

## VU Research Portal

### **The consequences of implementing a child care voucher: Evidence from Australia, the Netherlands and USA**

Warner, M.E.; Gradus, R.H.J.M.

2009

#### **document version**

Early version, also known as pre-print

[Link to publication in VU Research Portal](#)

#### **citation for published version (APA)**

Warner, M. E., & Gradus, R. H. J. M. (2009). *The consequences of implementing a child care voucher: Evidence from Australia, the Netherlands and USA*. (TI Discussion Papers Series; No. 09-078/3). Tinbergen Instituut (TI). <http://www.tinbergen.nl/ti-publications/discussion-papers.php?paper=1513>

#### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

#### **Take down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

#### **E-mail address:**

[vuresearchportal.ub@vu.nl](mailto:vuresearchportal.ub@vu.nl)



TI 2009-078/3

Tinbergen Institute Discussion Paper

# The Consequences of Implementing a Child Care Voucher: Evidence from Australia, the Netherlands and USA

*Mildred E. Warner<sup>1</sup>*

*Raymond Gradus<sup>2</sup>*

<sup>1</sup> Dept. of City and Regional Planning, Cornell University;

<sup>2</sup> VU University Amsterdam, and ECRi, Erasmus University Rotterdam.

### **Tinbergen Institute**

The Tinbergen Institute is the institute for economic research of the Erasmus Universiteit Rotterdam, Universiteit van Amsterdam, and Vrije Universiteit Amsterdam.

### **Tinbergen Institute Amsterdam**

Roetersstraat 31  
1018 WB Amsterdam  
The Netherlands  
Tel.: +31(0)20 551 3500  
Fax: +31(0)20 551 3555

### **Tinbergen Institute Rotterdam**

Burg. Oudlaan 50  
3062 PA Rotterdam  
The Netherlands  
Tel.: +31(0)10 408 8900  
Fax: +31(0)10 408 9031

Most TI discussion papers can be downloaded at  
<http://www.tinbergen.nl>.

# **The Consequences of Implementing a Child Care Voucher: Evidence from Australia, the Netherlands and USA**

**MILDRED E. WARNER<sup>1</sup> and RAYMOND GRADUS<sup>2</sup>**

## **Abstract**

In the Netherlands, the USA and Australia public funding has promoted parental choice by introducing a voucher for child care, where parents are free to choose the provider. The policy experiments in these three countries and the outcomes provide useful information about the consequences of introducing a voucher in the child care market. We show the voucher system can be effective in increasing demand, but there can be uneven supply responses. The structure of the voucher income scheme and quality controls affect the nature of the supply response. We argue that voucher schemes must take into account the complex nature of the child care market and the substitutability between free public care, private market care and unpaid household care. To secure quality and access, government must also play a coordinating role that vouchers alone can not supply.

## **Introduction and questions**

Child care is on the policy agenda in many countries. In the last decades of the 20th century there was a large increase in public intervention in child care provision focusing on public spending and regulations (see for example OECD 2002). Investments in child care have a threefold effect – on children, on parents and on the regional economy (Morrissey and Warner 2007). Intervention in the child care market is justified to promote female labor force participation and ensure gender equity (Glass & Estes 1997; Shellenback 2004), to promote children's cognitive and social development (Shonkoff & Phillips 2000; Barnett & Ackerman 2006), and to address community and employer concerns over child care as social infrastructure for economic development (Kimmel, 2006; Warner 2006). The rise in publicly funded vouchers for child care is part of a governmental response to promote parental labor force participation, especially in low wage jobs where labor shortages were common and the costs of child care could not be covered adequately on employee wages alone. While the parental labor force and community economic benefits of investment in child care are short term, society also has a long term interest in child care because of the human development impact on children. A host of long term studies on the developmental and economic impacts of early education show impressive returns (see Barnett & Ackerman 2006 for a review), and have led to calls for more public investment (CED 2002, Rolnick and Grunewald 2003). Publicly funded early education can lead to improved test scores and school readiness (Currie 2007; Gormley, Gayer, Phillips, & Dawson 2005;) and this has led to an expansion of government interest in preschool in the USA (Barnett et al 2006).

We see two streams of investment in early care and education. The education stream focuses primarily on publicly funded preschool, while the child care stream

---

<sup>1</sup> Cornell University Dept. of City and Regional Planning.

<sup>2</sup> Vrije Universiteit Amsterdam and ECRi (Erasmus University Rotterdam). Parts of this paper have been written during a visit to Cornell University. The authors would like to thank Joe Rukus for assistance with the data and Amir Hefetz for comments.

focuses primarily on vouchers to enhance parental choice and market access. Although both of these streams should be considered together as part of the overall child care market, most public policy still considers them two separate arenas (Barnett and Ackerman 2006; Morrissey and Warner 2007). Vouchers give primary concern to parental choice and voice. Rather than build out a public system of care, vouchers can rely on elements of market competition and still provide publicly subsidized child care. This article analyzes three countries where there was a decoupling of public funding and parental choice by introducing a voucher for child care, where parents are free to choose the provider. Voucher systems were introduced for the USA in 1996, Australia in 1997, and in 2005 the Netherlands replaced provider subsidies with parental vouchers.

The policy experiments in these three countries and the outcomes provide useful information about the consequences of introducing a voucher in the child care market. However, it is important to describe the child care market properly. The child care market is very complex because of its interaction with non-markets such as household provision on the one hand and government provided preschool on the other (Folbre 2006). Even market based child care is quite complex – with center, family and informal child care providers. Low barriers to market entry and substitutability among some types of care create a diverse array of choices. In addition, the child care market itself is linked to the broader framework of the regional economy, as childcare plays an important role in improving local networks and social organization of production (Warner 2006).

Child care vouchers contrast with direct public investment in preschool because they place the choice in the hands of the parent. These voucher programs can increase parental choice and promote a market supply response, but also raise concerns about quality. Because of parents' inability to accurately assess all aspects of child care quality, government regulation of quality is necessary. Interestingly, in the USA where quality is the responsibility of the states, increasing attention is now being given to linking child care subsidies to quality rating and information systems (Mitchell et al 2008, Rigby et al 2007).

In the next section we present a theoretical framework for analyzing the child care market. We review the public choice assumptions on which child care vouchers are based and look at them through the perspective of the broader impact on the child care market. In our analysis section we interpret the results using three lines of analysis. What are the consequences on effective demand? What is the nature of the supply response? And what are the social implications with regard to quality, community organization and employer involvement?

This paper ends with some implications for analyzing voucher systems for child care. We argue a multidisciplinary approach taking insights from sociology, psychology and public administration is more useful than a narrow economic approach, and we stress the need for a comprehensive set of child care data to adequately study impacts. With regard to policy implications, we argue that for a good working voucher system at least three conditions have to be met. First, a system to regulate and encourage quality in both the formal and informal parts of the child care sector is needed. Second, some provider subsidy focused on non-profits in rural and poor areas is desirable to correct uneven supply response of vouchers. Third, a comprehensive approach requires attention to local arrangements and community and employer involvement. Even with community

involvement, a voucher system is only one element in a larger comprehensive approach to improve society's child care.

## **Theory**

### *Public Choice, Consumer Sovereignty and Effective Demand*

The promise of vouchers is the promotion of consumer sovereignty and enhanced parental choice. Rather than direct government provision, vouchers promote parental effective demand to stimulate increased supply. Vouchers are part of the privatization turn in public policy as countries seek to use market mechanisms to provide public goods to enhance efficiency and citizen choice simultaneously (Osborne and Gaebler 1992; Savas 1987). In each of our three cases, governmental support for market approaches, as well as enthusiasm for parental choice, drove the decision to shift away from government provision toward market delivery. Public choice theory allows that public goods can be provided through market mechanisms, such as vouchers, if information, effective demand and consumer choice can be clearly expressed. The promise of vouchers is that they will stimulate a quality supply response in underserved markets.

Vouchers allow government to respond more flexibly to changes in demand and target the children served, rather than providing or buying slots in centers. Studies of vouchers in general find benefits of increased efficiency and competition on the supply side, and enhanced choice and voice on the demand side but at the same time raise concerns about adverse selection, information asymmetries, substitutability, regulation, and quality control (Steuerle, Ooms et al. 2000; Friedman 1955; Seldon 1986).

