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The impact of market forces on the provision of childcare: Insights from the 2005 Childcare Act in the Netherlands[1]

This paper examines the impact of the introduction of market forces on the provision of childcare in the Netherlands. In January 2005, the Dutch government introduced the Childcare Act which replaced the former financing system which had elements of both supply- and demand-financing with a fully demand-financing system. Whereas previously public funds partly flowed to suppliers in the form of subsidies granted by local municipalities, they now flow exclusively to parents who are free to choose their childcare provider. This reform was intended to stimulate market forces in the market for childcare. The change in the financing system may have also had an effect on the playing field between not-for-profit and for-profit childcare providers, as there are theoretical arguments for why municipalities might have given preferential treatment to not-for-profit providers when granting childcare subsidies. We compare the provision of childcare in the Netherlands under the old regime (in the period 1999-2001) to the provision of childcare after the introduction of the Childcare Act (in 2006). We find that there has been a marked change in where childcare providers locate. Compared to the period 1999-2001, the provision of childcare in 2006 has shifted towards areas with higher purchasing power and away from less urbanised areas. In addition, we find that the share of for-profit providers expanded dramatically, while most of the contraction in childcare provision occurred in low-demand markets which were formerly solely occupied by not-for-profit centres. We discuss the policy implications of these results.

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1 Introduction

The market for childcare is subject to a large range of regulations that aim to guarantee high-quality, affordable and accessible childcare for all. There are several rationales for government intervention in the childcare market. One rationale arises due to the information asymmetry on quality between consumers and childcare providers. Parents cannot fully assess the quality of care given to their children. Mocan (2001) for instance finds that parents tend to overrate quality compared to professional observers. As a consequence, childcare providers may exploit the information asymmetry by shirking on quality in order to increase profits (Mocan, 2001; Morris and Helburn, 2000). Another rationale for government intervention is the externality created on the labour market, as the availability of childcare may serve to enhance women's participation on the labour market and consequently increase the tax base.[2] Finally, distributional concerns often play a role in childcare. The government may for instance want to guarantee a minimum provision of childcare and affordable services for all.

Due to these public concerns, many governments have been hesitant to allow private for-profit (FP) provision of childcare and have instead opted for public provision in an attempt to guarantee the highest possible level of control over quality, affordability and accessibility. In Denmark, France and Sweden, for instance, provision of childcare is the exclusive domain of public organisations. Germany, Italy and Spain allow instead for private not-for-profit (NFP) provision of childcare next to public provision. Since public provision may suffer from inefficiencies, another option is to leave the provision of childcare to private childcare centres and to guarantee quality and accessibility through generic regulations, in the form of minimum quality standards and target-group subsidies. This is the option chosen by most Anglo-Saxon countries, which allow private FP childcare centres to operate next to public and NFP centres.

In this respect, the Dutch market for childcare stands out as one of the few countries without public provision of childcare. Only private FP and NFP providers operate and compete in this market. In 2004, about 60% of the 1,300 Dutch childcare organisations had a FP status and 40% a NFP one (van der Kemp and Kloosterman, 2005). Most of the largest organisations - with more than 10 centres - were NFP organisations. There is evidence that in some municipalities, local governments may have favoured NFPs as recipients of public subsidies, for example because it was felt that they could better serve public interests. As a result, FP and NFPs organisations were not always competing on a level playing field. In January 2005, the Dutch government implemented a major reform with the introduction of the Childcare Act. One of the

[2] There is substantial literature looking at the impact of childcare on women's labour participation, see Blau and Currie (2004) for a review of the evidence.

main changes is that the demand for childcare is subsidised instead of the supply of childcare. This new financing structure had two main consequences. Firstly, it allowed parents to freely choose their childcare provider. Secondly, in as far as NFP childcare providers were favoured by municipalities under the old regime, it removed this advantage and levelled the playing field between FP and NFP providers.

Using data on the geographical location of childcare centres, we 1) compare the provision of childcare prior to the introduction of the 2005 Childcare Act to the provision after the introduction of the act; and 2) analyse changes in the provision of childcare by FP and NFP childcare centres. In the first part of the analysis, we look at whether there has been a significant change in where childcare facilities are located. We find that growth in the provision of childcare has predominantly occurred in markets with higher purchasing power and in more urbanised areas. In the second part of the analysis, we look at whether there has been a change in where FP and NFP childcare providers locate. We find evidence of a greater presence of FP providers in many markets and a marked decline of the number of NFP providers.

The paper is structured as follows: Section 2 first describes the reform introduced by the 2005 Childcare Act. Section 3 presents the conceptual framework of our analysis and the related literature. Section 4 presents the data and Section 5 the results of our empirical analysis. Finally, Section 6 discusses the policy implications of our study and concludes.

2 The market for childcare in the Netherlands

The use of formal childcare in the Netherlands has long lagged behind the use in other countries. For instance, in 1990 only 2% of children aged 0-13 used formal day care arrangements. Even though this figure increased to 12% in 2004, this is still far lower than in Scandinavian countries, where enrolment is close to 80%. The low enrolment rate in the Netherlands has mainly been attributed to the low participation of women on the labour market and a traditional preference for informal day care, in which children are taken care of by parents, relatives and friends.

In order to stimulate the use of childcare and thereby women's participation in the labour market, the Dutch government took a large range of initiatives over the last decade to professionalize and expand the capacity of the childcare market. At the same time, the government aimed to shift an increasing part of the costs of childcare provision from the government towards firms and households. In this respect, the Dutch provision of childcare has been qualified as being in between the state and the market, or, stated differently, between the

Swedish government solution and the US market solution (Dobbelsteen et al (2000)). Prior to the introduction of the 2005 Childcare Act, three types of childcare places existed: those purchased by local municipalities (so-called subsidised places), those purchased by firms, i.e. parents' employers (so-called company places) and places purchased by parents (denoted as private places). With subsidised places, the local municipality acted as an intermediary by purchasing the childcare place from the childcare provider and subsequently making it available to parents. Parents who had access to childcare through these subsidised places paid an income-related fee, according to a recommended national fee scale. The remainder of the day-care costs was then borne by the local community. Subsidised places were prevalent: Bressers et al (2006) estimate that in 2004 approximately 70% of all childcare organisations offered some subsidised places.[3] Day-care costs borne by parents' employers were subsidised by the state as firms were allowed to subtract 30% of their costs from payroll taxes. Parents who bought places directly (private places) could also deduct a fraction of their day-care costs from their taxable income. In the last decade, the government has been particularly successful in stimulating the participation of firms in childcare costs. While in 1996, 46% of child places were bought by firms, 38% by local communities, and 17% by parents, in 2004 these percentages were 64%, 12% and 24%, respectively.[4]

A major reform of the Dutch childcare market took place in January 2005 with the introduction of the Childcare Act. The provision of childcare became fully market-driven as all elements of supply financing, notably the purchase of subsidised places by local municipalities, were removed. In the new financing structure, all subsidies directly flow to the demand side, i.e. the parents, and not the supply side. All parents are now free to choose their childcare provider and sign a contract directly with the day-care centre. Depending on their income, parents can qualify for a government reimbursement of part of their childcare costs.[5] Initially, the employers of both parents were encouraged to bear part of the cost of childcare as they could fund up to a maximum of one-third of total childcare costs tax free. As of January 2007, the financial contribution of employers has become mandatory.

