1988, subsidies were set to reduce the running cost of childcare providers. The purpose of this paper is to analyze the extent into which demand-side and supply side subsidies play a role in the use of formal childcare of low-income families. We found that the choice of policy instruments is not neutral in terms of access to formal childcare for families belonging to different income groups. Indeed, our results show that while a higher supply of childcare places increases the access for low-income families, the tax deduction can have a mixed outcome when targeting the access to childcare. Furthermore, if the policy target is to attain universal access to childcare policy instruments should tackle both affordability and availability of childcare services.

Introduction

For different reasons, going from gender equality to a general increase of employment European governments have set policies supporting the labour market participation of women, and of mothers in particular (Peter Moss, Alan R. Pence 1994; Organisation de coopération et de développement économiques OCDE 2001; Organisation for Economic Co-Operation and Development 2003; Silvera R. *et al.* 2004). Among those policies, support for childcare is considered as essential, not only to enable mothers to participate in the labour market, but also in improving children's development and in reducing social inequalities (Organisation for Economic Co-Operation and Development 2005). Government intervention in the childcare sector can take the form of the direct supply or financing of services or of direct subsidies to parents who use them. What is more, the policy choice of which type of subsidies is granted for financing childcare reflects different perspectives on the role of the society and parents towards raising children. In Belgium, childcare subsidies are granted both to childcare providers. and to parents who use formal childcare. The purpose of this paper is to analyze the extent into which demand-side and supply side subsidies play a role in the use of formal childcare of low-income families. Moreover, we argue that if childcare places are not *available*, increasing the *affordability* of childcare using a tax deduction might not reduce inequalities in the access to formal childcare. This paper is structured as followed. The first part of this paper briefly describes the Belgian childcare system. The second part examines the policy instruments introduced in the 1980's to cope with the rationing of childcare places and their expected impact on the access to childcare services. The third part presents the data and the method used in our empirical analysis. The fourth part presents and discusses the results of our study.

1. The childcare system in Belgium

Among OECD countries, Belgium is considered as having one of the most comprehensive systems for care and education for children under six years of age. (Organization for Economic Co-operation and Development 2001). Indeed, free pre-primary education, which is a part of the education system, is available for all children from 2 and half years on. By contrast, the childcare sector, which provides services for children under three years of age is independent of the education system. Until the 1980's responsibilities relating to childcare were centralized, subsidies were granted to childcare providers and fixed parental fees were set as a portion of their net income (A Dubois *et al.* 1994; M. Vandebroek 2006). By the end of the 1980's, the federalization process as well as the introduction of demand-side subsidies restructure the childcare system in Belgium.

With the federalization process in the 1980's, two institutions at the (linguistic) Community level are responsible for child care services: the Bureau of Birth and Childhood (Office de la Naissance et de l'Enfance - ONE) for the french speaking community and Child and Family (Kind en Gezin - K&G) for the flemish speaking community. Each institution (ONE and K&G) registers formal childcare services, sets their own quality standard and ensures that they are respected. The ONE and K&G are also in charge of distributing subsidies among formal childcare providers and set fees in subsidised services according to their own income scale. Each institution establishes a minimum and a maximum daily fee. The formal childcare system can broadly be described as following. By formal, we mean licensed care that can be organised

collectively or individually for children under the age of three. Child care providers can be subsidised or not. Since we do not consider parental care or unlicensed care, we intend formal childcare when we speak about childcare. Subsidised childcare included childcare collective services, such as crèches, and family day-care. Subsidised individual childcare includes childminders that are associated and supervised by an organisation. These services receive direct public subsidies per child per day and functioning subsidies.