Information problems pose the most serious constraints to consumer sovereignty (Lowery 1998). Vouchers individualize decisions and it can be difficult for suppliers to see such disaggregated demand. Thus the supply response may be uneven. An even more critical information problem for child care is information and preference regarding quality. Parents have trouble discerning quality and providers have difficulty differentiating quality (Helburn and Bergmann, 2002). This problem is made more pronounced by the ease of entry and exit in most child care markets and the substitutability between formal care and informal care, both paid and unpaid. Government policy regarding quality becomes crucial if vouchers are to protect the public goods value for quality child care.

The challenge of vouchers for complex services is they may undermine institutional mechanisms to address information asymmetries. There is little evidence that introducing a voucher system yields better performance and efficiency for complex services. Recent examples include job training for unemployed in Germany (Hipp and Warner, 2008) or primary school vouchers in NZ (Ladd and Fiske, 2003) and in Sweden (Sandström and Bergström, 2005). Public goods have multiple consumers: society, providers, users and beneficiaries. Care must be taken to align preferences on both the demand, supply and public goods sides of the market. Public preferences for quality may not align with provider preferences for profit and parental preferences for convenience in a voucher system.

In this article we assess the impact of voucher programs in these three countries on changes in demand for child care and in the market supply response. To do so we will look at the structure of the child care market and the broader nature of early care and education systems in each country. We will also look at the structure of the voucher

system - the nature of the voucher scheme, especially as regards sliding income scales, and the ways in which quality is protected. We argue one should be cautious in interpreting the outcomes driven by vouchers because of the interaction with local child care markets, institutional mechanisms to secure quality, and voucher income schemes. But first, we must seek to better understand the child care market.

### *Substitution between State, Market, and Household Care*

All children need care, all the time. Formal market or publicly provided care only covers a small portion of a child's waking day (Folbre et al 2005). Although market and government forms of child care have expanded in recent decades, parental care remains the primary source of care for children, even in advanced industrialized societies like Australia, the Netherlands, and the United States. Most children spend time in multiple arrangements as parents shift from public preschool to market based child care or informal care and parental care throughout the day and the week (Morrissey 2008). Any efforts to affect the paid formal child care market must take into account the importance of public (free) alternatives (preschool), informal paid child care, unpaid and paid family friend and neighbor care, and parental care.<sup>3</sup> It is the complex nesting of public, market (formal and informal) and nonmarket forms of care, and the substitutability between them that makes policy for child care especially complex (Bettio & Plantenga, 2004).

Formal child care centers are a growing form of care and are captured in general economic statistics. However, especially in rural and low income areas, family based care may be more common as parents have insufficient effective demand to promote a formal market supply response. Government, community leaders and non profits have played an important role in all three countries in promoting a formal child care supply response. Until the early 2000s child care in the Netherlands and Australia was dominated by community based non-profits. As part of the turn toward privatization, both Australia and the Netherlands restructured their child care policies to promote for profit market provision. In the US for profit provision has always dominated the child care market. The innovation of the voucher was to enhance effective demand for child care among lower income parents.

Incentives to substitute between formal, informal and non-market forms of care are strong on both the supply and demand sides of the child care market. On the supply side the entry costs for licensed family care providers and informal providers are low. This helps keep prices down for formal center care and can put a ceiling on quality as providers have difficulty signaling higher quality and deriving a price premium in the market (although voucher schemes can be structured to provide extra incentives for quality). Even as the formal child care market has grown, the informal and non-market elements have remained strong. Parental care remains the largest portion of care a child receives and arguably the most important. Informal care will also remain strong in response to parental preference for relatives and neighbors and the need to meet care needs outside of standard 9-5 work schedules. This substitutability among forms of care raises special concerns when considering the supply and demand response in a child care market.

---

<sup>3</sup> In the Netherlands and the USA (but not in Australia) the voucher can be used to pay grandparents. However currently, due to budget concerns in the Netherlands, there is discussion to limit or drop voucher payments to grandparents.

### *Social Organization: Community Responses*

The formal child care market has emerged in large measure due to leadership at the community level – primarily through local government and non-profits – to address a societal need for care. Recently across the USA there has been a groundswell of interest among private employers who see the lack of formal child care as an infrastructure problem that contributes to labor shortage and hampers economic development (Warner, 2006; Friedman, 2001; Shellenback, 2004). This has led to a host of initiatives at the state and local level to link child care to economic development policy and community planning (Warner, 2007; Israel and Warner, 2008). Australia and the Netherlands have a longer tradition of community supported child care. In the State of Victoria in Australia child care has been a responsibility of local government (Birch and Rogers 2004) while elsewhere non-profit providers were more common (OECD 2002, p. 89), and in the Netherlands it was part of the thriving social economy of non-profit based service delivery (Gradus and Koning, 2007).

With the shift in all three countries toward more market based provision, the assumption behind the voucher schemes was that demand would generate a supply response. This is a problematic assumption. Services, especially local services, often lag behind demand (Kay et al, 2007). In child care, substitutability across the market, and the atomized and short term nature of demand, make it difficult for formal market suppliers to “see” demand. Child care markets are local and must emerge in each locality to meet demand. Traditionally supply response in each of these three countries was generated by attention to the social organization of production and the importance of local networks – among providers, employers, government and parents. The new voucher schemes do not give adequate attention to social organization of production concerns.

### **Methodology**

We choose Australia, the Netherlands and the USA for our analysis because they represent governments that have shifted toward voucher based financing schemes in the last decade. Along the continuum from market-based provision to government provision of early care and education services, all three countries sit at the market end. Australia and the US are liberal market economies, while the Netherlands is more mixed (Hall and Soskice, 2001; Esping Anderson, 1990) where there is limited state intervention and coordination of market relationships and relatively low investment in early education in general. The Netherlands has higher investment in child care services than the USA or Australia but shares a strong market focus due to its long reliance on social economy provision for public goods. In the Netherlands there is a strong cultural tradition for non-profit delivery and the non-profit sector was especially strong. In Australia, heavier reliance was placed on local government to coordinate a supply response. The USA had the lowest level of government involvement. The non-profit sector, primarily through churches, took the lead in helping to organize a supply response to meet demand. With the shift toward vouchers, each of these three countries was banking on a strong market response, and less need to give attention to local social organization and leadership.

Cross national comparisons are fraught with difficulties, but by choosing countries that are at the same end of the varieties of capitalism spectrum, our results will

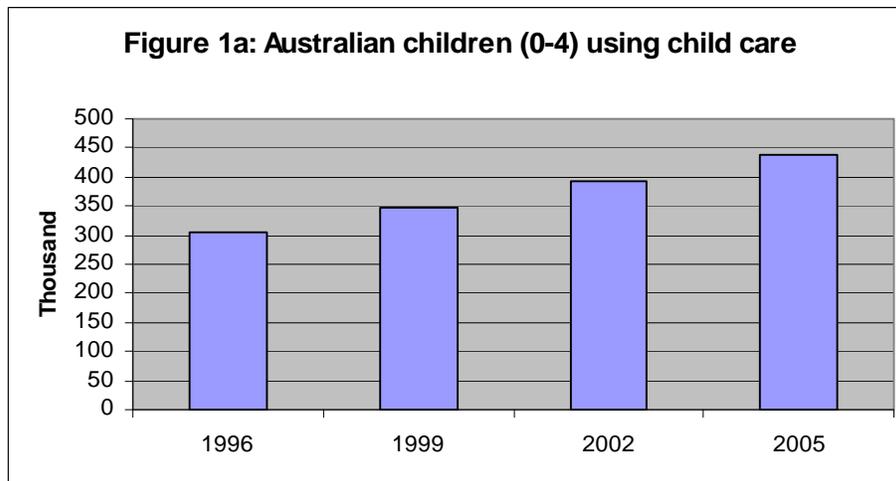
be more comparable. We use published data on child care usage, structure of the child care sector and structure of the voucher schemes in each country for our analysis. Child care data systems are not well developed, so statistical comparative analysis is not possible. However we are able to provide general data on demand and supply, and structure of the child care market and the voucher schemes to enable comparison of the broad dimensions of the issue.