With the introduction of demand-financing, the 2005 Childcare Act also changed the role of local communities in the childcare market. Prior to the introduction of the Childcare Act, municipalities played an important role in shaping the local childcare provision through the purchase of subsidised places as they could decide with which childcare provide to contract and

[3] Bressers et al (2006) also find that on average, 1-30% of the places provided by an organisation were subsidised places.
[4] Statline (27-11-2006), Statistics Netherlands.
[5] The deduction from personal income tax for parents has been abolished.

could fix the requirements for granting subsidies.[6] There is evidence that in practice, NFP 'welfare' organisations were favoured in the contracting process with local municipalities. One of the motives behind the preference was the belief that NFP organisations offer more guarantees that the subsidy will be spend on welfare-related issues. For instance, the decree on subsidy funding of the municipality of Hengelo stated that "not-for-profit organisations present by definition a guarantee that the subsidy funds would be spent to pursue the objective for which they were issued".[7] This type of preference might have been especially common in small municipalities. By removing these subsidy relationships, an important consequence of the 2005 Childcare Act would thus be a levelling of the playing field between FP and NFP organisations as NFP centres now have to compete at equal arms with FP childcare centres.

These recent developments show the increasing role of market forces in the provision of childcare in the Netherlands. However, the government still retains an active role in the market for childcare by subsidising demand. By granting larger subsidies to low-income groups, the government aims to guarantee financial accessibility to childcare. Quality also remains highly regulated through strict minimum quality standards. One of the main tasks of local communities is now to monitor the quality of childcare centres. In the remainder of the paper, we discuss the changes in the provision of childcare that have accompanied these institutional changes.

3 Related literature and discussion

A first consequence of the 2005 Childcare Act is that public officials at the local municipality level have lost some control over the provision of childcare. Before 2005, only part of the provision of childcare was affected by demand factors, notably through parents directly buying private places. The other part was determined by political factors. The local council was in charge of deciding how much to invest in the availability of childcare facilities. To a certain extent, political parties also want to fulfil the expectations of their votes in order to be re-elected (Maskin and Tirole (2004)). Van Dijk et al. (1993) estimate the factors affecting the supply of childcare by Dutch municipalities in 1993. They find that the decision to invest in childcare provision was positively affected by the percentage of left-wing council members as well as by the proportion of women in the council. Similar results were found in other countries such as Sweden (Gustavson and Stafford (1992)) where provision was entirely determined by public officials. The conclusion of van Dijk et al. (1993) is that although demand factors, such as

[6] Local communities could also choose to assign the childcare places they bought to certain groups of parents. Certain local communities for instance favoured special target groups, such as parents from low-income families, or used to condition the access to these places on whether parents received a contribution from their employer.

[7] General decree on conditions for subsidy funding, Article 1, Hengelo community.

income and the number of pre-school children in the market played a role, political factors matter as well.

In the new demand-financing system, political factors are not relevant anymore in determining the provision of childcare in a market.[8] Instead, demand factors are expected to explain a greater part of the provision of childcare after the introduction of the 2005 Childcare Act than before. Incentives for childcare centres have shifted. While childcare centres formerly had incentives to establish new centres in markets where public officials were especially willing to invest in childcare and thereby buy large amounts of subsidised places, this is no longer the case under the new regime. Now, childcare organisations have incentives to open facilities in markets where the demand is high. The empirical literature identifies the following factors as positively affecting demand in the local childcare market: income, size of municipality, number of pre-school children and female activity (Gonzalez and Vidal (2006) and Kjulin (1995). This sparked some concerns in the run-up to the introduction of the 2005 Childcare Act about the effect of the new system on the accessibility of childcare. For example, one commentator noted that "The financing system of the Basic Childcare Provisions Act (WBK) is oriented to enabling parents with little spending power also to be able to make use of day-care for children. Time after time we hear the lectures given by the state secretary Margo Vliegenthart stressing the importance of backing demand with buying power, also in deprived areas. Theoretically, this is actually how the financing system is structured, and, indeed parents with less income receive a higher financial contribution from the government to fund their day-care for children. Nonetheless, it would appear less than probable that entrepreneurs in day-care for children will feel inspired to set up business in the poorer neighbourhoods or in country areas, where they will be less assured of a flow of customers (idealists excepted). Offering services in a wealthy neighbourhood with two-income households is safer for an entrepreneur, and the market there is far from saturated."[9]

Another implication of the 2005 Childcare Act is that it ended the subsidy relationships between municipalities and childcare providers. There are theoretical arguments why municipalities my have preferred NFP childcare organisations as the supplier of subsidised childcare places prior to the introduction of the act. We have no evidence of this systematically being the case, but there are some records of individual municipalities favouring NFPs, e.g. the municipality of Hengelo (see section 2). Theoretically, NFPs may be better able to defend public concerns than FPs, which would support the preferential treatment of NFP suppliers. One of the main

[8] With the understanding that the government retains an active role in regulating the childcare sector.

[9] The Basic Childcare Provisions Act (WBK) by Liesbeth Schreuder, Netherlands Institute for Care and Welfare (NIZW), available from http://www.kenniscentrum-ouderen.nl/Youthpolicy/docs/word/BasicChildcareProvisionsAct.doc

arguments is that NFPs can 'make a difference', i.e. outperform FPs, on several important aspects, notably quality and accessibility.

The theoretical advantage of NFPs comes from the fact that they can attract extra rents, mainly in the form of donated labour (Yong and Grout (2003) and Hansmann (1980)). Indeed, one of the key characteristics of NFPs is that they are subject to a non-redistribution constraint. In other words, they have to reinvest all their surpluses in the spirit of the organisation's mission. Due to this constraint, NFPs are able to attract donated labour from their employees. This means that employees will be willing to provide effort beyond the level explicitly contracted. They are willing to 'go the extra mile' because they know that their efforts will be spend on the organisation's mission and not redistributed as profits to shareholders. Because of their preference away from profit-maximisation, NFPs can thus benefit from a cost advantage, produce at lower marginal costs and therefore outperform FPs (Lakdawalla and Philipson (1998)).

Empirical evidence on whether NFPs actually 'make a difference' in the childcare sector is rather mixed.[10] While some Canadian studies do find that NFPs provide higher quality than FPs (Cleveland and Krashinsky (2004) and Japel et al. (2005)), many other US studies do not (Morris and Helburn (2000) and Blau and Mocan (2002)). The same mixed evidence holds for studies looking at whether NFPs are better able to guarantee accessibility to special target groups. On one side, some studies find that NFP childcare organisations are more likely to serve low-income families (Cleveland and Krashinsky (2005); Morris and Helburn (2000) and Blau and Mocan (2002)). On the other side, other studies find that NFPs are at the same time more likely to attract children from high-income families (Whitebook et al. (1990)). Strikingly, the study by Japel et al. (2005) find that children from low-income families are more likely to attend FP day care centres.

While there are some arguments why public officials may want to favour NFPs organisations, in practice NFPs do not seem to perform better than FPs.[11] One of the reason why NFPs may not make a difference is that they may suffer from inefficiencies. In other words, the rents from donated labour may be lost in inefficiencies, such as an unclear mission, high wages, a lack of solid financial management, etc. The Canadian and US evidence in the childcare market show that NFPs tend to offer higher wages than FPs (Mocan (1995), Mocan and Terkin (2000), Blau and Mocan (2002) and Cleveland and Krashinsky (2004)). Cleveland and Krashinsky (2004) argue, however, that this does not hold anymore once quality differences are corrected for.

[10] In the Appendix, we include a more extensive literature review of the childcare market.

[11] There are also other arguments why policies aiming to favour NFPs organisations are not always appropriate. See Koning et al (2007).

Mocan (1995) and Blau and Mocan (2002) find no cost- or efficiency differences between FPs and NFPs in the childcare sector.