Table 1 Number of subsidised and non-subsidised childcare places per hundred children (%)

Year	Wallonia		Brussels		Flanders		Belgium	
	Subsidised	Non-subsidised	Subsidised	Non-subsidised	Subsidised	Non-subsidised	Subsidised	Non-subsidised
1993	11,0	2,8	18,7	8,8	10,0	5,1	11,2	4,7
1994	11,6	3,2	19,5	8,4	11,4	5,9	12,3	5,2
1995	12,3	3,6	19,8	9,4	13,0	6,5	13,5	5,8
1996	12,4	3,9	19,8	9,1	14,3	6,8	14,2	6,1
1997	12,4	4,3	20,0	9,6	18,4	6,9	16,5	6,3
1998	12,5	4,4	19,7	9,3	20,1	7,4	17,5	6,6
1999	12,6	4,4	19,4	9,4	21,6	8,0	18,4	7,0
2000	12,5	4,1	19,1	9,5	21,3	7,6	18,1	6,6

Source : (Farfan Portet M.I., V Lorant 2003)

One of the main consequences of the division of childcare responsibilities between the country's Communities is the apparition different childcare policies. Indeed, in 2000, 60% of all childcare supervised by the ONE was provided in collective services, while 40% of supervised services by K&G corresponded to collective childcare. Moreover, there is of a "regional gap" in the number of formal childcare places. This gap can be analysed using coverage rate defined as the number of formal (subsidised or non-subsidised) childcare places per hundred children. While in 1993, the subsidised

coverage rate of Wallonia, Brussels and Flanders was respectively of 11,0%, 18,7% and 10,0%, in 2000, Wallonia's coverage rate was of 12,5%, in Brussels it accounted for 19,1% and in Flanders it was of 18,1%. (Farfan Portet M.I., V Lorant 2003). In addition to this, a part of the expansion of childcare services in the 1990s in Flanders is due to a higher number of non-subsidized childcare services (M. Vandebroek 2006). Indeed opposite to other countries, where high level quality regulation and competition from public childcare providers prevent the development of a childcare market, in Belgium roughly one fourth of all childcare providers are non-subsidised (See Table 1). Non-subsidised childcare includes collective services, such as private crèches and drop-in services and individual services provided by registered childminders. Non-subsidised childcare facilities must follow the quality guidelines set either by the ONE or the K&G and fees are set freely on the market. Competition between subsidised and non-subsidized childcare leads non-subsidized providers to set their fees around the maximum fee charged in subsidised institutions. Indeed, given that access to subsidised childcare facilities is not restricted with respect to the family's income, setting fees too high in non-subsidised childcare facilities can lead to a crowding-out effect from families who can always try to find a subsidised childcare place. However, recent research shows that parental fees are unlikely to cover for all running cost from small-scale non-subsidized childcare providers (G. Hedebouw 2004). As a consequence, there is high turn-over in the number of non-subsidized providers that enter and exit the childcare market (M. Vandebroek 2006).

At the end of the 1980's, childcare policy in Belgium was marked by the introduction of demand-side incentives, via the tax relief. This implied a major change of the childcare

policy given that subsidies were previously allocated only to childcare providers. The introduction of the tax deduction followed the economic crisis in the 1980s in a period of growing demand for childcare given the larger participation of women in the labour market. Indeed, pressure from the socialist party and feminist groups urged to deduct

In December 1988, the Belgian Federal government established that families using formal childcare, whether subsidised or not, could deduct 80% of their care expenses subject to a ceiling of 8.70 euro per day (Loi portant sur la réforme de l'impôt des revenus et modification des taxes assimilées au timbre, 16-12-1988). Childcare expenses are deducted from taxable income in a different category from work-related expenses, and families not claiming the tax deduction are granted a limited income exemption. With this new law, the deduction of childcare expenses is not means-tested as it is in other countries, which implies that the subsidy is universally granted to all families using formal care. The Federal government modified for the first time since 1988 the deductible amount in 1999 and in 2000. In 1999, a new law raised this ceiling to 11.20 euro. In 2000, the percentage of deductible childcare expenses changed from 80% to 100%, always subject to the 11.20 euro daily limit. When we analysed the percentage of households claiming the tax deduction, we found that it rose from 27% in 1993 to 42% in 2001 (Farfan Portet M.I., V Lorant 2003).