## Analysis

### 1. Increasing Effective Demand

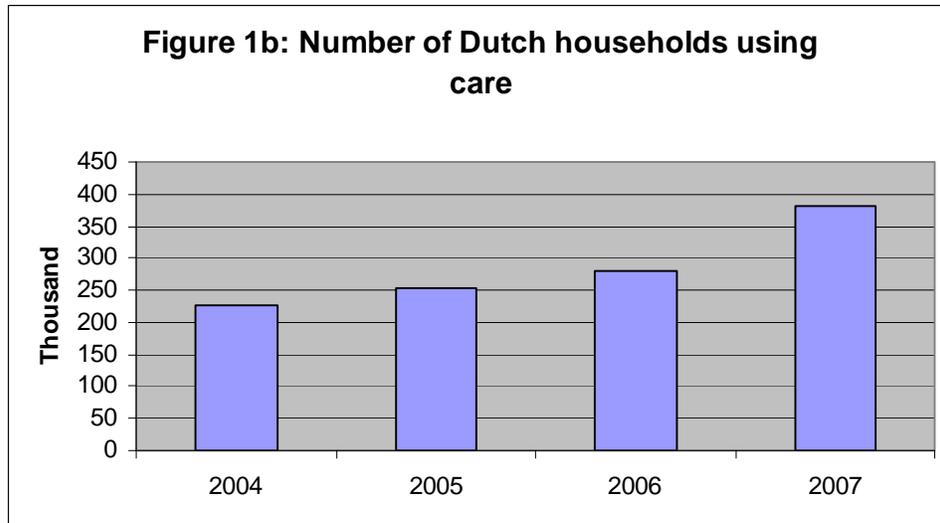
Voucher systems have the potential to increase effective demand in formal child care. There is some evidence that this is true in all three countries. For Australia data on child care use is published by the Australian Bureau of Statistics in 2005 (ABS, 2005). Since the introduction of the voucher system in 1997, there has been a large increase in children aged 0-4 years who use formal child care (see figure 1a).<sup>4</sup> Every three years there was an increase of 15%, so that in 2005 140,000 Australian children aged 0-4 years had formal care arrangements (see figure 1).

Figure 1 Increase in Effective Demand for Child Care

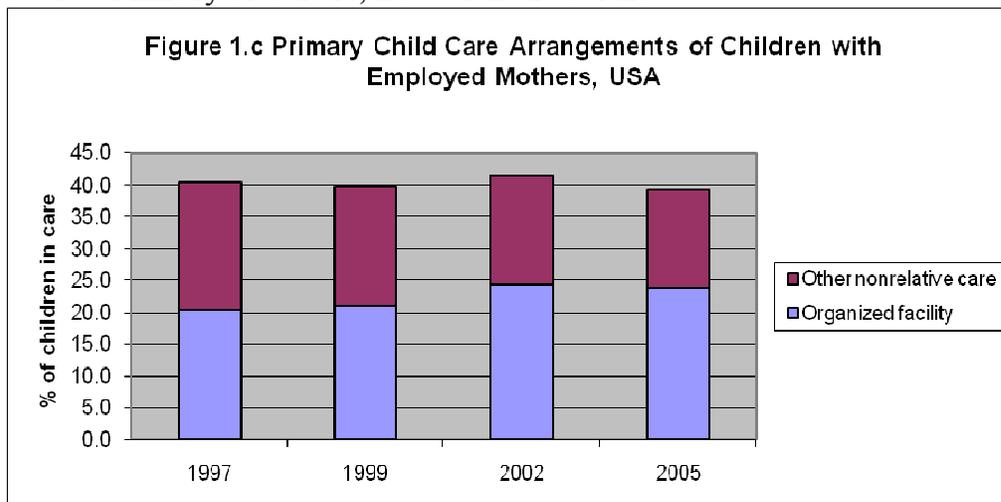


Source: Australian Bureau for Statistics: child care survey march 2006.

<sup>4</sup> See ABS (2005, p. 27). For informal care only the minimum rate of Child Care Benefit is available.



Source: Ministry of Culture, Education and Science



Source: US Census Bureau based on SIPP data.

For the Netherlands there also has been growth in Dutch households making use of formal child care from 227,000 in 2004 to 283,000 in 2007. For Family Day Care, which also can make use of the voucher, the increase was even larger. The number of children using FDC increased from 30,000 to 98,000 in 2007 (see Ministry of OCW 2008). The Budget Plan of 2008 estimated an increase from 259,000 in 2006 to 314,000 households in 2007 (Budget Plan 2008). Due to this large increase the government announced plans for stricter income targeting especially for the second child and limiting the use of vouchers for informal care by grandparents.<sup>5</sup>

The USA lacks comprehensive information for the number of children or households, who make use of child care. According to the US Census Survey of Program Participation, among children under age five with employed mothers in 2005, 23.8

<sup>5</sup> Currently, for the second child and more the minimum child care costs paid by the Dutch government is 90.7%. So, there is discrimination in the pay rate for the second child. In Australia the maximum rate for public paid child care costs goes up if there is more than one child, and the same occurs in the USA.

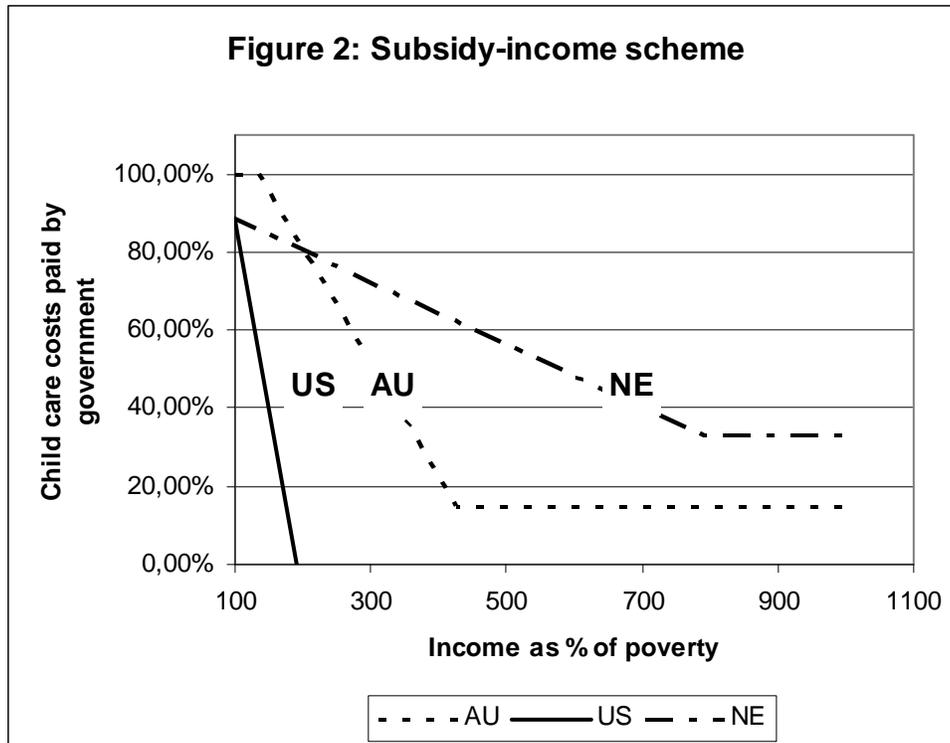
percent were cared for in child care centers or nursery schools, and 15.6 percent in other non-relative care (family day care, nanny, etc) (US Census 2008). This represents a 4 percentage point increase in center care from 1997, but no change in overall use of formal market care which hovers around 40% of all children with working mothers. These low changes in effective demand exist despite a 250 percent increase in government funds for vouchers between 1996 and 2002 (Mezey et al 2002). Among families in poverty, rates of formal child care use are lower: 14 percent in child care centers, and 7 percent in family child care homes in 2002 (Johnson 2005), although this represents an increase among low income children since introduction of the voucher (Crosby et al 2005).