Regarding the effect of the 2005 Childcare Act, a question that arises is whether NFPs and FPs respond in the same way to both growth and decline in demand. According to the theoretical model by Lakdawalla and Philipson (1998), because NFPs can produce at lower marginal costs, NFPs would be less responsive to demand reductions and be quicker to enter in response to demand growth. In other words, they would be better able than FPs to survive in less profitable markets. Empirical evidence - available only on hospitals - however, often show the opposite. Hansmann et al (2002) find that FPs hospitals adjust their capacity more responsively to demand reductions than public or NFPs hospitals. Chakravarty et al (2005) find that FP hospitals have higher entry and exit rates than NFPs, suggesting that FPs were more responsive to both growth and decline in demand. To explain these results, Chakravarty et al (2005) argue that financial factors, such as the ability to invest and raise capital, might impede the growth of NFPs.

Anecdotal evidence in the Dutch childcare market suggests that NFPs may experience more difficulties surviving in the new market conditions created by the 2005 Childcare Act. A study by PriceWaterHouseCoopers (2005) suggests that the introduction of market forces over the 1990s has had a larger impact on childcare organisations with a welfare-tradition than on the ones which already had a market orientation. Indeed, financial analysis of welfare childcare organisations shows that they were often not profitable without subsidies, lacked solid financial controls and the capacity to raise capital.

4 Data

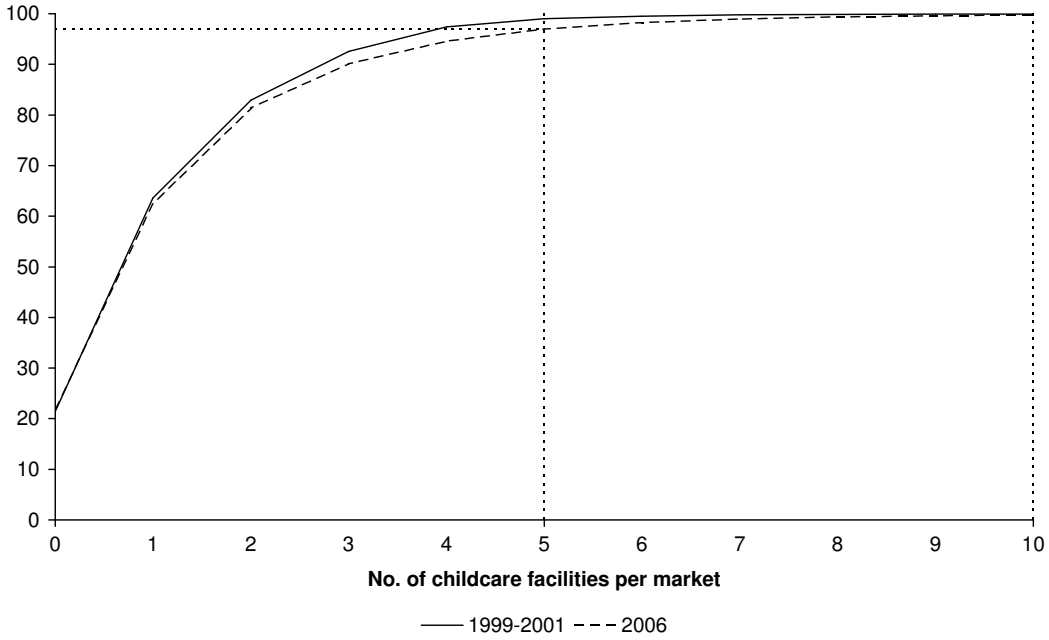
In order to investigate whether there has been a change in the pattern of childcare provision and in particular a change in childcare provision by NFPs and FPs, we use data from the General Firm Registry[12] on the location (i.e. postal code and street number) and profit status of childcare facilities as registered by the Chamber of Commerce. We define the relevant local market for the childcare provider as the 4-digit postal code area in which it operates, as parents in general do not want to take their children to a facility that is located too far from their home.[13] Total childcare provision per market is calculated as the total number of facilities offering childcare

[12] In Dutch: “Het Algemeen Bedrijfsregister”. The results presented in this paper are own calculations on the basis of a dataset that was made available by Statistics Netherlands.

[13] According to the director of Catalpa, the largest childcare provider in the Netherlands (in a recent interview in Het Financieele Dagblad, 22-9-2006) chances that parents take their child to a facility decrease by 20% per kilometre distance from their home.

per postal code. In total, there are some 3,970 postal code areas (and by our definition therefore an equal number of potential markets for childcare) in the Netherlands. We compare the childcare provision in the period 1999-2001 to the childcare provision in 2006 and so compare the provision of childcare in a period prior to the introduction of the 2005 Childcare Act to the childcare provision under the new regime.[14] We exclude the postal codes with childcare provision in neither period (i.e. markets with no childcare facility in 1999-2001 and no childcare facility in 2006), which constitute a large portion of all potential markets (approximately 40%). The underlying idea is that these markets are too small to sustain any childcare provider and therefore are not considered as (viable) markets for childcare. We also exclude markets with 100 inhabitants or less.[15] In total this leaves us with just over of 2,450 local childcare markets. A slight drawback of the dataset is that it suffers from missing observations and may therefore not be fully representative of the entire population of Dutch childcare facilities. Where possible, we have compared our results to those reported in other studies and found them to be in line. In addition, we can establish that the dataset contains a sizeable portion of the total population of childcare facilities in the Netherlands.[16] This should therefore enable us to capture the general trends in the market.

Figure 4.1 Cumulative density plot in period 1999-2001 and 2006



[14] We use the average over 1999-2001 rather than just the year 1999 to correct for any errors in the data. We don't use this technique at the end of the period as the year 2005 is to be considered a transitional year due to the introduction of the 2005 Childcare Act. The act was first proposed in late 2001 and was originally intended to enter into force in 2003 (see Tweede Kamer, vergaderjaar 2001–2002, 26587, nr. 17).

[15] In total, this further excludes 24 markets.

[16] The most sizeable estimate of the entire population of childcare facilities numbers at 5950 for the year 2004 (CBS statline 21-11-2006). In comparison, our dataset contains 3701 locations for that same year.

Figure 4.1 shows that the majority of markets have a small number of childcare providers: approximately 40% of the markets have only one childcare facility in both periods.[17] Markets with five childcare facilities or more account for less then 5% of the sample. In 2006, there are slightly more markets with a five childcare facilities or more.

In order to characterise the different markets, we marry the data from the General Firm Registry to demographic data on the postal code level of Statistics Netherlands from the year 1999.[18] Summary statistics are given in table 4.1:

Table 4.1 Descriptive statistics (per postal code)

		Mean	Std. Dev.	Minimum	Maximum	N
No. of facilities (av. '99-'01)	N9901	1.43	1.28	0	12	2468
No. of facilities '06	N06	1.57	1.62	0	18	2468
No. of NFP facilities (av. '99-'01)	N_NFP9901	1.11	1.13	0	10	2468
No. of NFP facilities '06	N_NFP06	0.74	0.65	0	6	2468
Population (in 10,000)	POP	0.55	0.40	0.01	2.30	2440
Income p.p. (in €10,000)	INC	2.19	0.30	1.07	4.18	2438
% Families with child	FAMCHILD	61.63	7.15	32	85	2428
dummy for "highly" or "very highly" urbanised	CITY	0.27	0.44	0	1	2440

The population of an average childcare market equalled 5,500 in 1999. On average, the per capita income was approximately €22,000. About 62% of all families had at least one child. One quarter of all markets could be characterised as either "highly" or "very highly" urbanised.[19]

Table 4.1 signals two important trends in the provision of childcare in the Netherlands:

1. There has been growth in the total number of childcare facilities in our sample. On average there were 1.4 childcare facilities per market in the period 1999-2001 against 1.6 in 2006. In total, the number of childcare facilities has increased from approximately 3,550 in the period 1999-2001 to around 3,900 in 2006: an increase of approximately 10%. That there has been

[17] Note that in this figure there are markets with zero childcare facilities. These are markets that have no facility in 1999-2001 but at least one facility in 2006 and vice versa. Recall that markets with no childcare facilities in both periods are excluded from the sample.