2. Childcare rationing and its impact in the use of formal childcare

The use of formal childcare has mostly been analysed under the assumption that fees are set under a market system (J. F. Ermisch 1989). In this case, if the demand for childcare exceeds the supply, fees will increase and if both the market price of childcare is too high and the income of the family is low (in particular, the mother's wage) no childcare will

be purchased in the market. As a consequence, low-income families will not be able to purchase formal childcare and one of the solutions often adopted is that mothers stop working to care for their children. The access to childcare for families belonging to different income groups is less obvious when prices are regulated. Indeed, if fees at subsidised childcare places are low and if they are allocated in priority to low-income families, the use of formal childcare might not differ between families from different income groups. Furthermore, recent research shows in countries where childcare is publicly provided and highly regulated, use of childcare might be more influenced by the availability of childcare services than by the cost of childcare (M. C. Chiuri 2000; Del Boca Daniela 2002; S Gustafsson, F Stafford 1992; M. Kreyenfeld, K. Hank 2000). Indeed, the effect of rationing on the use of formal childcare is less straightforward in a regulated market such as the Belgian one, where non-subsidised facilities ask for fees that are similar or a bit higher than in subsidised structures, because of the lack of demand at higher prices. In Italy, Chiuri (2000) finds that the probability to purchase formal childcare is more sensitive to the availability of places than to a change in prices, while the female labour participation is more dependent upon the household's characteristics and the lack of informal care. Del Boca (2002) finds that the availability of places increases both the probability of using formal childcare and the mother's participation in the labour market. Kreyenfeld and Hank (2002) argue that under a heavy regulated childcare system, families' decisions on childcare use and employment might be more influenced by availability and not affordability of childcare. Gustafsson and Stafford (1992) found that in regions where there is a rationing in the number of childcare places, there is no evidence that childcare cost influences family's childcare choice and labour supply. Yet, under a heavy regulated childcare market,

rationing might also affect the use of formal childcare of low –income families. Indeed, Gustafsson and Stafford point out that families with stronger labour market commitment and who are better educated are the ones best able to overcome the lack of available childcare places. It is likely that better educated parents are more likely to overcome the rationing by getting more information from childcare providers. For instance, if some parents are better informed about childcare rationing, they are more likely to enrol their children sooner in the institutions' waiting lists. Knowing that income is positively related to education level, we might therefore expect that high-income families will be more likely to find a childcare place. How will demand side-incentives affect the use of formal childcare in this context? Under the hypothesis that with respect to low-income families, high-income families are the ones who overcome the rationing in childcare, tax deduction or vouchers will reduce childcare expenses for high income families but not reduce inequality in access to childcare. In this perspective, demand-side instruments generate higher inter-household inequalities than direct supply-side subsidies.

Because Belgium's childcare system is considered as quite generous, some discussion is needed to understand the extent into which there is a rationing in the childcare sector. Indeed, Belgium's provision of childcare, in particular in Flanders is nearly as high as in Sweden (M. Kremer 2006). Nevertheless, previous research shows that parents are faced with long waiting lists, in particular in the subsidised sector (V. Lorant 1999b). Furthermore, access to subsidised childcare services depends on the parent's working status (M. Vandebroek 2006). Those unable to find a subsidised childcare facility may look for a childcare place in the private network, which can imply paying higher

fees (V. Lorant 1999a). However, there is some evidence that only high-earning dual-income families can afford childcare in non-subsidized services (M. Vandebroek 2006). As a consequence, parents unable to cope with those fees (low-income families) are forced to exit the labour market. In this context, it is clear that parents have little choice between different forms of non-parental care and must settle for whatever option they can find (Humblet P. 2003). Given that childcare places are allocated in priority to working parents, children from unemployed or marginalized parents, have been excluded from the formal childcare sector. In order to address this problem, both governmental agencies have launched specific initiatives addressing the care needs of poor families. (Organization for Economic Co-operation and Development 2006). However, even if these initiatives allow under-privileged children to access formal childcare services, it may increase the social segmentation of the services between social categories (Organization for Economic Co-operation and Development 2001)

Decline in the number of new subsidised childcare places is related to budgetary constraints in the childcare sector. As a consequence, active labour market policies in childcare services are used to create jobs for low-skilled persons while and at the same time compensate for the shortage of structural subsidies for childcare services in particular in the French Community. In 1998, 24% of workers employed in subsidised childcare facilities under the ONE were financed by active labour market policies (Office de la Naissance et de l'Enfance 1998). However, this tendency to finance employment through active labour market policies neither encourages the development of a high-quality childcare infrastructure nor does it recognise the importance of the

technical and/or relational skills needed to provide quality childcare services, unless training programmes are included and staff turnover is limited (F Petrella 2001).