Vouchers in all three countries are targeted toward low income families. Figure 2 shows the differences in targeting of child care support between these three countries. We use a family with one child as a benchmark. On the X-axis is the income level divided by the poverty level.<sup>6</sup> For the USA on average the subsidy as a percent of child care costs for a poor family is 87.8%.<sup>7</sup> The range in subsidy varies by state. At the top end, four US-states (California, Hawaii, Rhode Island and South Dakota) pay poor households 100%, and at the bottom end of the range, the state of North Dakota pays only 53.3%. On average, families above an income level two times poverty (or 60% of median income) receive no subsidy. Only in Hawaii and Alaska do families with income near 300% of poverty get some subsidy. This picture is totally different from the Netherlands and Australia. For the Netherlands a poor family gets paid 96.5% of the child care costs. After this income level the subsidy level slowly falls. However, every household receives a subsidy of 33.3% of child care costs. For Australia a poor family gets paid 100.0% of the child care costs and after 130% of poverty the subsidy level falls as income rises. In Australia the sliding scale of the subsidy (i.e. the taper rate) is flatter than in the US but steeper than in the Netherlands. In Australia every household receives a subsidy of 15% of child care costs.

---

<sup>6</sup> For the Netherlands we take the July 2007 level of social assistance (before taxes) for a household as the poverty level. From this yearly income level the subsidy is sliding down ([www.minocw.nl](http://www.minocw.nl)) (i.e. € 16,400). In Australia we take the Henderson Poverty Line (HPL) for a household with one child and divided by the level given by the Family Assistance Office of the Australian government, where the maximum rate of child care benefit is set ([www.familyassist.gov.au](http://www.familyassist.gov.au)).

<sup>7</sup> This the (unweighted) average level for 50 US States in 2000 (data taken from CDF Spring 2000 survey Schulman, 2000). No later surveys are available. Therefore, for the USA we choose the poverty line in 2000 to make figure 2.



These are critical differences. In Australia and the Netherlands there is a measure of universality in the voucher system as all households get some support. These two countries offer higher subsidies at the low end and a flatter taper rate in the sliding income scale. This enhances access and effective demand for families all along the income gradient. In contrast, in the US only poor families have access to the voucher (and only a small portion of eligible families actually receive the voucher due to underfunding of the voucher program (Mezey et al 2002)). This cliff effect shows up in formal child care centers in the USA where one typically finds a bifurcated population of low income children with vouchers and high income children whose families can afford the fees (Warner et al 2003). Middle income children lack sufficient effective demand in the USA system. This has implications for the supply response as seen below.

*Substitution between market, government, and household provisioning*

To understand the child care market it is important to develop an economic analysis of the sector in relation to the entire early care and education system, rather than focusing narrowly on those services that extract market prices. First, let us look at the role of government provided early education via the education system. Although the mandatory school age is 5 in the Netherlands, almost every child aged 4 attends school (98% see Table 1). Since the 1980s pre-school (ages 4-6) and primary school (age 6 onwards) have been integrated. Thus the Dutch pre-school is part of the education sector and fully funded by government. The participation of 4 years onwards in formal pre-school in Australia is lower at 73% (see table 1). For the USA the picture is more mixed. For poor children aged 4 there is the possibility of Head Start, and many states have instituted publicly funded preschool programs (based either in public or private programs), but these are not universal. The National Institute for Early Education

research estimates that of the 70% of children attending preschool, half are in publicly supported programs and half in private pay programs (NIEER 2006). American middle-class income groups have the lowest access to publicly funded preschool (Schulman and Barnett, 2005). This was true for middle income parents for kindergarten as well but these differences disappeared after the introduction of free universal public kindergarten for five year olds in the 1980s (Meyers and Jordan 2006). There is growing interest in publicly funded preschool across the US states, but only Georgia and Oklahoma offer truly universal preschool and their take up rates among parents are close to 70 percent (Henry and Gordon, 2005; Henry et al, 2003; Gormley et al, 2005). Many states purchase publicly funded preschool slots in community based (for profit and non-profit) child care centers, as well as providing preschool in Head Start and public school settings. Substitutability with public (free) preschool reduces demand for formal market based paid child care.

**Table 1: Care arrangements in the three countries**

	<b>Netherlands</b>	<b>USA</b>	<b>Australia</b>
<b>Public School</b>			
Mandatory school age	5	6	6
Pre-school (4 years or more) <sup>1</sup>	98%	70%	73%
<b>Child care</b>			
Formal market	24%	40%	38%
Informal (Relatives and Friends)	31%	26%	26%
Parents	45%	34%	36%

<sup>1</sup> For the Netherlands and Australia pre-school or pre-kindergarten is a public arrangement in the education sector. In the USA half is publicly funded preschool (including Head Start) and half is private pay. Sources: 2004 data for the Netherlands see Portegijs et al. (2006, table 3.5), for the USA see USA SIPP 2005 data (US Census, 2008) and NIEER Yearbook 2006, and for Australia see OECD (2002, p. 87).

Household provisioning is another source of substitution for market provision. Parental care (if one includes care outside the time parents are working) is the majority of care in all three countries. However, even when analysis is restricted to looking at care arrangements during the parents' work day, we see that a large portion of children are in parental care. Time use studies show that working parents rearrange their schedules so they can accommodate much of their care responsibilities with unpaid parental or relative care (Folbre 2006, Bianchi 2000, Australia Bureau of Statistics 2006).<sup>8</sup>

Informal care is the third source of substitution in the child care market. In Australia, 26% of the children under 6 are cared for through informal care arrangements only, with 42% having some informal care – higher than the number using any formal child care (38%). However, this has only a small effect on the active market for child care

<sup>8</sup> In the Netherlands, the Social Cultural Planning Bureau investigates a time-use study based on a large group of Dutch citizens over a five year period.

(OECD, 2002, p. 87). For the Netherlands, informal care is even more important with 27% of the children under 4 cared for through informal care arrangements only, with 45% having some informal care and only 24% using any formal child care (see Portegijs et al. 2006). For the USA, the formal market for child care is more important at 40%, although relative care at 26% and parental care at 21.6% (plus no regular arrangement at 13%) together constitute a higher proportion of care (US Census 2008). This picture clearly shows the importance of a voucher system can be overestimated if non-market family care is not taken into account. Failure to give attention to the substitutability between forms of care, can lead vouchers to crowd out informal or relative care or pay for informal care previously provided for free by family members.<sup>9</sup>

## ***2. Implications for Child Care Supply***

The voucher schemes in each of the three countries promoted important shifts in supply. In all three countries movement toward formalizing preschool in the education sector reflects an increase in government provision, but not in the paid child care market. In the paid child care market for Australia and the Netherlands we see private for profit provision rise, and direct government provision of child care shrink. In the USA there was almost no supply response in the for-profit sector, but a small increase in non profit supply and a large increase in informal care (as the voucher system relied on the informal sector for care during second and third shifts). Across all three countries parental or relative care during work hours remained more or less stable.

### *Shifts in Child Care Supply*

There is an important relation between the voucher system and the quality system set up by different countries. In the child care sector, sunk costs for Family Day Care (FDC) are not high and, therefore, the barriers to entry for this market are low. In the USA there was a large increase in establishment without employees, mostly Family Day Care facilities, after the introduction of the voucher - from 488,734 in 1997 to 618,734 in 2002.<sup>10</sup> In the USA quality rules are set by the states and vary widely. Quality rules are typically limited to health and safety regulations which do not pose serious barriers to entry for FDC. Although more and more states provide a quality differential for higher quality care, demand for second and third shift care and care in underserved markets results in less than 60 percent of voucher funds being used for center based care (Matthews 2008). In the Netherlands, there are strict central quality rules, which also should be met by FDCs to be eligible for a voucher. These strict rules appear to drive up the entry costs and, therefore, in the Netherlands only a limited number of children use Family Day Care services. In Australia there is an interesting quality assurance system with self-study and accreditation decision through peer reviews (OECD 2002, p. 109). Also, here federal funding for providers to be eligible to receive the voucher is tied to these quality schemes, but these are less strict than the Netherlands and, thus, FDC seems to play a more important role.

---

<sup>9</sup> In both the US and the Netherlands the voucher can be used to pay informal providers even if they are relatives. In Australia payments are limited to approved or registered child care (Gray et al. 2006: p 17), informal arrangements are not reimbursed.