[18] Kerncijfers viercijferige postcodegebieden 1999. Data from the year 2003 were available to us, but we restrict ourselves to using the 1999 data as they were found to be more complete. We observed very little variation in demographic data between 1999 and 2003, such that this restriction should not affect the results.

[19] The degree of urbanisation is derived from the surrounding address density, so the value of the dummy equals 1 if the surrounding address density is more than or equal to 1500 surrounding addresses per km^2. Of all postal codes (including those without provision) around 20% fall into this category.

growth in childcare provision is corroborated by data from the Network bureau Expansion Childcare[20] and Statistics Netherlands;[21]

2. Both the number and share of facilities that are run on a NFP basis has declined. While in the period 1999-2001 approximately 80% of all locations were run on a NFP basis, this number has fallen to just short of 50% in 2006. Vice versa, the share of FP childcare facilities has increased. The total number of NFP childcare facilities has fallen from over 2700 in the period 1999-2001 to about 1800 in 2006.

Table 4.2 shows that growth has not been evenly spread over different markets: whereas approximately 25% of all markets showed no change in the number of childcare facilities, 35% showed an increase in the number of childcare facilities and 40% showed a decline. Among the markets with only one childcare facility in 1999, 80% experienced no variation or a decline, while only 20% experienced growth in the number of childcare facilities. The table also gives some characteristics of the markets. It shows that growth has predominantly occurred in markets with above average population, income and urbanisation.

Table 4.2 Descriptive statistics of markets with a decline, growth or no change in the number of childcare facilities

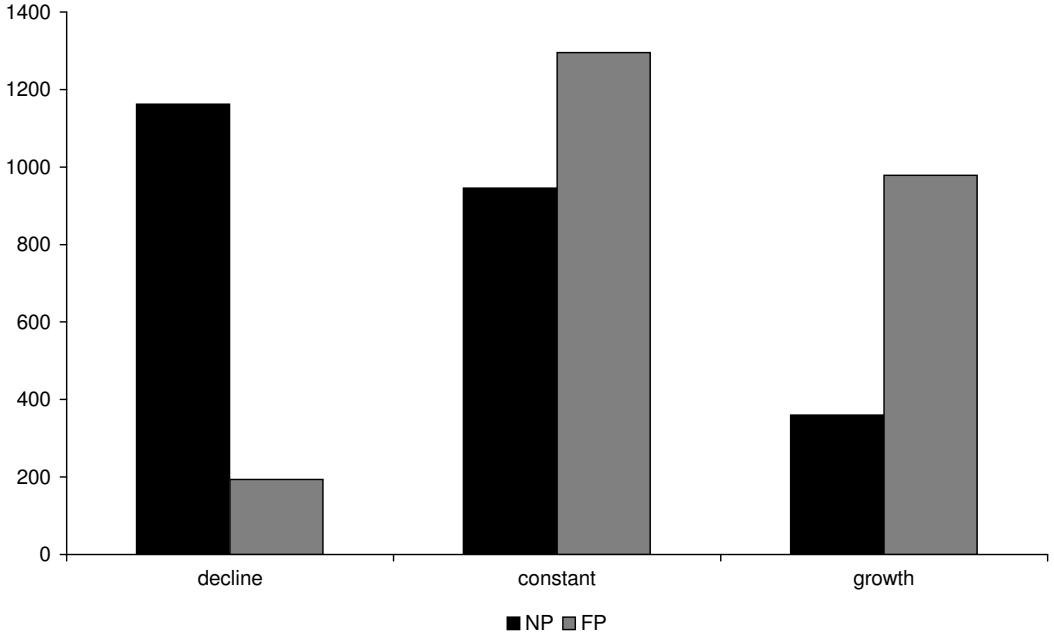
	Decline				No change				Growth			
	Mean	Std. Dev.	Median	N	Mean	Std. Dev.	Median	N	Mean	Std. Dev.	Median	N
POP	0.47	0.37	0.38	933	0.52	0.37	0.45	616	0.66	0.43	0.64	891
INC	2.15	0.28	2.12	932	2.20	0.28	2.16	615	2.23	0.32	2.17	891
CITY	0.14	0.35	0	933	0.24	0.43	0	616	0.41	0.49	0	891

Equally, the fall in the number of NFP childcare facilities has not been spread evenly over different markets either. Figure 4.2 shows the number of markets that have experienced either a decline, growth or no change in the number of FP respectively NFP childcare facilities. About 45% of the markets experienced a decline in the number of NFP childcare facilities, 15% experienced growth and approximately 40% experienced no change whatsoever. The corresponding figures for the number of FP childcare facilities are approximately 10% (decline), 40% (growth) and 50% (no change).

[20] The Netwerkbureau Uitbreiding Kinderopvang was an initiative of the Ministry of Health, Welfare and Sports. One of its core tasks was to oversee and keep track of the growth in childcare capacity in the period 2000-2004.

[21] In comparison to the growth reported in other sources, the growth figure in our dataset is relatively modest. Estimates from the Netwerkbureau Uitbreiding Kinderopvang (2003) show an increase of more than 1200 facilities over the period 2000 to 2003 and Statistics Netherlands reports an increase of approximately 700 facilities between 2002 and 2004 (Statline 27-11-2006).

Figure 4.2 **The number of markets that have experienced growth, decline or no change in the number of FP respectively NFP childcare facilities between the period 1999-2001 and the year 2006**



One of the most striking features of figure 4.2 is the number of markets that have experienced a decline in the number of NFP childcare facilities. In fact, the bulk (i.e. 92%) of the markets experiencing a decline in the total number of childcare facilities is formed by markets experiencing a decline in the number of NFP facilities. Table 4.3 shows that these markets have lower than average income and population and that they are located in areas with a lower than average degree of urbanisation.

Table 4.3 **Descriptive statistics of markets with a decline in the number of NFP childcare facilities**

	Mean	St. dev.	Median	N
INC	2.16	0.29	2.13	1151
POP	0.51	0.38	0.44	1152
CITY	0.17	0.38	0	1152

In almost 80% of the markets that have experienced a decline in the total provision of childcare, the number of NFPs has fallen and the number of FPs has remained constant. More specifically, in 95% of these markets, there were no FP childcare facilities in the period 1999-2001 and their level remained constant at zero. Apparently, NFPs are exiting markets in which FP childcare providers were not active.

5 Empirical results

Demand factors affecting childcare provision

Have the factors that determine the level of childcare provision in a market in 2006 changed in comparison to the period 1999-2001? In order to address this question, we formulate a simple OLS regression model explaining the number of childcare facilities per 10,000 inhabitants by: 1) The average level of purchasing power (*PP*); and 2) Demographic characteristics of a market (*DEMO*). We estimate the model separately for the period 1999-2001 and the year 2006. We try different specifications, each with a different combination of explanatory variables. As a proxy for *PP*, we in turn use average per capita income, average property value or the percentage of low-income. *DEMO* contains a number of variables that capture the demographic composition of the market, such as the percentage of families with children, the percentage of persons under the age of 15, average family size. We also include a dummy that indicates whether the market is located in a highly or very highly urbanised area.