Interestingly, the Federal government reformed in 1999 and in 2000 the amount of deductible childcare expenses as a part of the reforms that aimed at reducing traps to employment (1999). Although, this measure was not set to directly counter balance the lack of available formal childcare places, it contributed to reduce the cost of childcare who are particularly high among parents who purchase childcare from non-subsidized providers.

In the next section we present a model to identify how in a context of rationing, the number of childcare places in both the subsidised and non-subsidised network as well the recent modifications in the tax deduction of childcare expenses have affected the use of formal care by families belonging to different income groups in Belgium.

3. Data and method

We used a register of all tax claims of those households having dependent children aged less than three years old or having claimed a tax deduction for children. The National Institute of Statistics provides the tax claim database for the 1994-2001 fiscal years, corresponding to the earned incomes of 1993-2000. The fiscal database contains information about yearly net and gross income, family structure, yearly deductible childcare expenses, and yearly tax payments. Data about prices is not included in our model given that our database only contains information on the deductible amount of

childcare expenses. Given that only parents using formal childcare are entitled to deduct their care expenses, we considered that the yearly deductible childcare expenses are a good measure of parents use of formal childcare. It is important to mention that all licensed childcare providers have to give to families a yearly record of their childcare expenses to be included in their fiscal declaration. For this reason, all the families filling a tax form (even if they will end up paying no taxes) are included in the database. Furthermore, combination of quality regulations and tax incentive reduces the risk of using unlicensed care (Organization for Economic Co-operation and Development 2006). In Belgium an estimated of 3% of children use childcare from unlicensed childcare providers (F Laevers 2000). Therefore, claiming a tax deduction is good measure of the overall use of formal childcare. Further details on the database can be found in appendix A.

Independent variable

The use of formal childcare was registered by the presence of a tax deduction of childcare expenses (the variable is equal to 0 if the deduction is equal to zero and 1 otherwise).

Dependent variables

Three types of dependent variables were included in our analysis: individual's characteristic, environmental variables and policy variables.

Individual characteristics

Family's incomes are classified in four categories: unemployment benefits, incapacity benefits, work-related income as an employee and work-related income as a self-employed person. Because of inflation, income is not strictly comparable across years. To overcome this problem we rank families' income into quintiles. By doing so we

consider that each year ranking is a good measure of the distribution of income. Furthermore, this allows us to compare difference in the use of formal childcare among low and high-income families. For each category, we created a variable representing the number of persons in the household receiving a given income. We also included in our analysis the marital status of the parents (the variable is equal to 0 for a single-parent household and to 1 for a two-parent household), the number of dependent children and the number of other dependent persons (not including the children's parents).

Environmental characteristics

Environmental variables were included because some variables that are likely to be correlated with both the likelihood of childcare take-up and the supply of facilities. For example, it is known that households living in rural areas may have a lower use of formal childcare because of cultural habits or the travelling costs it may entail. As supply is also likely to be more limited in rural areas, overlooking population density might bias the relationship between take-up and supply. After reviewing the literature, we included the following environmental variables: the log of population density (number of habitants/km²) and the unemployment rate for women (number of unemployed/number of working age) (Andr n T. 2003; Sandra L. Hofferth, Douglas A. Wissoker 1992; D. Blau, A. P. Hagy 1998; S Gustafsson, F Stafford 1992). Unemployment rate is a good measure for the women's willingness to participate in the labour market, but also for the job's availability. If unemployment is high the demand for childcare will be lower.

Policy variables

Two different policy variables were included in our analysis. To account for supply-side policies we used a measure of accessibility to childcare facilities and to account for demand -side policies we used dummy variables for 1999 and 2000 reflecting the years in which the tax deduction was changed.