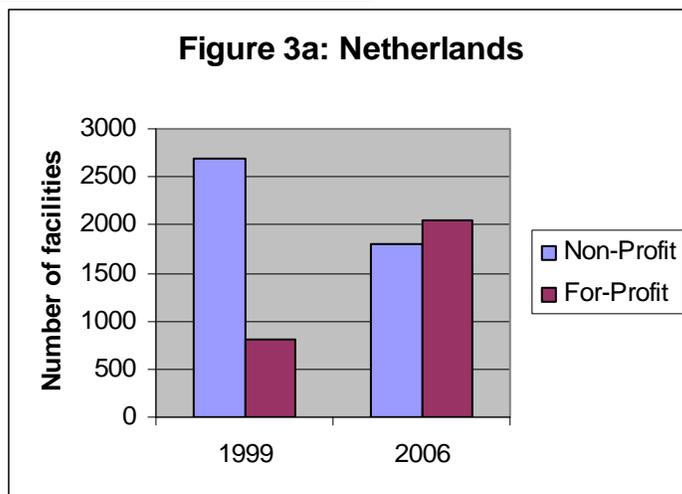
<sup>10</sup> See the number of non-employees establishments (source: Economic Census 2002 ([www.census.gov/econ/census02/data/industry/E624410.HTM](http://www.census.gov/econ/census02/data/industry/E624410.HTM))).

In the Netherlands direct government provision (below age 4) is very limited. There are some municipal run child care centers. As with other government services, non-profit organizations play an important role in providing child care facilities (Gradus and Koning, 2007). However, the result of the voucher program was to promote a dramatic increase in the incidence of for-profits in the provision of Dutch child care facilities (see Figure 3). In Australia, direct government provision is limited and mainly is concentrated in the State of Victoria (OECD 2002, p. 89). In the USA for profit, non-profit and family day care all are important, but direct government provision is limited.

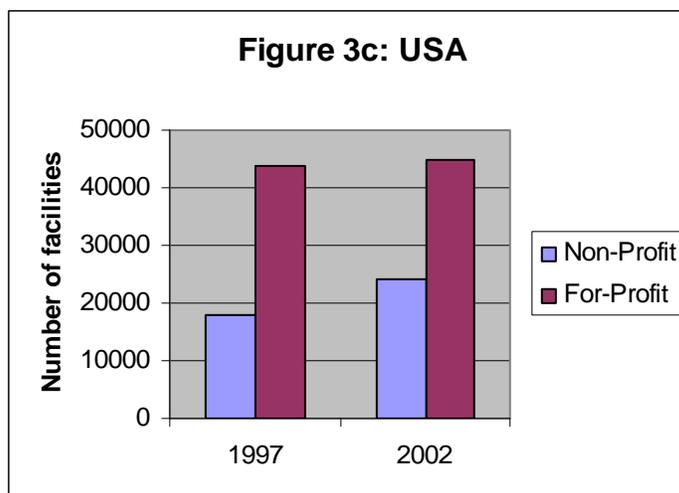
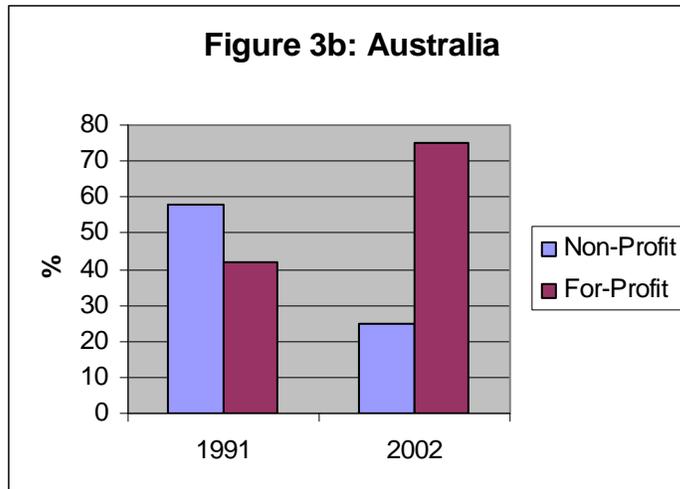
*Shift from non-profit to for-profit*

In all three countries non-profit child care providers played an important role. In the 1990s when Dutch central government involvement was less, local government and non-profit child care providers cooperated to build child care facilities. Noailly et al. (2007) argued that local government may have favored non-profits as recipients, because it was felt that they could better serve the public interest. However, in the new 2005 Child Care Act such a preference mechanism no longer exists. Noailly et al. (2007) find evidence of a greater presence of for-profit providers in many markets and a decline in the number of non-profit providers. This is illustrated in figure 3a, where the number of Dutch non-profit and for-profit child care facilities is compared between 1999-2001 and 2006.<sup>11</sup> It shows that in the period 1999-2001 approximately 80% of all establishments were run on a non-profit basis, while this number had fallen to just short of 50% in 2006. See Figure 3.

**Figure 3: Shifts between For Profit and Non Profit Care: Netherlands/Australia/USA**



<sup>11</sup> Noailly et al. (2007) use the average over 1999-2001 rather than just the year 1999 to correct for any errors in the data. They did not use 2005 as a benchmark, because it was considered a transitional year.



Sources: Australia: MAV (2005), The Netherlands: Noailly et al. (2007), US: US Economic Census (1997, 2002).

For Australia a similar picture occurs (see figure 3b). MAV (2005) shows a dramatic shift from the provision of non-profit child care to commercially provided services between 1991 and 2002.<sup>12</sup> In 1991 58% of all Australian establishments were run on a non-profit basis, while this number had fallen to 25% by 2002. Interestingly, the picture for the USA is quite different (see figure 3c). Between 1997 and 2002 there was a large increase in the number of non-profits and only a small increase in the number of for-profit providers.<sup>13</sup> Unlike Australia and the Netherlands, the USA does not have a history of significant, direct government support to non-profit child care, so there was nothing to shift. The voucher could be accessed by any form of care and it may be that non-profit providers were more willing to receive voucher children. One should keep in mind that the level of the voucher in the USA is lower and the sliding income very steep

<sup>12</sup> They argue that more recent statistics, which were not available, may well show further increases in this shift (MAV (2005, p. 8)).

<sup>13</sup> See the number of taxable and tax exempt child care establishments (source: Economic Census 2002 ([www.census.gov/econ/census02/data/industry/E624410.HTM](http://www.census.gov/econ/census02/data/industry/E624410.HTM))).

so the increase in effective demand is limited to only a fraction of children from the poorest families. This results in a weaker market signal to for profit providers in the USA. In addition, the quality assurance systems in the USA are quite different from those in the Netherlands and Australia, and this ensures low barriers to entry for family care and informal care (both of which rose under the voucher scheme).

#### *Lose supply in harder to serve markets*

Based on the experiences in these three countries there is some evidence that a voucher system causes a loss of supply in harder to serve markets. Due to the voucher system suppliers are especially eager to meet the demand of parents in urban and high income areas. For the Netherlands, Noailly et al. (2007) show that due to the introduction of the Child Care Act in 2005 compared to the period 1999-2001, the provision of child care has shifted towards areas with higher purchasing power and away from less urbanized areas.<sup>14</sup> Interestingly, the Netherlands has raised the level of subsidy for poor families as well compared with 2001 (OECD 2002, p. 101). Also in Australia there is some evidence that in less urban areas the demand fell after introducing the voucher system (OECD 2002, p. 89). In the State of Queensland, 57 centers closed in the late 1990s, while 96 out of 350 centers closed in the State of Western Australia also in the late 1990s. For the USA the evidence is rather mixed. Over the period between 1990 and 2000, Covington (2007) shows that the mismatch between supply and demand for formal center based child care improved slightly within high minority low income zip codes in metropolitan areas, but worsened for middle income white zip codes. In rural areas, vouchers are more commonly used for FDC and informal care as the increase in demand is too small to stimulate a center supply response (Swenson 2007). The smaller formal center supply response in the USA is likely because child care support has been targeted towards low income families only, while the income support in the Netherlands and Australia is more universal.

### **3. Social Organization: Community Response and Quality Concerns**

Each of our three cases had a community provisioning structure prior to implementation of the parent voucher system. Local government, non-profit social economy actors and employers all played important roles in stimulating a supply response in each of the three countries, prior to introduction of the voucher system. One concern with a voucher system focused on enhancing parental demand is that it will crowd out community and employer involvement.