Table 5.1 presents the OLS estimation results for the two different time periods. It shows that the factors explaining the level of childcare provision in the period 1999-2001 do not necessarily to the same extent explain the provision of childcare in 2006 and vice versa.

Table 5.1 OLS estimation results. Dependent variable: The number of childcare facilities per 10,000 inhabitants

	1999-2001		2006		
	Coeff.	St. error[1]	Coeff.	St. error[1]	T-statistic[2]
INC	−1.997	0.774	1.289	0.610	3.33
CITY	−3.714	0.207	−1.757	0.186	7.06
% FAMCHILD	0.014	0.028	0.053	0.021	1.13
CONSTANT	9.541	2.521	−1.306	2.259	−3.20
R^2	0.057		0.020		
N	2428		2428		

[1] Standard errors were calculated using the Huber/White/sandwich estimator of variance

[2] Reports the t-statistic on the test for equality of the coefficients of 1999-2001 and 2006

All coefficients are significant at 5%, except for the percentage families with children in 1999. The results are fairly robust over different specifications. The difference between the coefficients from the period 1999-2001 and 2006 are significant at 1%, except for the coefficient of the percentage families with children. The results indicate that a market's purchasing power has become a more important factor in determining in what type of market childcare providers locate. In fact, the sign of the coefficient has even reversed. In the period 1999-2001, if the average income in a market was €5,000 higher meant that there would be one *less* childcare facility per 10.000 persons in the market. In 2006, a similar difference in average

income results in having 0.6 *more* childcare facilities. In addition, there are relatively more childcare locations located in a city in 2006 compared to the period 1999-2001. Whereas in the period 1999-2001, being in a city meant that there were almost 4 childcare facilities fewer per 10,000 persons, this difference has shrunk to almost 2 facilities in 2006.[22]

These results tell us that in 2006 the provision of childcare is more responsive to income and urbanisation than in 1999-2001. Although other dynamics may have been at play, this is consistent with the intuition that the introduction of demand-financing would provide stronger incentives for childcare providers to locate in markets with higher levels of purchasing power and more urbanised neighbourhoods. These results mirror the descriptive statistics given in Section 4, where table 4.2 showed that most of the growth in childcare provision took place in neighbourhoods with above average levels of income and urbanisation. Another statistic that illustrates this is the partial correlation between the number of locations in a market and population size: for the period 1999-2001 it equalled only 0.24, whereas it equalled 0.47 in 2006. Overall, it seems that the provision of childcare is more responsive to factors driving the demand of childcare in 2006 as compared to the period 1999-2001.

Table 5.2 presents the estimation results of a simple probit model, using as independent variable a binary variable that takes on the value 1 if there has been growth in the total number of locations in a market. The probit estimation confirms the previous results. The probability that a market has experienced growth in the number of childcare facilities has been higher in areas with a higher level of purchasing power and a larger percentage of families with children. In addition, the probability of experiencing growth has been higher in markets that were located in a city or more generally, in more highly urbanised areas.

Table 5.2 **Probit estimation results. Dependent variable: binary variable that takes on the value 1 if there has been growth in the total number of childcare facilities per market**

	dF/dx[1]	St. error[2]
INC	0.174	0.040
CITY	0.258	0.023
FAMCHILD	0.008	0.002
Pseudo-R^2	0.051	
N	2428	
Observed p	0.402	

[1] Marginal effect at the mean. For coefficient city: discrete change in probability

[2] Standard errors were calculated using the Huber/White/sandwich estimator of variance

[22] A possible explanation for the negative sign of the coefficient city is that childcare facilities in a city are larger, i.e. offer more childcare places per facility, requiring less facilities to service a market of similar size.

Economically, the most significant coefficients are those for income and the degree of urbanisation of a market as they have the largest effect on the probability of a market experiencing growth in the level of childcare provision. For example, the probability of a market experiencing growth in the number of childcare facilities is about 25% higher if that market is located in a city. The story that childcare provision is more attuned to factors driving the demand of childcare has both a positive and a negative connotation. On the upside, the market seems to be working more efficiently, allocating funds in a way that more appropriately fits the needs of consumers. On the downside, the phenomenon that childcare providers focus more on richer and more urbanised markets may have negative effects on the accessibility of childcare and may therefore raise distributional and social concerns.[23] It is important to note that the changes in the regulatory framework are very recent and that the market may still be in transition. Possibly, parents in low-income markets have not become fully aware of the new possibilities for financial support and have accordingly not adjusted their demand. On the supply side too, a further adjustment may be expected. Intuitively, childcare providers may have first targeted areas with slightly higher purchasing power where they may be able to offer a richer range of services at slightly higher prices. In future, childcare providers may well 'rediscover' areas with lower purchasing power as viable markets for their services. Once they do, childcare provision may again experience a shift as demand and supply realign in areas with lower purchasing power.

Market dynamics of FP and NFP childcare provision

The second question we aim to address is how the pattern of FP and NFP childcare provision has changed. Recall from Section 4 that the share and number of NFP providers has fallen quite dramatically during this period from roughly 80% to just under 50%. The drop in the number of NFP providers has been especially pronounced in markets with no FP provision, suggesting that NFPs tend to exit markets that are unattractive to FPs. Keeping these trends in mind, we again formulate a simple OLS model explaining the density of FP (respectively NFP) childcare provision in a market. It is analogous to the model formulated for the entire market. As dependent variables we use the number of FP (respectively NFP) childcare facilities per 10,000 persons in a market. The explanatory variables are the same as in the analysis above. Table 5.3 shows the estimation results.

[23] The Association of Dutch Municipalities for example raises concerns about the fact that with the introduction of demand financing, municipalities lost an instrument for "the realisation of a coherent set of provisions for the young and the execution of measures of preventative youth policy" and "Also the establishment of childcare centres is a responsibility of the market. Municipalities can stimulate the establishment of childcare centres in certain areas, for example with an establishment premium, but if entrepreneurs see too few profit opportunities, municipalities cannot enforce establishment." See: http://www.vng.nl/smartsite.dws?id=59785&ch=DEF

Table 5.3 **OLS estimation results. Dependent variable: the number of FP respectively NFP childcare facilities per 10,000 persons in a market**

Panel A: FP

	1999-2001		2006		
	Coefficient	Standard error[1]	Coefficient	Standard error[1]	T-statistic[2]
INC	1.295	0.229	1.754	0.478	0.87
CITY	− 0.014	0.092	− 0.263	0.146	− 1.45
% FAMCHILD	0.028	0.007	0.041	0.016	0.76
C	− 3.837	0.792	− 4.370	1.815	− 0.27
R^2	0.022		0.014		
N	2428		2428		

Panel B: NP

	1999-2001		2006		
	Coefficient.	Standard error[1]	Coefficient	Standard error[1]	T-statistic[2]
INC	− 3.291	0.757	− 0.465	0.434	3.24
CITY	− 3.701	0.192	− 1.494	0.133	9.42
% FAMCHILD	− 0.014	0.028	0.012	0.016	0.83
C	13.377	2.475	3.064	1.582	− 3.51
R^2	0.070		0.023		
N	2428		2428		

[1] Standard errors were calculated using the Huber/White/sandwich estimator of variance

[2] Reports the t-statistic on the test for equality of the coefficients of 1999-2001 and 2006

For both types of childcare providers, demand factors seem to have grown more important, but only for NFP providers has this change been significant. For example, income has become a more important determinant (i.e. the coefficient has become larger or less negative). The difference is however statistically significant only for NFP provision. Equally, there has been a shift in childcare provision away from markets in less urbanised areas towards more urbanised areas, which was significant only for NFP providers. The change of importance is striking: whereas in the period 1999-2001 being located outside of a city meant that a market had about 3.5 locations more per 10,000 inhabitants, this difference has been reduced to 1.5 in 2006. The presence of families with children has not become significantly more important to either type of childcare provider. The biggest change therefore has occurred in the childcare provision by NFP facilities that are still active in 2006. This provision seems to have become significantly more responsive to factors driving the demand for childcare, specifically income and urbanisation.