To define the accessibility to childcare facilities we included both subsidised and non-subsidised childcare places. We created a database for the period 1994-2000 that included the total number of childcare places for the 589 Belgium's municipalities. We considered that households' use of childcare is not limited to their local community. The availability of childcare places might go beyond municipality boundaries, particularly in such a densely populated country. Indeed, households are distributed in the whole municipality in such a way that those living near to another community may shop around for available childcare. Furthermore, households might consider available childcare places in nearby municipalities, for different reasons, such as being on the way to their office, to the extent that they are willing to incur transportation costs. Following various models of accessibility (AS Fotheringham *et al.* 2000;D A Griffith 1992;M Tiefelsdorf 2000), a measure of accessibility was built using the following formula:

$$(1) \quad A_i = \sum_j \frac{S_j f(d_{i,j})}{\sum_k C_k f(d_{j,k})}$$

Where A is the Accessibility in area i , S_j is the number of childcare places in area j , $f(d_{i,j})$ is a decay function expressing the cost of moving from area i to area j . C_k is the number of children in area k and $f(d_{j,k})$ is their decay function.

The form of the decay function was estimated using previous estimates of distance decay for school mobility in Belgium (H Hammadou *et al.* 2003). The following decay function was applied:

$$(2) \quad f(d_{ij}) = e^{-0.172d_{ij}}$$

where d_{ij} is the distance between the centroid of area i and area j . Descriptive statistics of the variables mentioned above are given in Table 2.

Table 2 Descriptive statistics

	1994		1996		2000	
	Mean	Std	Mean	std	Mean	std
Household yearly gross income (current euro)	28038	17073	29474	56024	32266	22579
Work related income as an employee (number of persons)	1,41	0,65	1,40	0,65	1,38	0,64
Work related income as self-employed (number of persons)	0,24	0,52	0,24	0,52	0,23	0,49
Incapacity benefits (number of persons)	0,36	0,52	0,36	0,52	0,33	0,51
Total number of children in the household	1,86	0,99	1,86	0,98	1,85	0,98

Number of other adults	0,00	0,05	0,00	0,06	0,00	0,07
Unemployment benefits (number of persons)	0,55	0,67	0,44	0,62	0,35	0,56
Number of children in the municipality	2 126	3 524	1 971	3 247	2 007	3 295
Population density (ha/km in log)	6,40	1,21	6,41	1,21	6,45	1,22
Paying for formal childcare (%)	27,31	-	33,12	-	41,75	-
Marital Status (% of couples)	0,86	0,35	0,83	0,38	0,75	0,43
Coverage rate (%)	17,94	4,13	21,94	4,06	25,45	5,55
Local women unemployment rate (%)	8,40	3,08	7,75	3,22	6,21	3,70

Note: Data for years not appearing in the table are available in an unpublished table from the authors

Analysis

We ran a series of logistic regression in which the probability of paying for formal childcare was related to individual characteristics, environmental characteristics, the coverage rate and the two dummy variables for 1999 and 2000 reflecting the years in which the tax deduction was changed. Because dummy variables might capture trend fluctuations not related to the fiscal policy changes, we included a time trend to account for such fluctuations.

Three models were tested: Model 1 included individual variables only. Model 2 added environmental variables to the previous model, the accessibility measure and the effect of the two fiscal policies for the tax deduction of childcare expenses introduced in 1999 and in 2000. The inclusion of environmental variables in Model 2 was intended to correct our model from specific characteristics that go beyond the individual level. Model 2 was also used to analyse the accessibility to childcare and how the tax policies affect the overall the probability of using formal childcare. Model 3 is set out to understand whether or not the impact of the accessibility to childcare and the two modifications on the tax deductions of childcare expenses was homogeneous across different income groups. To attain this objective we included the interaction of household's income with both the accessibility to childcare and with the two the two modifications on the tax deductions. Model 3 provided us with the information needed to determine how families belonging to different income groups respond to the rationing of the number of childcare places and to the demand-side policies via the tax deduction of childcare expenses. To compare the different models, we computed the likelihood ratio statistic and, based on the chi-square statistic, we determined whether the new

variable coefficients were statistically different from zero (W. Greene 2000). All these models were controlled for the number of persons receiving the different income types in each household and included the time trend.