For example, the number of child care spaces purchased by local communities dropped from 38% in 1996 to 12% in 2004. In the Netherlands there was a strong role for firms in stimulating child care production. In 1996, 46% of child places were bought by firms and that rose to 64% by 2004. As of January 2007, the financial contribution by employers has become mandatory through a payroll tax. As a consequence, there is no longer involvement of employers in the social organization for promoting child care supply. The involvement of local communities in social organization has declined as

---

<sup>14</sup> Compared with 1999-2001 in the Netherlands, 35% of all markets with an average income of € 22,300 and average urbanization of 0.41 (0: less urbanized, 1: large city) showed an increase of demand, and 40% of all markets with an average income of € 21,500 and average urbanization of 0.14 showed a decrease of demand (Noailly et al. 2007, p. 11).

well. This can be one of the explanations for the sharp drop in supply in rural and low income areas.

Similar problems with unevenness in supply have occurred in Australia and there is increasing concern about community involvement in providing child care (MAV 2005, p. 7). In Australia, the original reform privileged for profit providers and denied subsidy for new center construction to local government providers. As in the Netherlands, this policy change was an explicit effort on the part of government to promote for profit child care supply. However, due to supply problems in rural areas, the Australian government has introduced a financial incentive scheme to encourage the development of non-profit child care in rural areas.

In the USA recognition of supply problems are now noted by the majority of economic developers (Nacker 2005, Cornell 2006). Concern over the inadequate infrastructure of child care has led over 70 coalitions of business leaders from states and metropolitan areas around the country to analyze the economics of their communities' child care sectors and promote economic development attention to strengthening the sector (Warner 2006). In some cases, private employers have instituted vouchers or on site child care for their employees directly (Shellenback 2004, Friedman 2001). In other cases, they advocate for an increase in the public voucher program, and other forms of coordinated community supply response (Stoney et al. 2001, Warner et al 2003).

Economic theory assumes that demand will generate its own supply. However under these voucher systems, the disaggregated and individualized nature of demand makes it hard for suppliers to recognize the need for a supply response – especially in low income and rural areas. Child care is a highly localized market, and a sector with few economies of scale. This makes it difficult to generate a coordinated supply response. Similar problems have been found in other voucher programs such as job training (Hipp and Warner 2008). These results suggest that vouchers on their own are not sufficient to address community supply problems.

### *Ensuring Quality*

Child care has both private and public goods attributes. The private good market aspect can be well served under a voucher system, and public concerns with access may be enhanced. Child care administrators in the USA are generally pleased with the greater ease of administration and flexibility of a voucher program as compared to direct government contracting for spaces (Stoney, 2009).

Voucher systems often suffer from problems of preference alignment among the many actors in the market: providers, parents, government and society (Hipp and Warner 2008, Lowery 1998). Parents may prefer convenience or lower cost, providers may prefer higher returns, government may seek to keep the budget costs down, while society has a long term interest in child development which depends on quality. In a voucher system, society has the weakest voice and quality can suffer.

In the USA preference alignment problems are being addressed at the state level through quality incentives and controls and a broader array of governmental support to providers. Although at the state level, higher subsidy levels are associated with more children in quality care, state regulation has mixed effects on quality (Rigby et al 2007). In California direct contracting for child care persists alongside the parental voucher program and quality in the direct contracted programs is higher (Whitebrook et al 2007).

In North Carolina the voucher system is accompanied by a host of infrastructure supports – a tiered licensing and reimbursement system tied to quality, wage supplements for providers who attain higher education, and an information system to signal parents about quality. As a result 92 percent of programs for 4 and 5 year olds are now high quality (4 and 5 stars), and 73 percent of programs for infants and toddlers are high quality. The higher quality for older children reflects the greater public investment for this age group through Head Start and public preschool (which are 100% government financed) (Carpenter, Martin and Russell 2008). Across the US, states are investigating Quality Rating and Information Systems as a means to overcome information barriers for parents and to build financial and market signaling incentives for providers to raise quality (Mitchell and Stoney 2008).

In the Netherlands there were strong quality rules. In the 2005 law strong quality rules were dropped. However, due to an arrangement between the supplier association of child care and the association for parents with child care, strict rules for formal care such as the size of the group, teacher-child ratio and provider education have been introduced and the government announced that these rules should be met by formal day care and in principle by family day care as well. Moreover, there is a supervision system by the local health and safety inspection ('Gemeentelijke Gezondheidsdienst'). However, there was no supervision system for family day care and, therefore, according to the CPB there was a large substitution between informal care and family day care and this gave rise to family day facilities without any standards. Therefore, in 2010 a supervision system for family day care rules will be implemented and also in 2009 hourly payment for family day care was lowered. So, as shown by the Dutch case, parties can be responsible for good quality, but in a voucher system it is important that the government implement such rules for the whole sector.

In Australia concerns over quality have emerged as a result of the voucher system. A study in the State of Victoria found lower quality among the for-profit centers than in government sponsored centers. Concerns ranged from below regulation staffing levels to inadequate food for children (Birch and Rogers 2004). Similar results were found in New South Wales with lower quality staff among for profit centers (Purcal and Fisher 2004). As the for-profit sector has grown in Australia, it has been able to gain scale. One company, ABC learning center, now controls 25% of the child care market in Australia and is even traded on the stock exchange (Sumsion 2006). It is expanding abroad with franchises in the UK, the USA, New Zealand, Hong Kong, Indonesia and the Philippines (Brennan 2006). In Australia, close relationships between company representatives and government regulators raise concerns about the independence of quality oversight or the ability to raise quality standards (Birch and Rogers 2004, Brennan 2006). Although the 2004 Census of Child Care Services shows a slight increase in quality in the child care sector overall, for-profit centers, which now represent the majority of care, have lower quality than non-profit child care centers (Sumsion, 2006). Cleveland and Krashinsky, in a report on child care funding commissioned by the OECD conclude, "for-profit firms have an incentive to provide child care that seems of high quality but is not. Because parents can be fooled into buying low quality care, low quality providers will be able to under price higher-quality producers and drive them out of business" (Cleveland and Krashinsky 2002: p 40).

## Discussion

Our analysis has shown that vouchers can be an effective tool to enhance effective demand of parents. However, quality and supply response may be uneven. The design of the voucher system and the structure of the child care market (including substitution between government care, formal and informal market care, and household care) condition results. Table 2 distinguishes program design inputs and outcomes for the three countries.

**Table 2: Overview of the Three Voucher Systems**

	<b>Netherlands</b>	<b>Australia</b>	<b>USA</b>
<b>Inputs</b>			
Price paid	Govt. sets prices	Govt. sets prices	Govt. or market sets prices
Targeting	Little	Medium	Most
Cost subsidy for poor	96.5%	100%	88% (53%-100%) <sup>1</sup>
Providers	FP, NP, FDC	FP, NP, FDC, Govt.	FP, NP, FDC, Informal providers
Pre-kindergarten coverage	Universal	High	Uneven
Employer involvement	Declining <sup>2</sup>	Declining	Growing
Community involvement	Declining	Declining	Growing
Quality regulation	Federal strict to all fields	Quality Assurance System	Determined by the states
<b>Outcomes</b>			
Total supply	Increasing	Increasing	Increasing
Rural supply	Decreasing	Decreasing	Decreasing
Market structure	FP↑, NP↓	FP↑, NP↓	FDC↑, NP↑
Quality	Stable	Stable ?	Uneven

<sup>1</sup> This the (unweighted) average level for 50 US States. Maximum is 100% and minimum is 53.3%.

<sup>2</sup> Since 2007 Dutch employers pay 33% of total child care costs as a payroll-tax. Before 2007, Dutch employers were encouraged to pay a part of the costs of child care to a maximum of 33.3%.

Each of the three countries has witnessed an increase in demand for child care. But the increase is most marked in the Netherlands and Australia where the targeting is more modest and the system has subsidies for all parents – regardless of income. In the USA the voucher system is limited to poor parents, so for the majority of parents, no voucher support is available and thus no increase in effective demand is seen.

Another important difference is the level of investment in public preschool. This is highest in the Netherlands, where participation is almost universal, and this allows child care voucher dollars to be focused on the under 4 age group. In the USA and Australia, public investment in preschool is more limited, and child care subsidy dollars also must go to 4 and 5 year olds.