Recall from section 4 that the greatest change in the NFP childcare provision has been a retreat from markets with no FP childcare provision. Table 5.4 shows the results of a probit regression using as dependent variable a binary variable that takes on the value 1 if the market has experienced a decline in the number of NFP childcare facilities.

Table 5.4 **Probit estimation results. Dependent variable: binary variable that takes on the value 1 if the number of NFP facilities in a market has decreased**

	dF/dx	St.dev
INC	− 0.129	0.041
CITY	− 0.213	0.022
% FAMCHILD	− 0.004	0.002
pseudo-R^2	0.032	
N	2428	
Observed p	0.472	

[1] Marginal effect at the mean. For coefficient city: discrete change in probability

[2] Standard errors were calculated using the Huber/White/sandwich estimator of variance

Table 5.4 shows that the probability of a market experiencing a decline in the number of NFP childcare facilities is higher for areas with lower income, a lower percentage of families with children and with a lower degree of urbanisation. If a market is located in a city for example, there is a more than 20% lower probability of having experienced a decline in the number of NFP childcare providers.

The table seems to confirm that NFP childcare providers have mostly exited markets where demand factors were less favourable, i.e. markets with lower average income and less urbanised markets. Again, although other factors may have contributed to this development, a possible explanation is that in as far as NFP childcare facilities were the favoured recipients of municipal subsidies, they lost an important source of income, especially in less profitable markets, when these subsidies were removed in the 2005 Childcare Act. Having now to rely solely on income generated from their contracts with parents rather than a steady stream of municipal subsidies, they would have had to leave markets where demand is not sufficiently high. This suggests that the underlying differences between NFP and FP childcare providers are not very significant. On a level playing field (i.e. in the absence of municipal subsidies), neither type of childcare provider appears to be able to sustain operation in these markets.

6 Conclusion & policy implications

The market for childcare in the Netherlands has proven very dynamic over the last decade. Most importantly, the legislative environment of the Dutch childcare market changed significantly with the introduction of the 2005 Childcare Act. This act attributed greater importance to the demand for childcare from parents by introducing a fully demand-financed system. This was expected to influence the provision of childcare as "entrepreneurs would better anticipate the demand of parents" and result in a "better balance between demand and supply".[24]

We compare the provision of childcare under the old regime (in the period 1999-2001) with the provision of childcare after the introduction of the 2005 Childcare Act (in 2006). We find that the provision of childcare is more sensitive to demand factors, specifically income and urbanisation. Compared to the period 1999-2001, the provision of childcare in 2006 has shifted towards areas with higher purchasing power and away from less urbanised areas. This finding can be interpreted in both a positive and negative manner. In a positive light, they indicate that there is a more efficient interplay between supply and demand on the Dutch market for childcare. In a negative light, this finding seems to substantiate concerns that existed prior to the introduction of the act that the new financing system might cause childcare providers to focus on high-income and more urban markets in favour of low-income or more remote markets. This conclusion however cannot be drawn on the basis of our findings. Other factors may have influenced the provision of childcare. In addition, the reform is of a very recent date. Supply and demand may not have fully adjusted to the new regulatory framework.

We also analyse changes in the provision of childcare by NFP and FP childcare providers over the same time period. We find that 1) FPs account for a larger number and share of all childcare facilities in 2006; and 2) the fall in the provision of childcare by NFP facilities has been especially pronounced in areas that had no FP childcare provision prior to the regime change. A possible explanation for these results is that under the regime prior to the introduction of the 2005 Childcare Act, NFP providers may have more frequently been granted municipal subsidies. If so, the removal of these subsidies under the 2005 Childcare Act levelled the playing field between FP and NFP providers. As neither type of childcare provider is active in these markets in the absence of subsidies, the findings suggest that the de facto differences between FP and NFP providers are small. The policy implication is that generic policies appear more appropriate than policy instruments specifically targeting NFP childcare providers. For example, the government may stimulate the provision of childcare in certain areas or for certain

[24] Regeling met betrekking tot tegemoetkomingen in de kosten van kinderopvang en waarborging van de kwaliteit van kinderopvang (Wet basisvoorziening kinderopvang) - Memorie van toelichting. Tweede Kamer, vergaderjaar 2000-2001, Kamerstuk 28447, nr. 3, p.16.

target groups if it feels that the accessibility of childcare is in insufficiently warranted, rather than promoting NFP providers as an indirect means of increasing accessibility for these groups or in these areas.

For a full comparison of the behaviour and performance of FP and NFP childcare providers in the Netherlands, it is essential to analyse whether they provide the same quality of service at the same prices. Interesting fields for further research are the effect of the 2005 Childcare Act on the prices and quality of childcare. Has the change in the composition of Dutch childcare provision in favour of FP childcare providers led to a different price-quality ratio? Unfortunately, information on the quality, quantity or prices of Dutch childcare is not necessarily publicly available. This information is imperative for any substantial policy evaluation and the authors would like to stress the importance of this information becoming publicly available.

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Appendix

NFP vs. FP: Who should provide childcare? A literature review

The Market and where it fails in childcare

As noted in the main text, a number of public concerns are invested in the provision of accessible and high-quality childcare. Unfortunately, our ability to observe the quality of childcare are generally limited as the primary recipients of the service are young children that lack the ability to fully asses and communicate shortcomings in quality. Even though parents and governments have a great interest in and will exert a great deal of effort in obtaining information about the quality of the childcare service (e.g. though inspections, onsite visits, parental involvement and reputation mechanisms), fact remains: parents and government simply cannot be present full-time while the service is being rendered and therefore a residual informational deficit or asymmetry will remain. Mocan (2001) finds some evidence for the presence of information asymmetries in the childcare sector by comparing the parents' valuation of the quality of childcare to the valuation of professional observers.[25] In this situation of asymmetric information, there is an incentive for providers of childcare to spend less effort on hard-to-observe quality, such as direct teacher-child interaction, in order to cut costs and enhance profits. This phenomenon is denoted as moral hazard (see e.g. Hansman (1980)).

Another concern is the fact that the childcare market is a local market: Parents using childcare are almost by definition time-constrained and do not want to travel far and wide to drop off their children at the childcare centre. The inherent danger is that in small isolated areas there is enough demand only to sustain one supplier who will have considerable market power. In this situation, this supplier has an incentive to raise prices, produce less and lower quality. This could result in a situation in which childcare either becomes inaccessible (too expensive) or unattractive (inferior quality) to parents, limiting their possibilities to enter the labour market. There is some evidence of this phenomenon for the hospital industry. Abraham et al. (2003) find that in local hospital markets, one extra entrant results in an increase in competition, quantity produced and consumption to the benefit of the consumer.

Informational problems and monopoly power are the two principal reasons why many governments have been hesitant to allow private FP provision of childcare and have instead

[25] In a survey of Dutch parents using childcare, Kok et al (2005) report that 63% of parents indicate that they have sufficient information to make a well-informed choice between different day-care centres. The results show that the extent of the information problems vary between different modes of childcare, as the corresponding percentages are 59% for out-of-shool care, 86% for family day-care, 76% for paid informal care and 89% for unpaid informal care.

opted for public provision so as to guarantee the highest possible level of control over quality, affordability and accessibility. Often cited disadvantages of public provision however are inefficiencies, shortage of innovation and a lack of responsiveness to the needs of consumers (i.e. as public organisations take directions from government officials rather than responding directly to demand, a distance to consumers may result). There is a third option which resembles a middle ground between private FP and public provision: private NFP provision.

Lacking a profit motive: an effective armour against market failures?

"Theory"

So is there any theoretical evidence that private NFP childcare providers are better armed against the failings of both the market and the public sector? Like FP providers, NFPs are private firms and therefore must obey the rule of the market. As a result, unlike in a public organisation, the distance to the consumer tends to remain rather small. In contrast to private FP providers however, NFPs are not confined by the objective to make a profit. The defining difference between NFP and FP organisations is that the former is governed by a non-distribution constraint. Grout and Yong (2003) define it as the injunction on NFPs "to distribute any 'profit' or residual element to anyone who is able to exercise control or direct influence over the entity."[26] Instead, any 'profit' must be invested in the spirit of the NFP's mission (see also Hansmann (1980) and Glaeser (2002)).

Advantages

Since there is no direct outlet (such as shareholders or owners) for rents and surpluses that may be generated in the operation of the firm, there should in theory also be less incentive to generate such additional surpluses or rents for example by skimping on difficult-to-observe quality or exploiting monopoly power. Moreover, NFPs may be able to enter markets that are unattractive to FP providers, for example in remote or poor areas.

Labelling this feature a constraint possibly lends it too negative a connotation, for in fact it provides NFPs with a potentially important additional benefit. Employees in a NFP organisation will be more willing to donate labour (provide more effort than contractually agreed, e.g. by working unpaid overtime) as the non-distribution constraint implicitly guarantees that any additional rents generated by their donation will not accrue to shareholders but to the cause that inspired their donation in the first place: the well-being of the children in their care. By a similar argument, NFPs may be able to attract more volunteers, tax credits, subsidies and donations of another (e.g. monetary) kind.

[26] Grout and Yong (2003), p.2.

Disadvantages

So NFPs are ideal: they don't skimp, exploit monopoly power and get the best out of their employees? Unfortunately no. NFPs suffer from a number of disadvantages that are recognised by the theoretical literature. Firstly, as there are no shareholders demanding profits and administrating financial prudence, there may be more room for inefficiencies in NFP organisations. Secondly, other forms of rent seeking behaviour may arise in NFP organisations. For example, NFP managers (unchecked by shareholders) may award themselves elaborate perquisites. Finally, the mechanism allowing NFPs to attract (labour) donations may become compromised if its mission is too vaguely formulated or if the first two drawbacks materialise. In short, there is theoretical potential for NFPs to outperform private FPs, but whether this occurs in practice remains an empirical matter.

Empirics

We will give an overview of the empirical evidence of the relative performance of NFPs vis-à-vis FPs on four performance indicators: Quality, Accessibility, Wages and Efficiency. A word of caution is appropriate here: There are only few countries that allow the provision of childcare by FP providers. This means that the empirical literature consists almost exclusively of studies using US or Canadian data. In addition, legislation of childcare and the regulatory attitude vis-à-vis FP providers often differs considerably between states or provinces, making it difficult to draw universal conclusions from the current state of empirical literature.

Advantages

Regarding the potential advantage of NFP providers on quality, the empirical evidence is mostly inconclusive. The economic literature distinguishes between three concepts of quality[27] represented in figure A.1: 1) quality in inputs, denoted as structural quality, which for example concerns the quality of furnishings and is generally easy to observe and regulate; 2) process quality, reflecting for example the quality of teacher-child interaction, which is more difficult to observe;[28] and 3) quality in child outcomes, which represents the contribution of the childcare provider in the emotional, social and cognitive development of the child. This last concept of quality is most difficult to observe and measure.

[27] We are indebted to F.Kool from the Ministry of Social Affairs and Employment for providing an earlier version of this figure.
[28] Another important difference between structural and process quality is in whose sphere of control the decisions regarding the quality effort ultimately lie. Whereas structural quality is decided upon by the childcare manager, teachers chiefly control the level of process quality. In a NFP facility, process quality may therefore be higher as teachers feel encouraged to provide extra effort on process quality as any additional rents from this effort will be reinvested (see the discussion on donated labour).

Figure A.1 A diagram of the childcare production process and the various concepts of childcare quality

Phase of 'production'	Input	Throughput	Output
	Structural quality	Process quality	Quality in child outcomes
e.g.:	- child/teacher ratio - group size - space/furnishings	- child/teacher interaction - creative stimulation	- cognitive and social skills
Observable:	Easy	More difficult	Difficult

Following the discussion on the theoretical basis of a potential NFP differential, we expect NFPs to outperform FPs, especially so on hard-to-observe aspects of quality, i.e. process quality and quality in child outcomes. Contrary to this intuition, the empirical literature finds that the only aspect of quality in which NFPs on average outperform FPs is structural quality (e.g. Mukerjee et al. (1990), Whitebook et al (1990), Mocan (1995) and Sundell (2000)). The evidence of a positive NFP differential with respect to structural quality is however not based on a very sound footing, as studies generally content with reporting the mean value of indicators of structural quality, such as child-teacher ratios and do not correct for other centre characteristics such as the age of the centre or the region in which the centre is located. With respect to more difficult to observe quality, any evidence of a positive NFP differential is not robust. Whereas Canadian studies tend to report a significant positive NFP differential in process quality (Cleveland and Krashinsky (2004) and Japel et al. (2005)), the most recent and comprehensive US study does not (Morris and Helburn (2000) and Blau and Mocan (2002)). This study only finds a significant NFP differential in a state with a relatively lax regulatory framework with respect to childcare.[29] Moreover, one study that specifically analyzes the phenomenon of skimping on difficult-to-observe quality relative to easy-to-observe quality[30], i.e. Mocan (2001) finds evidence of this behaviour in *NFP(!)* childcare facilities and not in FP centres as we might expect. Morris and Helburn (2000) find that whereas the difference between NFP and FP organisations may not necessarily be significant, there may be significant differences within NFP (or FP) organisations per se, e.g. NFP organisations belonging to a chain or church-affiliated NFPs may provide significantly different quality than those that operate independently. Cleveland and Krashinsky (2005) show that the degree of competition in the market partly determines the extent to which NFP childcare organisations are able to behave differently compared to their FP equivalents in the provision of process quality. They show that a NFP advantage only materialises in what they coin 'thick markets' (i.e. markets with high

[29] The authors term this 'opportunistic skimping' (see Morris and Helburn (2000), p.386), i.e. there are more opportunities for skimping on childcare quality in regions where the government has a smaller regulatory hold on childcare providers.

[30] This behaviour is referred to as a problem of 'moral hazard'. Providers exploit the informational advantage they have vis-à-vis consumers by offering high quality in observable dimensions of the service to draw in customers while skimping on quality that consumers cannot observe in order to raise profits.

demand for childcare) and not in 'thin markets' (i.e. with low demand).[31] They hypothesise that in thin markets, market forces drive NFP organisations to behave more like commercial childcare centres as all producers are forced to produce relatively low quality care at low prices. By contrast, the higher demand in 'thick markets' provides opportunities for quality differentiation and NFP organisations are able to concentrate on producing high-quality childcare. With respect to quality in child outcomes, the only available study known to us by Sundell (2000) finds no significant differences in child outcomes between NFP and FP childcare providers.

The empirical evidence on another potential advantage of NFP organisations, namely that they serve more 'unprofitable' markets is slightly stronger. Many studies find that NFPs on average serve more low-income families ((Krashinsky (2005), Whitebook et al (1990), Morris and Helburn (2000) and Blau and Mocan (2002)). However, most studies also report that NFPs on average receive more public funding, so this behaviour may be caused by active government policy rather than a difference in institutional design (i.e. the non-distribution constraint). Whitebook et al. (1990) find that both children from low-income families and from high-income families are more likely to attend NFP centres than middle-income families. A possible explanation for the fact that children from high-income families more frequently attend NFP facilities is the higher average quality offered there. High-income families displayed the highest willingness-to-pay, followed by low-income families (!) and middle-income families. Some contradictory evidence is given in Japel et al (2005) who find that children with a less favourable socio-economic background are more likely to attend FP childcare centres. Notwithstanding, they also find that in FP centres the quality of service varies with the socio-economic status of its clientele (i.e. children from low-income families received the lowest quality of care and children from high-income families receive a higher quality of care), whereas the quality level is constant over socio-economic status in NFP centres.[32] This lends credence to the idea that NFPs are less likely to compromise on quality when faced with a less affluent clientele.

Disadvantages

In terms of overall efficiency, NFPs are not found to be significantly different from FP childcare providers. Whereas some older studies find that the average costs in FP centres are lower than in NFP centres (Mukerjee et al.(1990) and Powell and Cosgrove (1992)), more recent studies that incorporate a larger array of control variables (most importantly indicators of

[31] "Thick markets" are defined as markets with at least 25,000 children from 0-4 years. "Thin markets" are defined as markets with fewer than 15,000 children in this age bracket.

[32] Interestingly, Japel et al (2006) is the only study to find that children from a less favourable socio-economic background are more likely to attend *FP(!)* childcare centres.

process quality) find no significant cost or efficiency differential (Mocan (19995) and Blau and Mocan (2002)).

Evidence that NFPs are susceptible to other forms of rent-seeking behaviour is found in the analysis of wage differentials between NFP and FP childcare providers. Without exception, studies on the childcare sector seem to find that NFP organisations on average pay higher wages than FP organisations (e.g. Mukerjee et al.(1990), Whitebook et al. (1990), Blau and Mocan (2002) and Cleveland and Krashinsky (2004)). Two studies find that the preferential treatment of NFP workers extends to other forms of compensation: Mocan and Terkin (2000) find that total compensation, including non-wage benefits, on average is higher in NFP childcare organsiations than in FPs and Whitebook et al. (1990) observe that NFP centres also offer better employment benefits. Rather than a sign of inefficiency, this differential might however be explained from an efficiency wage perspective: Having a preference for quality rather than profits, NFP may offer higher wages in order to attract and keep better qualified staff.[33] The evidence on this is contradictory. On the one hand, a number of studies indeed find that NFP childcare organisations on average employ workers with higher levels of experience, education and training (Whitebook et al. (1990), Mocan (1995), Mitchell (2002), Cleveland and Krashinsky (2004)). Equally, they seem to be able to retain these employees longer, as average tenure levels are higher in NFP organisations and average turnover rates are lower. On the other hand, a number of studies that have estimated wage equations, correcting for factors such teacher experience and education, still find a significant positive NFP wage differential (Preston (1998), Leete (2001), Mocan and Terkin (2000) and Cleveland and Krashinsky (2004)). Yet again, Cleveland and Krashinsky (2004) find that when controlling for the level of process quality offered in the centre and the interaction between the NFP-status and the level of quality offered, i.e. the fact that a NFP worker receives a higher reward (in terms of wages) in return for an equal increase in quality, the independent effect of the NFP-status on wages disappears.[34] This last finding again lends credence to the efficiency wage interpretation. A number of studies point out that the positive wage differential does not apply to all groups of workers equally. For example, Mocan (1995) finds that it only applies to highly educated workers and Mocan and Terkin (2000) observe that the positive NFP wage differential is higher for part-time work compared to full-time work. Finally, Preston (1988) finds that the stringency of the regulatory framework partly determines whether a positive NFP wage differential arises. She finds no pay differential in the segment of the childcare market that is governed by relatively lax laws on

[33] Indeed, a number of studies find that NFP childcare organisations on average employ workers with higher levels of experience, education and training (Whitebook et al (1990), Mocan (1995), Mitchell (2002), Cleveland and Krashinsky (2004)).

[34] The authors refer to this regression as a "human-capital" wage regression, which includes a cross-term of the average process quality offered by the centre and the NFP status.

childcare quality, while she finds a positive pay differential in the segment that is governed by more stringent regulation.[35] The intuition is that the stringent regulation impedes competition, allowing NFP childcare providers to behave differently from their profit-maximising counterparts by offering higher wages.

The positive NFP wage differential seems to contradict the presence of donated labour in NFP childcare organisations, as we would expect employees in NFPs to be willing to work for wages below the market rate. However, Mocan and Tekin (2000) find some evidence supportive of the labour donation hypothesis. Their dataset includes a dichotomous variable that indicates whether it was 'a need to do an important job' (and thus an altruistic motive) that primarily governed employees' decision to accept their current position. The coefficient of this variable in a wage regression was significantly negative for NFP jobs (suggesting that these NFP employees are willing to work against a lower wage in line with the donated labour hypothesis) and significantly positive for full-time FP jobs.

Summarising

Although there are theoretical reasons for assuming NFP childcare organisations may behave differently from their FP counterparts, the empirical evidence for any diverging behaviour, summed up in table A.1, is very slim.

Table A.2 Summary of empirical NFP differential

Performance indicator	Evidence of NFP differential?
Structural quality	Possibly positive NFP differential
Process quality	No
Quality in child outcomes	No
Accessibility	Possibly positive NFP differential
Efficiency	No
Treatment of employees	Positive NFP differential

There is no conclusive evidence that NFPs provide higher overall quality. Although there are some indications of a positive NFP differential with respect to structural quality, more research is required as most analyses content with reporting the difference in the mean value and do not control for other relevant factors, such as the centre age or the region in which the centre is located. The evidence of a NFP differential on process quality seems region-specific, as most

[35] In her estimates, Preston (1988) does not correct for differences in process quality. She does however correct for structural quality in the form of the child-to-staff ratio.

Canadian studies seem to find a positive differential, while the most recent US studies do not. No definite conclusions can be drawn from this evidence. The same holds true for differences in the quality of child outcomes. The only study known to us does not find a NFP differential. There are indications that NFPs are more inclined to serve less profitable segments of the market or are at least not inclined to skimp on quality when faced with a less affluent clientele, but the amount of studies dedicated to this subject is small and again more research is required. The most recent studies investigating differences in the efficiency of NFP and FP organisations, find no significant differential. Finally, there is some evidence that NFPs behave differently in the treatment of their employees, but this may be interpreted in contradictory ways: in a positive light it can be seen as evidence of NFP's preference for quality and in a negative light it may be interpreted as proof of NFP's inefficiencies.

The degree of competition that exists in the market may be important, as it appears to affect the extent to which NFPs can behave differently from FPs (Cleveland and Krashinsky (2005) and Preston (1988)). While this is an important caveat to bear in mind, more research into this relation is necessary before it can be used in policy design.

So who should provide childcare: NFPs or FPs? and should NFPs receive preferential treatment from the government? While theoretically there may be reasons to suppose that NFPs have a comparative advantage vis-à-vis FPs in combating market failures, the current empirical literature does not observe stark differences in the performance of NFP and FP childcare organisations and therefore does not seem to warrant such favourable treatment.