Our study presents some limitations. Our data could not differentiate families using childcare provided by subsidised or non-subsidised networks, because the tax deduction is valid for both networks. It is thus likely that the impact of the subsidised network on the probability of paying for childcare has been underestimated. Secondly, we used dummy variables to capture the effect of the tax deduction in the probability of using formal childcare. Because, dummies can capture other fluctuations we are unable to use our results to make simulations, which can measure how further policy changes, can affect the use of formal childcare. Finally, further research is needed to improve our knowledge on the simultaneous decisions of using formal childcare and of participating in the labour market. Indeed, previous studies have shown that work and childcare decisions are made simultaneously. (D. Blau, P. K. Robins 1988; M. C. Chiuri 2000; R. Connelly 1991; D. Del Boca 2002; S. Gustafsson, F. Stafford 1992; M. Kreyenfeld, K. Hank 2000). As consequence, some of the variables on the right hand side of our equation are likely to be determined simultaneously with left hand side. However, the main purpose of this paper is to analyse the impact of the changing childcare policies in the access to formal care and not on the household's labour supply. Furthermore, the database does not contain enough information (i.e. parent's age and education level, number of hours spent working or caring for young children, number of hours of childcare use) to allow us to specify a household labour supply model.

4. Results

Table 3 reports the results for the three models mentioned above. Model 1 linked individual variables to the probability of using formal care. We find that the higher the household's income, the more likely it is that the household will pay for formal childcare. Two-parent households are less likely to pay for formal care than single-parent households are and the presence of other dependent adults also reduces the probability of paying for formal childcare. Families with one, two or three children are more likely to pay for childcare than those with four children or more. It is interesting to note that this relationship is not linear and that the probability of paying for formal childcare is lower in families with three children than in families with two children. This might imply that the marginal cost of using childcare becomes prohibitive for households having more than three children. Indeed, the combination of work and family seems more difficult with three children or more. In those families, it is most likely that the mother, sometimes the father, retrieves from the labour market.

Comparing the likelihood ratio statistic of Model 1 and Model 2 with a chi-square statistic with three degrees of freedom (22.5 significant at 0.1%), allows us to reject the hypothesis that the new variable coefficients in Model 2 are statistically equal to zero. We find that if the unemployment rate of women increases, the probability of paying for formal childcare decreases. This result is quite intuitive given that unemployed women are more likely to care for their children. Furthermore, municipalities with high unemployment rate are less likely to have a large supply of formal care. Indeed, given that the allocation of subsidised childcare places depends on the parents' participation in the labour market, it is expected that high coverage rate will exist in municipalities with

high female employment. The estimates of the rest of the variables in Model 2 are consistent with the results in Model 1. Let us now analyse the impact of the accessibility to childcare on the probability of paying for formal childcare. We find that an increase in the provision of formal childcare significantly enhances the probability that parents will choose to pay for formal childcare (4.03). As for the impact of the two fiscal policies, we find that increasing the deductible ceiling and eliminating the 80% limit had a positive effect overall on the probability of paying for formal childcare (0.13 and 0.21 respectively).

Table 3 Parameter estimates from the logistic regressions for the household's decision of paying for formal childcare

Variable	Model 1	Model 2	Model 3
Constant	-2.60 ***	-3.81 ***	-3.63 ***
Time trend	0.08 ***	0.021 ***	0.04 ***
Individual Characteristics			
Income (Fifth quintile as reference)			
First quintile	-1.99 ***	-1.76 ***	-2.16 ***
Second Quintile	-1.55 ***	-1.31 ***	-1.70 ***
Third quintile	-1.04 ***	-0.82 ***	-1.05 ***
Fourth quintile	-0.57 ***	-0.43 ***	-0.51 ***
Household type (single parent as reference)	1.48 ***	1.48 ***	1.48 ***
Number of dependent children (Four or more children as reference)			
One children	0.89 ***	0.88 ***	0.88 ***
Two children	1.09 ***	1.09 ***	1.09 ***
Three children	0.67 ***	0.68 ***	0.68 ***
Other dependents	-0.16 ***	-0.22 ***	-0.22 ***
Ecological variables			
Women's unemployment rate		-2.57 ***	-2.54 ***
Population density		0.10 ***	0.10 ***
Policy Variables			
<i>Supply-side instrument</i>			
Accessibility to childcare		4.03 ***	2.99 ***
Interaction between the accessibility to childcare and the family's income (Fifth Quintile as reference)			
First quintile			2.32 ***
Second Quintile			2.20 ***
Third quintile			1.25 ***
Fourth quintile			0.32 ***
<i>Demand-side instrument</i>			
Increasing the deductible ceiling in 1999 (dummy variable)		0.13 ***	0.16 ***
Interaction between increasing the deductible			0.21 ***

ceiling and the family's income (<i>Fifth Quintile as reference</i>)				
First quintile			0.00	
Second Quintile			-0.02	
Third quintile			-0.05	***
Fourth quintile			-0.06	**
Eliminating the 80% limit in 2000 (dummy variable)	0.21	***	0.17	***
Interaction between eliminating the 80% limit and the family's income (<i>Fifth Quintile as reference</i>)				
First quintile			0.17	***
Second Quintile			0.07	***
Third quintile			0.02	
Fourth quintile			-0.03	
Quasi R ²	0.26	0.27	0.27	
- 2 Log likelihood	2.809.168	2.172.514	2.171.843	
Chi-Square differences		$\chi^2 > 22.5$	***	$\chi^2 > 32.9$ ***

Level of significance: * $\leq 5\%$; ** $\leq 1\%$; *** $\leq 0.1\%$

Note: Coefficients on income source and the interaction between the trends and the income groups are available in an unpublished table from the authors.

Model 1: Controlled by individual variables

Model 2: Controlled by individual variables, environmental variables, the accessibility to childcare and the two dummies for the modifications on the tax deduction of childcare expenses.

Model 3: Controlled by individual variables, environmental variables, the accessibility to childcare and the two dummies for the modifications on the tax deduction of childcare expenses and the interaction between of household's income with both the accessibility to childcare and the two dummies for the modifications on the tax deduction of childcare expenses.

We found that the new variable coefficients added in Model 3 are statistically different from zero by comparing the likelihood ratio statistic from Model 2 and Model 3 with the chi-square statistic with 12 degrees of freedom (32.9 significant at 0.1%). We found that the impact of the accessibility to childcare on the probability of paying for childcare varies between the different income groups. Furthermore, this impact decreases monotonically with respect to the household's income, which implies that the rationing of childcare places will have a greater effect on the probability of paying for formal childcare among low-income families. In this context, a policy that increases the provision of childcare services would be highly distributive. Given the lack of available formal childcare, parents may look for an alternative in the unregulated, black-market sector. This is to the detriment of the quality of care, given that this sector does not have to meet minimum quality standards. The lack of available childcare services might also

induce parents to exit the labour market to care for their children. In general, families choosing this last option belong to low-income groups (Organization for Economic Co-operation and Development 2001).

Let us now analyse the effect of the two fiscal policies on the probability to pay for formal childcare for different income groups. We find that increasing the deductible ceiling of childcare expenses had a small negative impact on paying for formal childcare among families belonging to income groups 3 and 4. This implies that this measure benefited wealthier families (income group 5). This result is not surprising, given that this policy only benefited families paying more than 10.20 euro (parents could deduct 80% of the fee which corresponds to the maximum deductible ceiling of 8.7 euro). Knowing that fees are set according to household income, we might expect that families benefiting from the new deductible ceiling belong to the higher part of the income distribution. Coefficients for the two first quintiles are close to zero but are not statistically significant. Eliminating the 80% limit had a positive impact on the probability of paying for formal care for families belonging to income groups 1 and 2 (0.17 and 0.07 respectively). This result can be explained by the fact that these households were restricted by the 80% limit but not by the deductible ceiling per day. Both modifications of the deductible amount of childcare expenses increased the probability of paying for formal childcare. Nevertheless, increasing the deductible ceiling and eliminating the 80% limit did not have a homogeneous effect among families belonging to different income groups.

Conclusion

In this paper we showed that in the context of rationing, supply and demand side policies might have different impact on the access to formal childcare for different income groups. We used a logistic regression to capture the impact of the accessibility to childcare and of the tax deduction of childcare expenses on the probability of paying for formal childcare. When analysing the impact of the accessibility to childcare we found that it benefited more low-income families. This implies that the rationing of the number of childcare places would have a greater effect on low-income families, and thus, they would be less likely to pay for formal childcare. The two modifications of the tax deduction of childcare expenses increased the probability of paying for formal childcare. Our results show that increasing the deductible ceiling benefits wealthier families. The second modification (eliminating the 80% limit), however, benefited low- and middle-income families, given that wealthier households are restricted to deducting the maximum ceiling. Indeed, the effect of such modifications on families belonging to different income groups is dependent on the policy measure. The introduction of demand-side incentives in the Belgian context can be seen as a way to diminish the care deficit by reducing the costs for parents using formal non-subsidised care. Nevertheless, our results show that demand-side instruments have not the same impact on different income groups. For example, a policy of eliminating the deductible ceiling might only benefit wealthy families, and so create further social inequalities in the access to childcare. This paper highlights that to in order to reduce inequalities in the access to childcare, it is more sensible to increase the supply of formal childcare than to set a tax relief given that this policy might have mixed results. Furthermore, the most

controversial issue about the tax deduction of childcare expenses is whether or not it is an equitable measure. Some studies suggested that the redistributive effect of the tax deduction of childcare expenses depends on whether or not it is refundable and on whether the deductible amount is negatively related to the family's income (D. Blau 2000;WM Gentry, AP Hagy 1995). Considering how other variables affect the probability of paying for formal childcare, we found that two-parent households are less likely to pay for formal care than single-parent households and that the presence of other dependent adults also reduces the probability of paying for formal childcare. Both coefficients are consistent with the fact that the availability of free care reduces the use of formal childcare (D. Blau 2000;WM Gentry, AP Hagy 1995;Wheelock J., Jones K. 2002). It is important to mention that two-parent households may choose to care for their children while one of the parents exits the labour market. In general, mothers are more likely to care for their children and so it is not surprising that an increase in the unemployment rate of women reduces the probability of paying for formal childcare (D. Blau, A. P. Hagy 1998;Sandra L. Hofferth, Douglas A. Wissoker 1992;Wheelock J., Jones K. 2002)..

Despite the different approaches of the two authorities regulating Belgium's childcare system, they both pursue to attain similar objectives in the years to come. Indeed, childcare is to become more focus on the children's needs and bigger efforts are to be made to ensure more access to childcare services. Furthermore, both authorities aims at granting universal access to childcare services. Attaining the universal access ideal to childcare for all children between 0 and 3 years could be envisaged by integrating the childcare sector to the education system. Recent evolutions in the conception of

childcare as a right for all children and in the designation of childcare services not anymore in terms of childminding (*garde*) but in terms of care (*accueil*) could be seen as a move to integrate childcare services for 0-3 years into the education system. This is already the case for care for children from 3 years old. Moreover, the role in terms of education and socialisation of childcare for very young children is more and more put forward. However, the understanding of childcare services in terms of care versus education is not part of current debates, contrary to other European countries, even if it could have important implications in the way childcare services are financed and regulated.

The creation of new services that target unemployed parents or families at risk must also be analysed carefully. These targeted services are necessary and crucial for the development of children with special needs. The creation of these programmes are coherent with the recent declaration of childcare as a right for all children as they set particular alternatives for those who need it. This need can be seen in terms of the education and socialisation of children. Nevertheless these programmes must be seen as a complement to a larger childcare policy that aims at attending universal access while fulfilling the families and children's different care needs. Indeed, the risk is to use these specific services to compensate for the care deficit as one way of increasing the coverage rate without increasing significantly public expenditure, since these services are only marginally subsidised by childcare policies. Unfortunately, while restrictions on the number of childcare places exist, it is likely that the working status of parents will still be the first eligibility rule to be applied when it comes to granting access to childcare services. The creation of targeted services has to be considered as a limited

response to the restrictions in childcare places. Our results show that a comprehensible policy increasing the overall supply of formal childcare places is an effective measure to reduce inequalities in the access.

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Appendix A

A small number of observations had to be deleted from the tax claim database because of invalid information. The numbers of tax declarations before and after validation are provided in the Table 3.

[Insert Table 4]

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