On the supply side increases have been more marked in the Netherlands and Australia where government sets the prices (based in part on the cost of quality). In the USA the supply increase has been concentrated in the Family Day Care sector and among non-profits. State governments are required to conduct surveys to determine “market

rates” for child care and then set reimbursement rates no higher than the 75 percentile (Grobe et al 2008). This is an effort to prevent the voucher system from driving prices up in the market. However, by linking reimbursement rates to prices observed in the local market, rather than prices associated with quality – the voucher system has helped keep quality low. Low reimbursement rates are one reason why the for profit supply response has been limited.

Curiously the Netherlands and Australia voucher systems were part of a shift away from community involvement (non-profit or government) and toward for-profit provision. This policy privileged market provision, and community involvement has declined as a result. In the USA by contrast, community involvement is increasing due to employer concerns about labor supply and local government concerns about child care supply and quality (due to its role as an indirect purchaser through the voucher system). As a result, supply problems have become more visible at the community level and government and employers have become more involved in discussing how to promote a supply response. Uneven supply response in all three countries points to the importance of a community role in child care provision.

### **Conclusion**

Vouchers for child care can increase effective demand of parents and promote a supply response if the density of demand is sufficient and the level of the voucher is high enough to ensure a market return. However, parental choice in a market is not sufficient to ensure an adequate supply response in less profitable markets, or to ensure quality. Access and quality are part of the public good of child care and some level of government regulation and community organization is needed to ensure these features result.

The promise, both theoretical and practical, is that vouchers will enhance consumer choice and better target demand and supply in local markets. However vouchers individualize demand and create coordination problems. Theoretically the consumer sovereignty foundation for child care vouchers is undermined due to information asymmetries, preference alignment problems and the separation of interests among the actors in the child care market: parents, providers, government and society. These problems are not merely theoretical, they show up empirically in each of the three cases described. Narrow economic notions building from public choice theory, must be balanced with concerns regarding social organization and public management. We have shown the importance of design of the voucher program and how it fits in the broader organizational structure of infrastructure supports to the child care sector in determining voucher results. These results are consistent with studies of vouchers in other sectors and with studies of other market based approaches to public goods delivery. The invisible hand of the disaggregated market does not coordinate effectively to deliver public goods such as access or quality.

A further problem in the child care sector is the need to look at the full spectrum of care from government provided preschool, to market based child care, to family provided care. Each component of the child care system affects the others. For example, the Netherlands is discussing free child care but policymakers worry about high costs and crowding out household provision. Most governments only collect data on that portion of the child care market that is formal or regulated and thus miss much of the care.

Government policymakers must take a comprehensive, system wide view, and carefully consider the role of vouchers in a broader system of policy supports.

Concern about crowd out is not just at the household level. It is also at the community level. In Australia and the Netherlands, strong community support systems have been dismantled in favor of a private sector market response. In the USA, community and employer support is rising. Unevenness in supply response, even in the more generous and universal systems in Australia and the Netherlands, points to the importance of a community level response – to ensure coordination and to ensure the interests of indirect actors in the child care market (government, society, employers) are also met.

Child care is both a private and a public good. While vouchers may be adequate to address the private good aspects, in each of these cases they have proven inadequate to address the public good aspects. For mixed goods such as child care, market coordination alone is not sufficient to ensure public goals regarding quality and access. As countries explore ways to enhance parental demand and promote a private sector supply response, care must be given to coordination problems and quality concerns that markets alone will not address.

#### **References:**

- Australian Bureau of Statistics, Child Care, Jun 2005 (Reissue) Department of Family and Community Services. 2005. Effects of child care demand and policies on household labour supply in Australia. Australian Government: Policy research paper number 25. ([www.abs.gov.au](http://www.abs.gov.au))
- Australian Bureau of Statistics (2006) Time Use Survey.
- Barnett, W. S. and D. J. Ackerman. (2006). “Costs, Benefits, and the Long-Term Effects of Preschool Programs: Recommendations and Cautions for Community Developers.” *Community Development: Journal of the Community Development Society* 37(2): 86–100.
- Barnett, W. S., J. T. Hustedt, L. E. Hawkinson, and K. B. Robin. (2006). *The State of Preschool 2006*. State Preschool Yearbook. New Brunswick, NJ: National Institute for Early Education Research, Rutgers University.
- Bettio, F. and Plantenga, J. (2004) 'Comparing care regimes in Europe', *Feminist Economics*, 10(1):85 — 113.
- Bianchi, S. (2000). Maternal Employment and Time with Children: Dramatic Change or Surprising Continuity? *Demography* 37(4): 401-14.
- Birch, P. and Rogers, R., (2004). *The Plight of Child Care*. Bendigo, Australia; Children and Family Services.
- Brennan, D. (2006). The ABC of child care politics. *Australian Journal of Social Issues*, 42(2), 213-225.
- Budget Plan, (2008), Den Haag: Dutch Ministry of Finance
- Carpenter, M. Martin, M. and Russell, S. (2008). *Who's Caring for our Babies Now? Revisiting the 2005 Profile of Early Care and Education for Children Birth to Three in North Carolina*, Child Care Services Association, North Carolina. [http://www.childcareservices.org/downloads/research/IT\\_State%20report08.pdf](http://www.childcareservices.org/downloads/research/IT_State%20report08.pdf)
- Cleveland, G. and Krashinsky, M. (2002). Financing ECEC Services in OECD Countries, OECD Occasional Papers, OECD, Paris.

- Committee for Economic Development. (2002). *Preschool for All: Investing in a Productive and Just Society*. Washington, DC: Committee for Economic Development. [http://www.ced.org/docs/report/report\\_preschool.pdf](http://www.ced.org/docs/report/report_preschool.pdf) (accessed July 2007).
- Cornell (2006). *NYS Survey of Economic Development and Child Care*, Issue Brief prepared by Cornell University Department of City and Regional Planning: Ithaca, NY.
- Covington, K. (2007), Evidence of Dynamic Geographical Shifts in Metropolitan Child Care Markets over the 1990s. *International Journal of Economic Development*, 9(3): 159-204.
- Crosby, D., Gennetian, L., & Huston, A. (2005). Child care assistance policies can affect the use of center-based care for children in low-income families. *Applied Developmental Science*, 9, 86-106.
- Currie, J. (2007), How should we interpret the evidence about Head Start?, *Journal of Policy Analysis and Management*, 26: 681-684.
- Esping-Andersen, G. 1990. *The Three Worlds of Welfare Capitalism*. Princeton, NJ: Princeton University Press.
- Folbre, N.. (2006). Rethinking the Child Care Sector. *Community Development: The Journal of the Community Development Society* 37 (2): 38–52.
- Folbre, N., J. Yoon, K. Finnoff, and A. Fuligni. 2005. “By What Measure? Family Time Devoted to Children in the U.S.” *Demography* 42(2): 373–90.
- Friedman, D. E. (2001). Employer supports for families with young children. *The Future of Children*, 11, 63-78.
- Friedman, M. (1955), The role of government in education. In R. A. Solo, *Economics and the Public Interest*, New Brunswick, NJ: Rutgers University Press, 123-44.
- Glass, J. L., & Estes, S. B. (1997). The family responsive workplace. *Annual Review of Sociology*, 23, 289-313.
- Gormley, W. T., T. Gayer, D. Phillips, and B. Dawson. (2005). “The Effects of Universal Pre-K on Cognitive Development.” *Developmental Psychology* 41(6): 872–84.
- Gradus, R.H.J.M., P. Koning (2007). Kunnen non-profits voor kwaliteit zorgen?, *Christen-democratische Verkenningen*. Autumn: 87-96.
- Gray, M., L. Qu and R. Weston. (2006), *Fertility and Family Policy in Australia*, p. 17 Melbourne, Australia: Australian Institute of Family Studies. <http://www.aifs.gov.au/institute/pubs/papers/2006/gray.pdf>
- Grobe, D., Weber, R., Davis, E, Kreader, J., Pratt, C. (2008). Study of market prices: Validating child care market rate surveys. Corvallis: Oregon State University Family Policy Program. <http://www.childcareresearch.org/SendPdf?resourceId=14724>
- Helburn, S. W. and B. R. Bergmann 2002. *America's child care problem: the way out*. New York, N.Y., Palgrave for St. Martin's Press.
- Henry, G.T., G.S. Gordon (2006), Competition in the Sandbox: A test of the effects of preschool competition on Educational Outcomes, *Journal of Policy Analysis and Management* 25(1):97-128.
- Hipp, M., & Warner, M. E. (2008). Market forces for the unemployed? Training vouchers in Germany and the U.S. *Social Policy and Administration*, 42, 77-101.

- Johnson, J.O. (2005). Who's minding the kids? child care arrangements: Winter 2002, *Current Population Reports*, pp.70-101, U.S. Census Bureau. Retrieved on November 1, 2007 from <http://www.census.gov/prod/2005pubs/p70-101.pdf>
- Kay, D. L., Pratt, J.E. and Warner, M.E., 2007. "Role of Services in Regional Economy Growth." *Growth and Change* 38(3): 419–42.
- Kimmel, J. 2006. "Child Care, Female Employment and Economic Growth." *Community Development: The Journal of the Community Development Society* 37(2): 71–85.
- Lowery, D. (1998). Consumer Sovereignty and Quasi-Market Failure. *Journal of Public Administration Research and Theory: J-PART*, 8(2), pp.137.
- Matthews, H. (2008). Infants and Toddlers in the Child Care and Development Block Grant Program: 2007 Update. Washington, DC: CLASP.  
[http://www.clasp.org/publications/ccdbgparticipation\\_2007babies.pdf](http://www.clasp.org/publications/ccdbgparticipation_2007babies.pdf)
- MAV (2005), Local Government Supporting Child Care Across Victoria, discussion document. Melbourne, Australia: Municipal Association of Victoria.  
<http://www.mav.asn.au>.
- Meyers, M. K., & Jordan, L. (2006). Choice and accommodation in parental child care decisions. *Community Development: The Journal of the Community Development Society*, 37, 53-70.
- Mezey, J., R. Schumacher, M. H. Greenberg, J. Lombardi, and J. Hutchins. (2002). *Unfinished Agenda: Childcare for Low-Income Families Since 1996: Implications for Federal and State Policy*. Washington, DC: CLASP.
- Ministry of Education, Culture and Science, Kinderopvang, Brief aan de Tweede Kamer 2007-2008, 31 322, nr. 25.
- Mitchell, A., Kerr, K., Armenta, J. (2008). Comparison of Financial Incentives in States' Quality Rating and Improvement Systems, Early Childhood Policy Research, Albany, NY: Alliance for Early Education Finance.  
[http://www.earlychildhoodfinance.org/ArticlesPublications/ORISFinancialIncentives\\_UPDATED\\_Nov2008.pdf](http://www.earlychildhoodfinance.org/ArticlesPublications/ORISFinancialIncentives_UPDATED_Nov2008.pdf)
- Mitchell, A. and Stoney, L. (2008) "Financing Early Childhood Care and Education Systems: A Standards-Based Approach" in *Nurturing The National Treasure: Childhood Education and Development Before Kindergarten*. Rice University Baker Policy Institute Texas Program for Society and Health.
- Morrissey, T. (2008). Familial Factors Associated with the Use of Multiple Child-Care Arrangements. *Journal of Marriage and Family* 7(2): 549–63.
- Morrissey, T. and M. E. Warner. (2007). "Why Early Care and Education Deserves as Much Attention, or More, than Prekindergarten Alone." *Applied Developmental Science* 11(2): 57–70.
- Nacker, R. (2005) Survey of Economic Developers, Madison: Wisconsin Association of Economic Developers.
- National Institute for Early Education Research (NIEER) 2006. Yearbook. Rutgers, New Jersey. <http://Nieer.org/yearbook/pdf/yearbook.pdf>
- Noailly, J., S. Visser and P. Grout (2007) The impact of market forces on the provision of childcare: Insights from the 2005 Childcare Act in the Netherlands, CPB Memorandum No 176.
- OECD (2002) "Babies and Bosses: Reconciling Work and Family Life: Australia, Denmark and the Netherlands", Paris.

- Osborne, D. E., & Gaebler, T. (1992). *Reinventing Government: How the Entrepreneurial Spirit Is Transforming Government*. (Reading, MA: Addison-Wesley).
- Portegijs, W., M. Cloin, I. Ooms en E. Eggink (2006), Hoe het werkt met kinderen. Moeders over kinderopvang en werk. Den Haag: SCP.
- Purcal, C. and Fisher, K. (2004) *Review of the Early Childhood Teachers Shortage Interim Policy for the NSW Department of Community Services, Office of Childcare*. Sydney: Social Policy Research Centre, University of NSW. Available at <http://www.sprc.unsw.edu.au/reports/ECTFinalReport.pdf>
- Rigby, E., Ryan, R., Brooks-Gunn, J. (2007). Child care quality in different state policy contexts, *Journal of Policy Analysis and Management*, 26(4): 887-908.
- Rolnick, A. and Grunewald, R. (2003). Early Childhood Development: Economic Development with a High Public Return, *FedGazette* March 2003. Federal Reserve Bank of Minneapolis. <http://minneapolisfed.org/pubs/fedgaz/03-03/opinion.cfm>
- Sandström, F.M. and F. Bergström (2005). School vouchers in practice: competition will not hurt you, *Journal of Public Economics*, 89: 351-380.
- Savas, E. S. (1987). *Privatization : The Key to Better Government*. (Chatham, N.J.: Chatham House Publishers).
- Social Cultural Planning Bureau (2006). Emancipatiemonitor. Den Haag; SCP.
- Schulman, K. and Barnett, W. S. (2005). *The Benefits of Prekindergarten for Middle Income Children*. NIEER Policy Report. New Brunswick, NY: Rutgers University. <http://nieer.org/resources/policyreports/report3.pdf> (accessed July 2007).
- Schulman, K. (2000). *The High Cost of Child Care Puts Quality Care Out of Reach for Many Families*. Washington, DC: Children's Defense Fund.
- Seldon, A. (1986), *The Riddle of the Voucher: an Inquiry into the Obstacles to Introducing Choice and Competition in State Schools*, London: Institute of Economic Affairs.
- Shellenback, K. (2004). *Child Care and Parent Productivity: Making the Business Case*. Ithaca, NY: Department of City and Regional Planning, Cornell University. <http://government.cce.cornell.edu/doc/pdf/ChildCareParentProductivity.pdf> (accessed July 2007).
- Shonkoff, J. P. and D.a A. Phillips, eds. (2000). "Committee on Integrating the Science of Early Childhood Development, Board on Children, Youth, and Families," in *From Neurons to Neighborhoods: The Science of Early Childhood Programs*. Washington, DC: National Academy Press.
- Stoney, L. (2009). Personal Communication. Albany NY.
- Stoney, L., Mitchell, A., & Dichter, H. (2001). *Financing Child Care in the United States*. North Kansas City MO: The Ewing Marion Kauffman Foundation.
- Steuerle, C. E., V. D. Ooms, G. Peterson and R. D. Reischauer (2000), *Vouchers and the Provision of Public Services*, Washington, DC: The Brookings Institution Press.
- Sumsion, J. (2006). The corporatization of Australian childcare: Toward an ethical audit and research agenda. *Journal of Early Childhood Research*, 4(2), 99 - 120.

- Swenson, Kendall (2007). *Child Care Subsidies in Urban and Rural Counties*, Washington, DC: U.S. Department of Health and Human Services.  
<http://aspe.hhs.gov/hsp/07/cc-subsidies>.
- U.S. Census Bureau. (2008). *Primary Child Care Arrangements of Preschoolers with Employed Mothers: Selected Years, 1985 to 2005*.  
<http://www.census.gov/population/www/socdemo/childcare.html>
- U.S. Economic Census (2002).  
<http://www.census.gov/econ/census02/data/industry/E624410.HTM>
- Warner, M. E. (2006). "Putting Child Care in the Regional Economy: Empirical and Conceptual Challenges and Economic Development Prospects." *Community Development: Journal of the Community Development Society* 37: 7–22.
- Warner, M.E., Ribeiro, R. and Smith, A.E. (2003). Addressing the Affordability Gap: Framing Child Care as Economic Development, *Journal of Affordable Housing and Community Development Law*, 12(3):294-313.
- Whitebook, M., Kipnis, F., & Bellm, D. (2007). *Disparities in California's child care subsidy system: A look at teacher education, stability and diversity*. Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley.