

# THE ECONOMICS OF CHILD CARE

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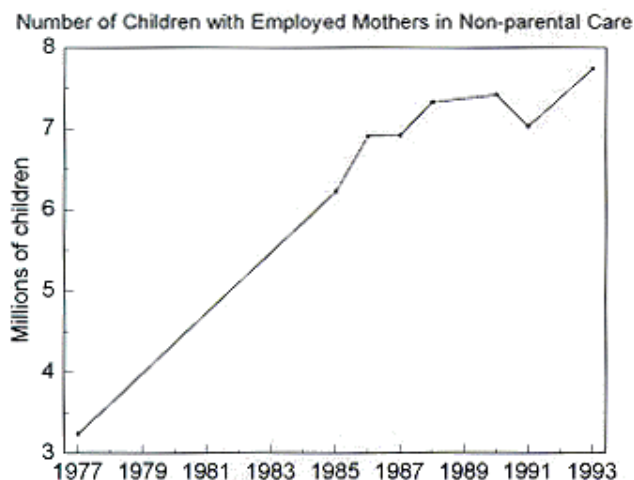
## EXECUTIVE SUMMARY

- Large increases over the last twenty years in the numbers of employed mothers with young children has more than doubled the number of young children in non-parental care; by 1995 there were almost 10 million children under 6 with employed mothers in non-parental care. This trend is likely to continue as welfare reform moves many mothers with young children off welfare and into the workplace.
- Many families with young children and employed mothers rely on informal, low direct-cost care supplied by relatives. But over half of these families purchase child care, and for those without access to subsidized care, child care costs can be a sizable financial burden. This burden is particularly heavy for poor families: Poor families who pay for child care for their young children spend an average of 18 percent of their income on child care, compared to 7 percent for non-poor families.
- There is also reason to be concerned about the quality of care: Recent surveys of child care centers and family day care homes found that the majority of child care was not of a high enough standard to have a positive impact on child development, and a disturbing fraction was of a level that could threaten the child's health and safety. Quality problems are particularly serious for

- infants and toddlers and for children from low-income families.
- Potential economic arguments for intervention in the child care market include external benefits, information problems and redistribution. This paper reviews these arguments and the related evidence.
  - Subsidizing work-related child care expenses raises the effective return to working, thereby increasing the incentive to work. Evidence suggests that child care subsidies increase both the employment of mothers and the use of paid care among working mothers. Based on the estimates from the empirical literature, it appears that a 20 percent decrease in the cost of care for working mothers with young children who are below 200 percent of poverty is associated with an increase of 122,000 to 490,000 more mothers working and 124,000 to 318,000 more young children in paid care. Regulations may increase the quality of care but may also increase provider costs and the price parents pay, thus driving some providers out of the market and inducing some parents to switch into unregulated care.
  - Remaining gaps in knowledge prevent comprehensive analysis of policy options. There are virtually no studies that examine the responses of the low-income population to child care policy; most of the evidence reviewed in this report is based on studies of a more general population. Since the responses of the low-income population are likely to differ from those of the population as a whole, our ability to estimate the responses of the low-income population to child care policy is necessarily limited. In addition, there are several areas in which additional information is needed to evaluate policy options. First, while there is a large body of evidence on the relationship between child care quality and child development, policy design would benefit from more specific information about the nature of the link between attributes of care and child outcomes; one unresolved question, for example, is how different attributes of care interact with each other in affecting child outcomes. Second, we lack information about the effect of regulations on the price of care and on parental use of regulated care. Finally, we have only limited -- and incomplete -- evidence of the effect of child care subsidies on the quality of care purchased; although the existing evidence suggests that parents do not respond to child care subsidies by purchasing higher quality care, there have been only a few studies on this topic. Finally, there is virtually no information about the quality and supply of unregulated care. These areas should receive high priority in future research.

## OVERVIEW OF CHILD CARE

Between 1977 and 1993, the number of children under 5 with employed mothers in non-parental care more than doubled<sup>1</sup> (see graph). By 1995, there were almost 10 million children under 6 with employed mothers in non-parental care.<sup>2</sup> This surge is attributable to a combination of increases in both the number of young children in dual-earner families and the number in one-parent families with an employed parent.<sup>3</sup>

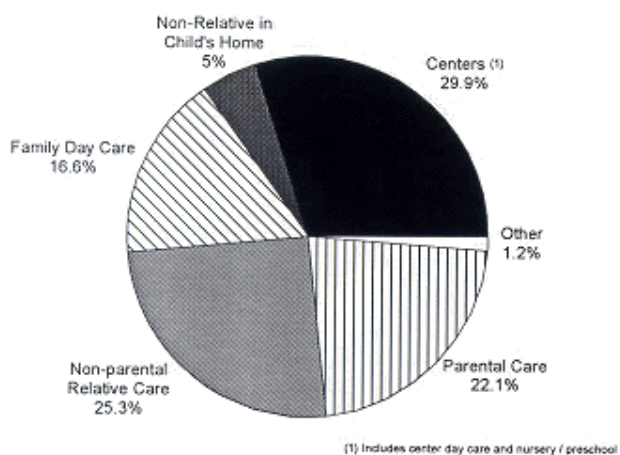


**Modes of care**

Non-parental care can take many different forms. A distinction should be drawn between unpaid care and paid care. Care provided by relatives is usually unpaid -- in 1993, only 17 percent of care provided by a relative involved payment -- while 90 percent of care provided by centers or family day care homes involved payments. [4](#) Over time employed mothers have shifted their care arrangements from parents or relatives to modes of child care more likely to involve direct payments. [5](#) In 1993, about 56 percent of families with an employed mother and a child under 5 used paid care. [6](#) Some families use multiple modes of care for a given child; for example, in 1995, 9 percent of parents used multiple child care arrangements. [7](#) Multiple arrangements are particularly common for low-income single mothers: 45 percent of low-income preschoolers in families headed by an employed single mother were in more than one care arrangements on a regular basis. [8](#)

Paid care comes in several varieties. The most common are child care centers, family day care homes (in which a non-relative cares for one or more unrelated children in the provider's home), and in-home, non-relative sitters. There has been a shift over time toward more use of center care and less use of family day care. In 1988, 26 percent of young children with an employed mother had their primary care arrangement in center care and 24 percent in a family day care home; by 1993, these numbers had changed to 30 percent and 17 percent respectively. [9](#) (see graph). Use of center-based care tends to increase with the age of the child and with the income of the family. [10](#)

Percent of Children of Employed Mothers in Different Types of Care, 1993



### The cost of care

The price of paid care represents a substantial financial burden to parents who lack subsidized care, and a proportionally much larger burden for lower-income families. In 1993, among families with employed mothers and young children who paid for care, those earning less than \$14,400 per year spent an average of 25 percent of their income on child care compared to under 6 percent for families with annual incomes over \$54,000. This financial burden varies with the mode of care; the average weekly cost of care in 1993 was \$57 for family day care, \$65 for organized child care (center or preschool/nursery), and \$83 for an in-home sitter. [11](#)

### The quality of care

In addition to concern about the financial burden of care, there is concern about the quality of care. If children are placed in child care settings that are unsafe or unsanitary, they can be in grave danger of harm. Care that endangers children's health and safety imposes costs on the children, their parents and society as large. Among these costs are the financial costs of children's illness and hospitalization, and resultant parental absences from work. [12](#) In addition to making sure that children are not harmed in their care environment, there is a concern over whether the care promotes and enhances the child's development.

'Quality' is a multi-dimensional concept. It is not easy to give a uni-dimensional 'quality rating' to a child care setting when a wide variety of factors interact to determine the quality of care received. Additionally, a dearth of information about unregulated child care providers compounds the problem of accurately assessing the 'quality' of care that children are receiving. However, two recent studies of

regulated providers -- one of child care centers and one of family day care homes -- produced some disturbing evidence of the quality of child care. The study of centers found that 86 percent of the centers surveyed provided mediocre or poor-quality care -- when judged from the perspective of child development -- and 12 percent were of such poor quality that the children's basic health and safety needs were only partly met. The family day care study found similar results: 91 percent were judged to be of inadequate or of only adequate quality. [13](#) It is not clear whether centers or family day care homes are on average of higher quality. Centers tend to have more highly trained staff, but also have larger group sizes and lower staff-child ratios than family day care. [14](#)

The quality of care varies with the age and income of the children. Evidence suggests that infants and toddlers may be disproportionately in unsafe and unsanitary care settings. The study of centers, for example, found that almost *half* of infants and toddlers were in rooms where children's basic health and safety needs were not met. [15](#) And while the distribution of children across centers of differing quality does not appear to vary with the income of the children, there is evidence that the informal and home-based care for low-income children is of lower quality than that received by higher-income children. [16](#) Given that poor children are much less likely to use center-based care, [17](#) this observation suggests that these children tend to be in lower quality care than higher income children.

## CURRENT FEDERAL CHILD CARE POLICIES

### Federal policies to reduce the cost of care

Several policies of the federal government reduce the costs of child care for working parents. These include the Child and Dependent Care Tax Credit (CDCTC), the Exclusion of Employer Contributions for Child Care Expenses, and the Child Care and Development Block Grant (CCDBG). (see box on next page).

Although we know what the state income eligibility requirements are for CCDBG funds, we do not have any available data on the percentage of their eligible population that states are currently funding. Some data from the four programs that preceded the current CCDBG suggested that approximately 1 million children under the age of 13 were receiving federally subsidized care, out of approximately 10 million children under 13 with working mothers and family income that was less than 200 percent of poverty. [18](#) Although some of these families can benefit from the CDCTC, many do not; they either cannot claim the credit at all because they do not have any income tax liability, or they do not receive the full benefit of the credit because of low income tax liability. *Consequently, the vast majority of children with working mothers below 200 percent of poverty receive no -- or almost no -- federal subsidies for their child care.*

### Government policy that pertains to the quality of care

The 1996 Personal Responsibility and Work Opportunity Reconciliation Act requires states to spend no less than 4 percent of their CCDBG funds on 'quality-enhancing' activities. [19](#) The federal government also requires states to certify that they have requirements to protect the 'health and safety' of children served by CCDBG providers. States, however, are free to design the actual requirements that meet these aims. [20](#)

Federal Policies to Reduce the cost of child care

Program	Description	Average award	Eligibility	Total Federal Expenditures

CDCTC <a href="#">21</a>	Non-refundable tax credit for taxpayers who incur work-related child care expenses. Rate phased down for higher incomes	\$443 in fiscal year 1998.	Those with federal income tax liability . According to Treasury estimates, this generally includes taxpayers with income above the poverty level. Due to low tax liabilities, a taxpayer may not receive the full amount of the credit until his or her income exceeds -- depending on family composition -- 140 to 160 percent of poverty.	Estimated to be \$2.8 billion in Fiscal Year 1998.
Employer Exclusion	Employers are allowed to exclude the provision of child and dependent care or employee contributions to such care accounts from employees' taxable income and social security earnings.	For families with high marginal tax rates, worth much more than CDCTC.	Families with participating employees.	Estimated to be \$890 million in fiscal year 1998.
CCDBG	Block grant to states that can be used to subsidize child care for parents who are working or participating in work-related activities or education programs. <a href="#">22</a>	Average federal subsidy is \$66 <i>per week.</i> <a href="#">23</a>	Federal law ensures that states can only use block grant funds to serve families with incomes below 85% of state median income and must use at least 70% of their mandatory and matching funds for families on TANF, transitioning from TANF, or at risk of becoming eligible for TANF. Within these requirements, states have set a wide range of eligibility thresholds. <a href="#">24</a> . Data on who --among the eligible -- has been funded are not yet available for the current program, but 1995 data on the old CCDBG program indicate that over 85% of families funded were under 150% of poverty, and all but 1% were under 200 percent of poverty. <a href="#">25</a>	\$2.9 billion in FY 1997.
TANF	PRWORA allows states to transfer up to 30% of their TANF block grant into the child care or social services block grants, but no more than 10% of the TANF block grant can be used for the social services block grant.			The total annual TANF block grant to the states is capped at \$16.4 billion

Regulations and licensing provisions are determined at the state or local level and vary widely. [26](#) Licensing standards apply only to licensed or regulated child care providers, and states are free to determine the providers to which licensing standards will apply. [27](#) In the case of family day care homes, most states exempt small providers from licensing requirements. [28](#) Consequently, an estimated 82 to 90 percent of family day care homes were unregulated in 1990. [29](#) These unregulated homes are all eligible to receive CCDBG funding, as long as they fulfil the state's 'health and safety' requirements. [30](#)

## ECONOMIC RATIONALES FOR INTERVENTION

Child care is a rapidly growing industry, involving substantial costs to large numbers of parents. The government currently intervenes in this market, as discussed in the previous section. Here, we review the economic rationale for government intervention in the child care market, as well as the choice of policy instrument.

### OVERVIEW: WHY AND HOW DO GOVERNMENTS INTERVENE IN MARKETS?

From an economic perspective, two issues must be addressed in thinking about child care policy. First, is there an economic rationale for the government to intervene? Second, if so, what is the appropriate *type*

of intervention?

Reasons for government intervention can be broadly grouped into two categories: market imperfections and redistribution. Market imperfections fall into two types: external effects and informational imperfections. If private actions impose benefits or costs on society which the market participants do not reap or bear, then the decisions of private individuals may not be socially optimal. If consumers do not have the information necessary to make appropriate choices, the government may be able to provide information that improves their ability to make choices. Government intervention on redistributive grounds might be motivated by a desire to decrease income inequality, or to ensure that access to a particular service or commodity is not conditioned on income.

The economic justification for government intervention requires more than the identification of a market failure or redistributive goal. In the case of an intervention to correct a market failure, the government must also be able to identify a policy that allows it to intervene in such a way that the costs of intervention are less than the benefits. Even when the goal is redistributive, it is important for the government to seek policies that achieve the desired redistribution at the lowest cost.

The government has a variety of tools at its disposal including regulation, mandates, information provision, subsidies, and direct provision of the good in question. The appropriate policy tool depends on the rationale for intervention.

- If the problem is one of an external benefit, then the government might want to induce greater consumption through subsidies or through direct provision. Which is more appropriate depends on the responsiveness of consumers to the relative price of the good, as well as to the government's efficiency - relative to the private sector- in producing the good. Regulations or mandates are also a possible tool for addressing external benefits although the benefits from regulation must be weighed against the costs of regulation. These costs include the potential for regulations to drive up the cost of the good and to drive providers of the good out of the market; in addition, the government incurs administrative expenses in regulating and enforcing the regulation. Providing information is unlikely to be an effective instrument for addressing under-consumption caused by external benefits.
- If the issue is one of information imperfections, then the provision of information, or of regulations that reduce uncertainty about quality are possibilities. Subsidies are unlikely to prove useful in addressing an information problem.
- If the goal is redistributive, then subsidies or direct provision could be appropriate. Further consideration should be given to whether the government should provide a general income transfer or a subsidy that is specifically tied to the good or service in question.

## **GOVERNMENT INTERVENTION IN THE CHILD CARE MARKET**

### **External benefits from child care**

In recent years there has been a growing awareness of the substantial and long-lasting effects on children of their experiences in their first few years. Children's health and emotional well-being in these early years are critical to their future behavior and development. Consequently, government investments in young children can yield substantial returns over the child's life. <sup>31</sup> Such government intervention may be desirable if parents do not invest enough in children since the parents are not the only beneficiaries. Such an external benefits argument has often been made to justify government intervention in education. <sup>32</sup> If child care in the early years of life also produces benefits to the child and to society in the form of the child's current and subsequent development and behavior, then the government might want to intervene to ensure that children receive such care. Given the importance of the early years for future development, if a link can be established between child care and developmental outcomes, arguments for government intervention in elementary and secondary education apply with even more force to the child care market.

The question of whether child care can enhance child development is separate from the issue that unsafe and unsanitary child care can endanger children. There is no question that unsafe and unsanitary child care can harm children, and another section of this paper examines potential government policy to protect children from harmful care environments. Here we examine whether child care can promote child development. The link that is usually made -- the evidence is reviewed below -- is not between child care per se and child development, but between *high quality* child care and child development. Therefore, government intervention for reasons of external benefits should be designed to promote high quality child care, rather than child care more generally.

### **Evidence of benefits of child care**

Children's development is determined by many factors; characteristics of the child, the family environment, care outside the home, and the larger social environment all influence development. But as part of this intricate, interactive process, child care can have important effects on child development. Much of what the field has learned about the effects of child care quality on child development come from studies of programs such as Head Start and other educationally-oriented programs designed to promote child development and improve children's readiness for school. Such programs, which are typically offered as part-day programs for three to five year olds [33](#) are different from the full-day care needed by many employed mothers. The provision and promotion of educationally-based programs such as Head Start is an important topic beyond the scope of this report. Here we examine what is known about the effects of attributes of child care more broadly on child development.

Comprehensive reviews of the large literature of the effects of child care report that the quality of child care -- in both centers and family day care -- is closely linked with children's social, cognitive and language development, both at the time of receiving care and in later development. [34](#) Children from low-income families may benefit the most from high quality programs. [35](#)

However the reviews note several problems with using this literature as a policy guide. Most of the studies use global or summary measures of quality (i.e. high, medium or low), which do not clearly identify the aspects of child care quality that affect development. Additionally, there has been little analysis of the *magnitude* of improvement in children's development associated with measured improvements in quality; hence these studies do not make it possible to conduct a cost-benefit analysis of policies designed to improve child care quality. [36](#)

Some research has addressed the relationship between child care quality as measured by specific child care attributes and child outcomes. For these purposes, measures of child care quality can be broadly grouped into two categories. One approach measures the quality of the child's experience in care; '*child experience measures*' examine the way in which the care giver interacts with the child (including verbal and empathetic behavior) and the children's exposure to materials and activities that enhance learning; the continuity of child care with the same provider is another important aspect of the child's experience. A second approach focuses on physical and structural features of care ('*structural measures*') such as staff/child ratios, group size, and provider education. Child experience measures are more broadly accepted by developmental psychologists. For practical reasons, state regulations are based on structural measures. [37](#) Although child experience measures have a closer link to developmental outcomes than do structural measure, [38](#) structural attributes appear to support and facilitate the type of optimal interactions that child experience attributes measure. [39](#) For example, low staff-child ratios may make it easier for providers to develop warm and caring relationships with the children; such relationships in turn affect child development. [40](#)

Despite encouraging findings, surveys of this literature note several shortcomings. Many studies are based on small, unrepresentative samples. Additionally, they often do not properly control for developmental inputs received by the children at home, as well as other socio-economic factors that may affect child development and may be correlated with the quality of care. [41](#) Thus, while there is broad evidence that high quality child care is beneficial to the child and society, better understanding of the relevance of specific inputs (or combinations of inputs), as well as the magnitude of their impact, could greatly improve the design of appropriate policy.

The above studies all compare child outcomes across paid child care settings of different qualities. Hence they are only able to address questions about effects of low versus high quality paid care. Two separate issues are the relative effects of different modes of non-maternal care, and the effects of maternal versus non-maternal care. Studies have established that non-maternal care is not a source of harm to children



and that aspects of it can be beneficial. Stronger evidence that child care had positive developmental outcomes relative to maternal care would provide an argument for government intervention not just to provide child care for children of working parents, but possibly for all children. Consistent with this principle, intensive early education programs for low-income children like Head Start do not make eligibility contingent on parental employment. [42](#)

If the government wanted to increase use of care that has external benefits, its options would include regulating the quality of care, subsidizing care, subsidizing only high-quality care, directly providing care with developmental attributes, and subsidizing the wages or training of child care providers. It is important that policy is designed to increase usage of care with external benefits. Policy designed simply to promote use of child care irrespective of quality would not be appropriate if only high-quality care has been shown to have external benefits. More research is needed to determine which attributes -- or combination of attributes -- have impacts on child outcomes, and the magnitude of these effects.

### **Information imperfections**

Several types of information imperfections may exist in the child care market. A free market may not provide information to parents on the advantages and attributes of quality child care. Providers may be unable to obtain current information needed to ensure quality care. It may also be difficult for parents to find out who provides day care in their area, and what the attributes of the various choices are.

Indeed, there is evidence that parents lack information. For example, parents report that they value good quality child care, but it turns out that they substantially overestimate the quality of care their child is receiving; [43](#) in other words, parents have trouble evaluating the quality of care their child is receiving. Some indirect evidence of information imperfections is provided by Hotz and Kilburn (1994) who find that, holding the price of care constant, more stringent quality regulations are associated with an increase in the demand for non-parental care; they interpret this finding as evidence that the increased standards provide a higher degree of quality assurance and hence parents demand more non-parental care. [44](#)

If information is the issue, then government provision of information could be appropriate. One role for government is to provide information -- or encourage private agencies to provide information -- that educates parents and providers about the aspects of care that are important for child health and safety, and for development. Another possible role is to provide information to parents about the attributes of various care options. Such a role makes sense if government or private agencies have access to better information than the individual, or at least the ability to acquire this information at a lower cost. Regulations that increase the minimum quality and therefore reduce the uncertainty faced by parents are another possibility. Regulations may also set minimum standards for health and safety and thereby reduce parents' information and search costs.

### **Distributional Issues**

Two sorts of distributional arguments could be made for policies designed to increase the *affordability* of child care. First, such policy could serve as an employment-related income transfer to working parents. Policies designed to increase the affordability of child care may complement other redistribution programs. For example, the 1996 welfare reform legislation is intended to help move welfare recipients into the workforce. Since child care costs are a sizable burden to low income families, reductions in the cost of child care would ease the transition. Second, in so far as there can be benefits to children from child care -- or high quality child care -- child care policy could also ensure that children whose parents have low resources have 'equal opportunities.' Again, such an argument has been made to explain government involvement in primary and secondary education. [45](#)

Whether the goal is to provide an employment-related income transfer or equal opportunities to children, two questions must be addressed in designing a redistributive policy. First, should this transfer be tied to the good in question (i.e. child care) or provided as a cash transfer? And second, if the transfer is tied to a particular good, should the government directly provide the good, or reduce the cost to parents of purchasing the privately-provided good?

A cash transfer provides a working family with additional cash that they can choose to spend as they wish. Child care subsidies or government-provided child care, on the other hand, provide money that can be used only for child care. Economic theory suggests that recipient well-being can be increased more efficiently through a cash transfer. It is well-known that the utility gain from transferring a bundle of



goods (such as child care) cannot be more and is frequently less than from the equivalent amount of cash. [46](#) This inefficiency results from the distortionary nature of an in-kind transfer. By distorting the relative prices of various goods, the transfer influences recipients' decisions concerning how much care to purchase and how much to work. If we believe there are benefits to child care that are not being taken into account, there is an argument for distorting the cost faced by the parents. But as a pure transfer policy, this represents an inefficiency compared with a cash transfer.

However, there are redistributive reasons to favor an in-kind subsidy. One reason for tying the subsidy to a particular good is to ensure that the money is spent on that good. Making the subsidy only for child care ensures that the parents spend the money on their children. Particularly if we think that there are 'equal opportunity' arguments for child care, such an in-kind transfer might make sense to ensure that parents do spend the money on child care. A second reason for tying the income transfer to purchases of child care is horizontal equity: Working adults with children have greater costs than those without. Of course, they presumably also receive benefits from having children. But if the government wants to target people with a specific need that places an additional burden on them, it would make sense to alleviate some of the additional financial burden to those working adults with children. Finally, if the increased demand for paid child care increases employment opportunities in child care for workers who are trying to move off welfare, this is a redistributive benefit from child care subsidies worth considering.[47](#)

Even if an in-kind transfer is chosen, there remains the question of whether the government should subsidize the cost to parents of buying private care, or provide public care. One reason it makes sense for the government to be a direct provider of education is that parents do not appear very price responsive in their demand for their child's education. [48](#) Hence, subsidizing the cost is unlikely to produce 'equal opportunity.' However, there is evidence of a fairly responsive demand for child care. [49](#) In addition, were the government to provide care, it could only provide center-based care. As discussed previously, many families choose family day care homes, and since there is no clear quality tradeoff, it does not seem wise for the government to distort these choices by providing one kind of care.

## **THE EFFECTS OF INTERVENTION**

We have seen that the current quality of child care is often very poor and this may have adverse effects on children, that there may be information problems in the child care market, and that for those without access to significant subsidies for child care, child care costs can be a significant financial burden. All of these provide potential economic rationales for further government intervention in the child care market. In order to understand some of the effects of different policies, we need to understand how parents and providers respond to changes in the price of care. To this end, we review the effects of subsidies on maternal employment and the demand for child care, and of subsidies and regulation on the quality of care purchased.

### **THE EFFECT OF SUBSIDIES**

#### **The effect of subsidies on the cost of care**

Subsidies lower the cost of child care to parents and are therefore likely to increase the demand for care. If the amount of child care available were fixed, the increase in demand would drive up prices. The price would rise by the amount of the subsidy, so that parents would end up paying the same amount as they had been before the introduction of the subsidy, and the providers of care would receive an increase in fees equal to the amount of the subsidy. The benefit of the subsidy policy, in other words, would accrue entirely to the providers.

However, the available evidence indicates that the supply of care will rise to meet an increase in demand for care without much of a change in the current price. For example, although the number of children in paid child care has approximately doubled over the past twenty years, the real price of care has not changed. [50](#) In addition, direct estimates indicate that small changes in the price of child care induce large supply responses. [51](#) As a result, in the absence of other changes, the benefits of a subsidy accrue to the consumer.

How will consumers respond to a decrease in the cost of child care? We consider three decisions that

may be influenced by the price of child care: the mother's decision to work; the decision whether to purchase paid child care or to use unpaid care; and, if paid care is chosen, the choice of the quality of care.

### **The effect of subsidies on employment decisions**

Appendix 1 summarizes a number of studies that indicate that lower child care prices are associated with a higher probability that a mother will work. The magnitude of this effect varies across studies; a 10 percent reduction in the price of child care increases the probability that a married mother will work by 2 to 8 percent. [52](#) However, given that the mother is working, there is little evidence that the child care price affects the decision of the number of hours to work. [53](#)

There is less evidence on the employment response of poor mothers or single mothers. A GAO study [54](#) estimates the response of different income groups, and finds that a 10 percent decrease in the price of child care increases the probability that a poor mother will work by 5 percent, compared to 3.4 percent for near-poor mothers, and 1.9 percent for non-poor mothers; the study does not report whether these differences are statistically significant. Another study finds that the employment response is somewhat greater for single mothers than married mothers, but the difference is not statistically significant. [55](#) Furthermore, once she controls for whether the single mother receives AFDC, the response for single mothers falls to that of married mothers. This suggests that the greater response to the price of care by single mothers (and perhaps also by poor mothers) was due to a viable non-employment option.

### **The effect of subsidies on the demand for paid care**

Parents choose among a variety of modes of care, some of which are paid and some of which are unpaid. The bulk of research has focused on the effect of the price of care on the use of paid care among *working* mothers. Hence, in order to get a sense of the total effect of a decrease in the price of child care on the demand for paid care, one must combine estimates of the increase in labor supply with those of the increase in the demand for paid care among mothers who work. [56](#)

Studies find that in places with lower prices of care, working mothers are more likely to use paid care. Again, there is a large range of magnitudes but most of the studies suggest that a 10 percent decrease in the hourly cost of care results in a 1.5 to 2.3 percent increase in the probability that a working mother with a young child will purchase care. [57](#)

As the price of paid care falls, mothers are likely to substitute paid care for unpaid care. Such substitution is particularly likely given that parents tend to express more dissatisfaction with non-paid care. [58](#) Unfortunately, we cannot infer from the available evidence how much of the increase in the propensity of working mothers to use paid care is due to a higher propensity to use paid care among the newly entering mothers, and how much is due to a change in the propensity of those mothers already working to use paid care, as a result of the price change.

A useful supplement to these studies of utilization is the effect of child care subsidies on the *hours* of paid care purchased as a result of a change in the price of care. Some parents use multiple modes of care. An increase in utilization of paid care may therefore reflect the decision of some parents to purchase only a few hours of paid care, rather than no paid care. On the other hand, parents that were already using some paid care may increase the number of hours of paid care in response to the price decrease, adjusting the relative amounts of paid and unpaid care purchased; such behavior would not show up in utilization measures.

Three studies look at the effect of the price of care on the hours of paid care used by working mothers. This measurement considers both the effect caused by switching from zero hours to positive hours, and also changes among those already using positive hours. [59](#) Again, there is a range of estimates; a dollar decrease in the hourly cost of paid care is associated with a 3 to 22 hour per month increase in the use of paid care. Ribar (1992) finds that the increase in hours of paid care and the decrease in hours of unpaid care among working mothers are roughly similar in magnitude. This suggests that the result of price decreases is a relative increase among working mothers in the usage of paid versus unpaid care, rather than an increase in the total amount of non-maternal care used. Such a conclusion is consistent with the finding that hours of work among working mothers appears unresponsive to the price of care.

## **PUTTING IT ALL TOGETHER**

How much will the use of paid care increase in response to a policy that reduces the cost of care? The fact that the supply of child care will respond to meet increased demand without much of a change in the price of care suggests we can consider a subsidy as translating almost dollar for dollar into a decrease in the price to the consumer in the long run.

As an example, consider the effect of a 20 percent subsidy for child care expenses. *Our analysis below suggests that a 20 percent reduction in the cost of paid care would result in 500,000 to 1.3 million more children under 6 with employed mothers using paid care. If the 20 percent subsidy were applied just to mothers below 200 percent of poverty, the result would be 124,000-318,000 more low income children under 6 in paid care.*

### **Increases in the use of paid care by working mothers with young children [60](#)**

About 9.4 million mothers with children under 6 (56 percent of mothers with children under [661](#)) worked full or part time in 1994. A 20 percent decrease in the cost of care is associated with a 4 to 16 percent increase in the probability that a mother works. In other words, between 380,000 and 1.5 million more mothers with children under 6 would take a job in response to this decrease in the cost of care. [62](#)

In addition to this employment effect, the 20 percent decrease in the price of paid care would also have an effect on the demand for paid care among working mothers. A 20 percent decrease in the price of paid care is associated with a 3.8 percent increase in demand for paid care among working mothers. In other words, the percent of working mothers with young children who use paid care would increase from 51 percent to 53 percent. [63](#)

Combining these two estimates, a 20 percent decrease in the price of care would increase the number of working mothers with young children who use paid care by 380,000 to 1 million. [64](#) Since families who have children under 6 have on average 1.3 children under 6, this means that a 20 percent decrease in the cost of care will be associated with an increase of 500,000 to 1.3 million more children using paid care.

### **Breaking down this effect**

How much of the increase in working mothers' use of paid care is due to an increase in maternal employment, and how much is due to an increase in the working mothers' average propensity to use paid care? It depends on what the employment response is assumed to be. When the lower bound of the employment response is used, a little over half of the increase in young children in paid care can be attributed to mothers entering employment, without a change in the average propensity to use paid care. When the upper bound of the employment response is used, about 80 percent of the increase is due to mothers entering employment.

### **Increases in the use of paid care by low income working mothers with young children**

CCDBG recipients are nearly all below 200 percent of the poverty line. It is therefore worth considering the increase in paid care use from subsidizing mothers below 200 percent of poverty, most of whom are currently not receiving any CCDBG subsidy. Although we lack estimates of the responses of the low-income population to changes in the price of child care, we estimate the employment and paid care utilization from estimates for the general population.

3.1 million mothers below 200 percent of poverty with young children (43 percent of the total number of mothers below 200 percent of poverty with young children) worked full or part time in 1993. [65](#) 39 percent of these working mothers paid for care. By a similar set of calculations to the previous ones, a 20 percent decrease in the cost of care for low income families would be associated with an increase of 124,000 to 318,000 more low income young children using paid care. [66](#) The CCDBG subsidy to families is considerably larger than 20 percent; [67](#) larger subsidies would be expected to have even larger effects on maternal employment and use of paid care.

### **How sure can we be?**

The estimates presented here are based on a review of the evidence from numerous economic analyses. These analyses are almost unanimous in their conclusions about whether there is an effect, and the direction of the effect. However there is considerable variation in the magnitude of the effects reported.

We present the full range of estimates, and when applicable, a description of where the bulk of the estimates lie. But we are left at best with only a range, and the ability to suggest an upper and lower bound to the effect.<sup>68</sup>

In addition to the lack of consensus among the various estimates, caution is also in order in drawing inference about the likely effects of current policy changes. First, these estimates are of the *average* response to price changes; if the response does not vary linearly with the change in price, our estimates of the response to different price changes will not be accurate. Second, these estimates were made in the pre-welfare reform era. One might expect responses to be different in a world where work requirements are stronger and in which non-employment alternatives may be more limited. And third, the studies reviewed did not generally focus on the low-income population. If we want to estimate the effect of subsidies targeted at this population, we must consider how applicable the results from a broader population are to a low income population.

In general, one might expect the employment responses of low-income families and single mothers to be less responsive to child care prices, as the need for income is greater. However, the studies that looked at such responses found that single and low-income mothers' employment decisions tended to be *more* responsive to the price of care. One plausible explanation is that, under the previous welfare system, low-income single mothers deciding whether or not to take a job had the fall-back option of welfare. Therefore they were more free to choose whether or not work was worthwhile on the basis of child care prices; and we have seen that child care costs are a proportionately larger burden to low-income mothers. But as welfare reform makes non-employment less of an option for these mothers, it is likely that the employment decisions of low-income single mothers would become less sensitive to the price of child care. Indeed, Kimmel (1994) found that controlling for AFDC reciprocity reduces the employment responsiveness of single mothers to the price of child care, and brings it into line with that of married mothers.

Although we might therefore expect that the employment response of the low-income population would be less than that of the general population, we should also expect that the demand for paid care among working women would be more sensitive to the price of care for low-income working women, since the costs represent a larger fraction of their monthly income. On balance then, it is not clear whether the total effect of the price of care on the demand for care (including both the employment effect and the demand effect among working women) would be larger or smaller for low income women compared with the general population. Without any further evidence to guide us, it is simply important to note that this limitation of the evidence should dictate caution in making precise predictions of the effects of subsidies.

## **POLICIES THAT ADDRESS THE QUALITY OF CHILD CARE**

We have reviewed the evidence that the current quality of care may be too low, that high quality child care can have important, positive effects on children, and that substandard care can place children at risk for harm. Here, we consider why the current levels may be too low, and hence how policy can be designed to improve quality. We focus in this section on attributes of care that may be related to child development; the next section considers issues of child health and safety.

### **Parental demand for quality child care**

Evidence suggests that parents do not demand the structural attributes of quality that policy might address. For one thing, the level of trainer education, staff-child ratios, and group size have little effect on provider fees.<sup>69</sup> In addition, there is evidence that center fees are not responsive to quality as defined by child experience measures.<sup>70</sup> The fact that the staff-child ratio and the group size do not affect the cost of care is particularly surprising, given that these attributes must affect the marginal cost of providing care. A common interpretation of these findings is that they suggest that parents are not willing to pay for these attributes of quality care.<sup>71</sup>

Thus, even though parents say that they care about quality,<sup>72</sup> they appear not to be willing to pay for 'quality', at least as researchers have been able to measure it. There are several possible explanations for this finding, although we have little evidence that allows us to choose among them. First, if there are external benefits associated with high quality child care, parents may in fact not demand as high a level of quality as is optimal for their child and society. Some evidence of this is the fact that when parents say

they care about the 'quality' of child care, they may in fact be placing the cost and convenience of the care at a higher premium than warm interactions with care givers and other aspects of the child care program that developmentalists believe promote positive outcomes. [73](#) A second possible explanation is that parents do care about child care quality that is important for child outcomes and development, but that the attributes that they care about -- and are willing to pay for -- are not the structural attributes that are easily measured and that government policy can target. In other words, parents may choose their child care and pay based on the warmth of the child care provider, the organization of the facility, the structure of the daily routine, or other attributes that these studies do not measure. Third, parents may care about structural attributes of quality, but lack information about these features. And finally, parents may care about these structural attributes of quality, but not be able to afford them.

Possible governmental policy responses include information provision, regulation, and subsidies to reduce the price of care. Again, the appropriate policy response depends on the reason that parents do not purchase high quality care.

### **Effect of subsidies on the quality of care purchased**

If the low parental demand for quality child care is due to an affordability issue, or to the existence of external benefits, then policies that reduce the price of child care might induce parents to purchase higher quality care. Empirical evidence is scant, but it suggests that when prices are reduced, parents do not respond by purchasing higher quality care, as measured by structural attributes. [74](#) As a result, subsidies alone appear unlikely to increase the demand for structural attributes of child care. Of course, subsidies may allow parents to purchase care with aspects of quality that are difficult to measure -- particularly the child experience measures that developmentalists emphasize. However, no evidence is available on this point.

If child care subsidies do not appear to induce parents to purchase higher quality care, perhaps subsidies targeted to high quality care might have an effect. For example, a subsidy might be available only for care that met a certain child-staff ratio or group size. Empirical evidence on the effect of targeted subsidies is limited. One study finds that the implicit price of staff-child ratio does not affect the demand for higher staff-child ratios. [75](#)

We do know, however, that subsidies that lower the price of child care induce mothers to work, and induce working mothers to purchase more paid care relative to unpaid care. Thus subsidizing child care is likely to result in more non-maternal care, and more paid relative to unpaid care. A comprehensive survey of the literature concludes that there is no evidence that non-maternal child care has adverse effects on children. [76](#) Furthermore, given the current policy of encouraging mothers to enter or remain in the workforce, such women have little choice but to place their children in non-maternal care. There is little evidence about the relative merits for the child of paid versus unpaid care.

### **Effect of regulations on the quality of care**

If the low quality of care purchased is a result of information imperfections or the external benefits associated with child care, a possible approach is for the government to regulate the quality of child care. Regulation, if enforceable and binding, is likely to increase the quality of regulated care. [77](#) However, regulations are also likely to drive some providers out of the licensed market and raise prices among remaining providers, thus lowering the availability and affordability of regulated care. [78](#) Since compliance with regulations can be costly -- particularly regulations that impose minimum group size or child staff ratios and hence raise the marginal cost of providing child care -- providers will have to raise their prices or suffer profit losses. However, we have seen that parents are unwilling to pay for these attributes, and that they are willing to substitute among modes of care in response to relative price changes. Hence providers will be limited as to how much they can raise their prices. But since most child care providers have very low profit margins, [79](#) those that cannot raise their prices may be driven out of business, or at least into the unlicensed sector.

Children whose providers shut down because of regulations, or whose parents switch to another mode of care because the regulated care has become too expensive, do not enjoy improvements in their care quality. However, for children who remain in regulated care, a quality improvement may be enjoyed. Empirical evidence on the relation between quality regulation and costs is scant and inconclusive. Studies have looked at the effects of criminal record checks, child staff regulations, provider education regulations, and group size regulations on the cost of care. The results differ both across and within

studies as to whether a given regulation increases, decreases, or has no significant effect on the cost of care.<sup>80</sup> And there is essentially no evidence of the effect of regulations on the use of regulated care. Both issues deserve further study.

We must acknowledge a tradeoff between the gains from regulation in terms of quality improvements in the regulated sector and the likelihood of increased child care costs and substitution out of regulated care, which could adversely affect the quality of care some children receive. Different regulations are likely to have different effects on costs. It is probable that some regulations would have net benefits, but each should be evaluated separately.

### **Information provision and networks**

Another possible remedy to information problems are information and referral services to help parents make better decisions. The government could either serve as the provider of information or encourage private sector agencies to collect and disseminate the information. However, the high turnover rates of providers and the lack of effort by many family day care providers to find clients could make it difficult to provide and maintain comprehensive and accurate lists of providers in each neighborhood.<sup>81</sup> It is unclear whether unregulated providers will be forthcoming in response to requests to register with an information agency. If providers are responsive and comprehensive lists are maintained, this would be a useful service to the extent that the information agency is more informed than potential consumers about the quality of care offered at each provider; given the concern about whether collectable indicators are indicative of quality, this deserves further consideration. Furthermore, if there is a dearth of demand for quality care, the benefits from providing information are somewhat decreased. However, if this information stimulates demand for better quality care, it may help alleviate the current quality problems.

### **Effects of policies aimed at influencing child care providers**

The qualifications and behavior of child care providers affect both structural and child experience measures of child care quality. Therefore another important policy lever that the government could potentially use to improve the quality of child care is policy that affects child care providers. Child care providers' education and behavior are aspects of child care quality. In addition, the continuity of child care received is thought to be an important aspect of the quality of care.<sup>82</sup>

Child care providers are mostly women. They tend to have low levels of education and high turnover rates.<sup>83</sup> Their wages are very low compared to other women and there is some evidence that they receive lower wages than similar female workers in other sectors.<sup>84</sup> One reason for the low levels of education may be that child care providers appear not to receive a 'return' to education in the form of higher wages.<sup>85</sup> In addition, their low wages may be at least partly responsible for the high levels of turnover, which in turn disrupts the continuity of care.

Possible interventions include subsidizing or regulating child care providers' wages, subsidizing or providing child care training, or setting minimum standards for child provider education. Given the low profit margins of centers<sup>86</sup>, regulations that raise wages are likely to force some centers to shut down or to raise their costs. In addition, the low wages of child care providers may be best met through more general policies aimed at raising wages at the bottom of the wage distribution.

Given that child care providers appear not to receive a wage premium from investments in education, policies that set higher minimal education requirements will likely result in a decrease in the number of (legal) child care providers, at least in the short run.<sup>87</sup> Government provision or subsidizing of training for child care workers may be a more promising route. Financial constraints can make it difficult for workers to invest in needed skills and the government therefore currently subsidizes training for some adult workers. The high turnover among child care providers, however, can reduce the return to the government on its investment in provider education.

## **ADDRESSING CONCERNS ABOUT CHILD HEALTH AND SAFETY**

In addition to the impact of high quality child care on child development, we have also seen that children's health and safety are currently endangered in some care facilities. This is an area of grave concern, with potentially high costs to the children and to society. The health and safety problems may result from an information problem or limited ability of parents to monitor quality. Another possibility is that parents are aware of the health and safety problems but cannot afford better care. If the issue is an



information one, provision of information or regulations that impose minimum standards combined with monitoring to ensure that these standards are met are potential solutions. Such regulations again have the potential to drive up the cost of care, but they can plausibly be expected to have less of an effect on cost than minimum staff/child ratios or group size, which directly increase the marginal cost of providing care. However, if ensuring basic health and safety does increase the cost of care, and hence parents may not be able to afford care that meets these standards, subsidies for care that meets the standards could also be useful. There is currently no available evidence of the effect of minimum health and safety regulations on the cost of care, or of the effect of subsidies on the safety of care purchased.

## **THE NEED FOR MORE RESEARCH**

### **Employment and care responses to the price of child care**

There is a little evidence on the employment responses of low income parents. There is a critical need for such evidence since direct federal subsidies are targeted to this group. Furthermore, there is a need for studies of employment responses of low income families in the new environment created by welfare reform. Random assignment studies are a promising approach. Because subsidies are limited, and waiting lists tend to develop,<sup>88</sup> random assignment to eligible parents would enhance our ability to study the effects of subsidies on parental choices. Another unresolved question is to what extent working mothers respond to subsidies by substituting paid for unpaid care; an investigation of this issue would require longitudinal data. Finally, there is little evidence on the effect of the cost of care on the demand for quality. Evidence on this effect is important in understanding whether child care subsidies will induce parents to purchase higher quality care.

### **The link between child care quality and child outcomes**

Although there is ample evidence that high quality paid child care can benefit children, there is a need for more information on the relationship between specific attributes of care -- or groups of attributes -- and child outcomes. We lack information on the magnitude of the effect of changes in measured inputs on child outcomes, on the ways in which improving one attribute of care may have implications for the effects of other attributes, and on where to draw the threshold for acceptable and unacceptable levels of different attributes of care. It is important that research on such topics properly controls for family inputs and uses representative samples.<sup>89</sup>

The existing studies have looked at variations in quality among paid care facilities. Yet we know that one of the effects of child care subsidies is to induce an increase in paid relative to unpaid care. We have no information on the developmental effects of paid versus unpaid care, or even on their relative quality. Finally, there is a need for more research on the effects of child care on *low income* children as compared with the general population of children.<sup>90</sup>

### **Effects of regulation**

Very little work has been done on the effect of regulation -- and, more importantly, of different types of regulation -- on the child care market. We lack information on how regulation of different structural attributes of care affects the supply of regulated care; for instance, do providers leave, or enter, the regulated child care market in response to regulation? We also lack information on the effect of regulations on the prices charged by child care providers. And finally, we lack information on how regulations affect parents' use of regulated care.

### **Information on unregulated child care**

Information about the unregulated child care sector is, not surprisingly, much less available than information about regulated providers. But it is important to get a better sense of this sector. As noted previously, CCDBG subsidies can go to unregulated providers, which in some states could be a family day care home with up to 12 children.<sup>91</sup> We lack information on the quality of this care, and on how responsive its supply is to changes in demand. Since more stringent regulations may result in regulated providers moving to the unregulated sector, information on this sector is critical for a complete analysis of the effect of regulations.

## **SUMMARY**

Maternal employment has been rising over the last few decades and with it, the use of non-maternal child care, particularly paid child care. There is no reason to expect a change in this trend, and as welfare reform moves mothers into employment, the demand for child care services is likely to grow. Child care costs place a large financial burden on those without access to subsidized care and many low income working families receive little or no government subsidies for child care expenditures. There is also reason to be concerned about the quality of care.

We discussed three possible motivations for intervention in the child care market: external benefits, information imperfections, and redistribution. What can we say of the relative merits of different policy tools in meeting these different goals?

Care that does not provide for basic health and safety of children can have large costs to these children, their parents, and society. Potential policy responses include providing parents with information about the safety features of different care options, and enforcing stronger minimum standards in licensed care settings. If minimum standards drive up the cost of care, subsidies to low income working parents for care that meets the standards might also be needed.

In addition, there is substantial evidence that high quality child care can have a positive impact on child development. But we lack information on the precise nature and the magnitude of the link between child care attributes and child outcomes; this makes it difficult to design policy to promote the use of child care with external benefits. Subsidies, even those tied to particular aspects of care, do not appear likely to increase the purchase of 'high quality care', at least as we can measure it. Subsidies for paid child care are likely to induce working parents to use relatively more paid care. The relative quality of paid and unpaid care, however, is not well understood. Regulations can serve to increase quality, but the likely increases in costs will induce substitution away from regulated care. However, we lack information on the magnitudes of the various effects of regulations. Subsidizing provider training may also increase quality, and is unlikely to increase costs; however the high rate of turnover among child care providers raises concerns about the return on subsidizing investments in provider education.

There is also evidence that parents lack the information necessary to make appropriate selections of child care for their children. The government could serve a useful role in directly providing this information, or in encouraging private sector agencies to do so. Any increases in our knowledge about the links between care and outcomes would enhance the government and the private sector's ability to provide useful information. There is also some evidence that regulations that establish minimum quality levels help overcome the information gap, although potentially they have the downside of increasing the cost of care.

Finally, from a redistributive perspective, we have seen that child care costs impose a substantial burden on working families, particularly on low-income working families. Policies that make child care more affordable for working parents can help alleviate this burden. Policies targeted to the low income population complement other efforts to encourage work, since mothers' work decisions are responsive to the price of care. Such policies also seem likely to increase the use of paid care among working mothers, but not the amount of non-maternal care among working mothers.

Appendix I. The effect of child care prices on maternal employment (all effects statistically significant unless indicated)

*A. Studies that use an estimation of child-care costs*

Study (year)	Data source	Group studied	Estimation procedure	Measure of labor supply	Measure of cost of child care	Estimated elasticity of employment with respect to child care costs

Blau and Hagy (forthcoming)	1990 NCCS and 1990 PCS	Married and single mothers with children under 7 not in school	Multinomial logit.	Whether mother is employed	Uses data on fees to estimate hourly fees	-0.20 (calculated by computing the elasticity for each individual and then averaging over the sample.) Significance cannot be determined from available information.
Blau and Robbins (1988)	1980 EOPP	Married mothers with at least one child under 14	Multinomial logit	Mother does not work versus four combinations of mother working with purchased care or not, other relatives working or not	Average child-care expenditures among families in the community who purchased care	-0.38 (average price elasticity of employment over a range of examined child care costs) Significance cannot be determined from available information.
Connelly (1992)	Wave 5 of 1984 SIPP	Married mothers with children under 13	Probit	Employed or not	Selectivity-corrected predicted hourly costs from employed who purchase care	-0.20 (calculated at means)
Ribar (1992)	Wave 5 of 1984 SIPP	Married mothers with children under 6	Simultaneous maximum likelihood probit of labor force participation and tobit of demand for paid and unpaid child care services	ditto	ditto	-0.74 (calculated at means)
GAO (1995)	Urban Institute's 1990 National Child Care Survey and Low-Income Sub-study	Mothers in sample	Probit	ditto	ditto	-0.5 for poor mothers, -0.34 for near-poor mothers, and -0.19 for non-poor mothers. (Calculated at means)
Ribar (1995)	1984 SIPP.	Married women with children under 15	Maximum likelihood. Estimates a structural modal of hours of work	ditto	ditto	-0.09 (under 15). -0.09 (under 6) Elasticities are means of effects evaluated at each observation. Significance cannot be determined from available information.
Kimmel (1995)	1987 and 1988 SIPP data	Single mothers in poverty	Probit	ditto	ditto	-0.346. Also estimated elasticity separately for white single mothers in poverty (-1.362) and black single mothers in poverty (-.345; not statistically significant)
Cleveland et al (1996)	1988 Canadian National Child Care Survey	Families with young children	Probit	Engaged in paid employment or not	ditto	-0.388 (evaluated at means)
Averett et al. (1997)	1986 NLS-Y	Married mothers with at least one child under age 6	Dual-error model	Annual hours of work	ditto	-0.78 (evaluated at means of data)

*B. Studies that use an exogenous source of variation in the cost of child care*

Study (year)	Data Source	Group studied	Source of variation in child care costs	Measure of labor supply	Measure of cost of child care	Estimate of employment effect
Berger and Black (1992)	Telephone survey	Low-income single mothers	Those receiving day care subsidy in two Kentucky programs versus those on subsidy waiting list.	Whether mother employed or not	Dummy for receipt of subsidy (amt of subsidy varies with income)	Attribute an increase in employment of 12% to program
Gustafsson and Stafford (1992)	Swedish data set plus telephone survey	Families in different Swedish communities	Exogenous variation due to local government setting subsidy rates for public child care.	Whether mother works 'substantially' (more than 30 hours)	Locally-set price (per month) of public child care	Estimated mean elasticity of employment with respect to child care cost -1.88
Leibowitz et al. (1992)	NLS-Y	First-time mothers	Variation among states and over time in state and federal income tax credits for child care	Whether mother is employed when child is 3 months old, and whether mother is employed when child is 24 months	Subsidy available through state and federal income tax credits; to avoid endogeneity issues, assumes woman works full-time at her predicted wage	Greater tax credits increased early return to work (w/in 3 mos) but had little effect on employment of women with older children

**Appendix 2: Effect of child care price on use of market care, given maternal employment**

Study	Data and Methods	Measures of price of care and mode of care.	Price elasticity of market care utilization conditional on employment
Hotz and Kilburn 1992	1986 NLS72. Black and white mothers with preschool age children. Probit.	Parental versus non-parental care.  Selectivity-corrected predicted hourly price of non-parental care	-0.17 to -0.20 depending on specification. Significant.
Hotz and Kilburn 1994	1986 NLS72. Black and white mothers of pre-school age children. Maximum likelihood switching regression model.	Parental versus non-parental care.  Selectivity-corrected predicted hourly price of non-parental care (using different instruments from 1992 paper).	-1.7. Significant.
Cleveland et al (1996)	1988 Canadian National Child Care survey. Families with young children. Probit.	Whether family purchases market care or non-market care at zero cost. Selectivity-corrected predicted hourly price of care from employed who purchase care.	-1.056. Single coefficient used in computing elasticity is significant.
Ribar 1995	1984 SIPP. Married women with children under 15. Maximum likelihood.	Direct report of whether family pays for care.  Selectivity-corrected predicted hourly price of care from employed who purchase care.	Elasticity for paid care utilization is -0.608 or -0.42 depending on specification. When look at moms with kids under 6, elasticity drops to -0.235 or -0.224 depending on specification. Can't determine significance.

Blau and Robins (1988)	1980 EOPP. Married mothers under 45 with children under 14. Multinomial logit.	Market versus non-market care; care coded as market if provided by a non-relative or in a group facility or day care center, or if family reports any direct expenditure on child care.  The weekly cost of market care reported by families is used to construct the site-average weekly child care costs; these are divided by 30 to estimate hourly price of care.	-1.17. Can't determine significance
Blau and Hagy (forthcoming)	1990 NCCS and PCCSS. Women with children under 7, not in school. Multinomial logit.	Whether family pays for care or not.  Estimates hourly fees using regression results.	-.15. Can't determine significance
Ribar (1992)	1984 SIPP. Married females with children 0-6. Tobit	Paid versus unpaid care.  Selectivity-corrected predicted hourly costs from employed who purchase care.	-.210. Underlying coefficients significant.

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<sup>1</sup> Casper (1996).

<sup>2</sup> U.S. Department of Education (1995). Numbers refer to children not yet in kindergarten.. In addition, there were approximately 3.4 million children under 6 with *non-employed* mothers in non-parental care.

<sup>3</sup> Hernandez (1995).

<sup>4</sup> Casper (1995).

<sup>5</sup> Hofferth (1996).

<sup>6</sup> Casper (1995).

<sup>7</sup> Hofferth (1996)

<sup>8</sup> Phillips (1995).

<sup>9</sup> Casper (1996).

<sup>10</sup> Hofferth (1996).

<sup>11</sup> Casper (1995)

<sup>12</sup> See e.g. Beli et al. (1989).

<sup>13</sup> Helburn and Howes (1996).

<sup>14</sup> Walker (1992); Blau and Hagy (forthcoming); Blau (under revision); Waite et al. (1991).

<sup>15</sup> Cost, Quality and Child Outcomes in Child Care Centers (1995).

<sup>16</sup> Phillips (1995).

<sup>17</sup> Casper (1996). Twenty percent of poor children under 5 with employed mothers were in center-based care in 1993, compared with 31 percent of non-poor children.

<sup>18</sup> Child Care Bureau (1997).

<sup>19</sup> U.S. House of Representatives (1996). No data are currently available on how much the states spend and how they spend it. However, under the earlier program, 7 percent of CCDBG expenditures in fiscal year 1995 were used to improve the quality of child care. Of these funds, two thirds were used for monitoring and child care resource and referral (Child Care Bureau 1997).

<sup>20</sup> Child Care and Development Block Grant Act Section 658E.

21 Source: Treasury Materials

22 This program is a consolidation (under PRWORA 1996) of four previous subsidy programs: Aid to Families with Dependt Children, Transitional Child Care, At-Risk Child Care and the Child Care and Development Block Grant Program. It has been estimated that PRWORA increased federal funding compared to the programs it replaced by about \$4 billion over the six years FY - 1997 - FY 2002. (U.S. House of Representatives 1996).

23 HHS materials based on CCDBG data from Fiscal Year 1995.

24 America Public Welfare Association (1997).

25 Child Care Bureau (1997).

26 U.S. House of Representatives (1996). See also CCDBGGA Section 658E.

27 CCDBG Act Section 658E.

28 U.S. House of Representatives (1996) and Children's Foundation (1997).

29 National Association for the Education of Young Children (1991).

30 CCDBG Act Section 658E

31 See Council of Economic Advisers (1997) for a discussion of the long lasting effects on children of investments made in the first few years.

32 See Cohn and Geske (1990) for an overview.

33 Gomby et al. (1995).

34 Hayes et al. (1990) and Howes and Helbrun (1996). See Cost, Quality & Child Outcomes Study Team (1995) for a recent study that confirms these findings.

35 Phillips (1995)

36 See Hayes et al. (1990) for a further discussion.

37 Helburn and Howes (1996). See also Hayes et al. (1990) and U.S. House of Representatives (1996).

38 In some sense, the relationship between child experience measures and child development is tautological, since the child experience measures were designed as measures of aspects thought important for child development (Blau 1997).

39 Hayes et al (1990). More recent evidence of the effect of child experience measures on child development is provided by the Cost, Quality & Child Outcomes Study Team (1995).

40 However a recent study -- Blau (1997) -- calls into question whether improvements in structural measures have effects on child experience measures; the study, using data from the National Child Care Staffing study, fails to find any robust effects of child staff ratios or staff education on child experience measure. The author notes, however, that this does not rule out the possibility that structural inputs have a direct effect on development.

41 See Hayes et al. (1990) or Blau (1997) for discussions of the problems with this literature. See also Kisker 'The Importance of quality in child care' in 'Child Care Challenges for Low-Income Families'

42 U.S. House of Representatives (1996).

43 Cost, Quality & Child Outcomes Study Team (1995).

44 A weakness of this study is that -- as discussed above -- a substantial amount of non-parental care operate legally but it not subject to licensing standards.

45 See, for example, Poterba (1996).

46 See, e.g. Rosen (1995)

47 Indeed, the initial federal involvement in the child care industry -- federal funded nursery schools for poor children were established during the New Deal -- was motivated not so much to provide child care for working families but to provide jobs for unemployed teachers and nurses and others as well as a wholesome environment for children in poverty. (U.S. House of Representatives 1996)

48 Poterba (1996)

49 See the next section for evidence of demand responsiveness.

50 Blau (1992). Casper and O'Connell (1997). U.S. Department of Education 1990.

51 Blau 1993.

52 Blau and Robins (1988), Connelly (1992), Ribar (1992), Averett et al. (1997). Ribar (1995)'s estimate lies outside this range. Blau and Hagy (forthcoming) look at a sample that includes both single and married mothers and find an effect at the bottom of this range. For more information on these studies, see Appendix 1.

53 See Michalopoulos et al. (1992), Berger and Black (1992), Chaplin and Hofferth (1995). One study estimates the unconditional effect of the price of child care on the mother's hours of work; Averett et al. (1997) report that a 20 percent decrease in the hourly cost of care is associated with about a 16 percent increase in the mother's hours of work. This estimate, which takes into account both increased hours from mothers who enter employment and those already working, is broadly consistent with the other findings reported here.

54 GAO (1995).

55 Kimmel (1994).

56 There is also evidence (Blau and Hagy (forthcoming), Hotz and Kilburn (1992) and Hotz and Kilburn (1994)) that among all mothers (including those that do not work) the demand for paid care is sensitive to the price of care. These estimates are not as useful for evaluating the likely impact of government policy since this policy currently affects only working mothers and there is evidence that the response of non-working mothers is considerable (Hotz and Kilburn (1992) and (1994)).

57 Hotz and Kilburn 1992; Ribar 1995; Ribar 1992; Blau and Hagy (forthcoming). Studies lying outside the range are Hotz and Kilburn 1994 and Blau and Robins 1988. See Appendix 2 for more details on these studies.

58 Hofferth (1995)

59 See Hotz and Kilburn (1992), Ribar (1992) and Kimmel (1992).

60 Throughout this section, 'young children' are defined as those under 6. We have chosen to base this analysis on the responses of mothers with children under 6 because almost two-thirds of the children served by CCDBG-funded child care were under 6, according to the most recent available data (Child Care Bureau 1997). In so far as subsidies are provided to mothers with children above 6, the total response would be larger than that estimated here. All data are based on tabulations from the 1993 SIPP unless otherwise indicated.

61 Tabulations from March 1995 CPS.

62 The following calculations apply: A 4 percent (respectively, 16 percent) increase in the probability the mother works brings the probability that the mother works from 56 percent to 60.3 percent (65 percent). Since the total number of mothers with children under 6 is 16.7 million, the resultant 2.3 (9) percentage *point* increase in the probability that the mother works is equivalent to 380,000 (1.5 million) more mothers working.

63 The 3.8 percent increase is an average of the 3 and 4.6 percent increases from the lower and upper bound estimates of the response in paid care use to a change in the price of paid care. Because this range is so small, we take the average rather than reporting upper and lower bounds.

64 The calculations are as follows:

$$(0.53 * 9.8) - (0.51 * 9.4) = 380,000$$

$$(0.53 * 10.9) - (.51 * 9.4) = 1,000,000$$

65 The 2.6 million is from SIPP 1993 data . The total number is from 1994 CPS.

66 Based on the following calculations: A 4 percent (respectively, 16 percent) increase in the probability the mother works brings that probability from 43 percent to 45 percent (50 percent). Since the total number of mothers with young children below 200 percent of poverty is 7.2 million (CPS March 1995), the resultant 2 (7) percentage *point* increase in the probability that the mother works is equivalent to 122,000 (490,000) more mothers working. In addition the decrease in the price of care would result in 41 percent of these employed mothers using paid child care. Therefore the total increase in the number of these mothers using paid care would be 95,000 to 245,000. With an average of 1.3 young children in such families , we arrive at the number in the text.

67 The average weekly cost of care was \$74 in 1993 (Casper 1995), and the average federal subsidy administered through the CCDBG was \$66 in fiscal year 1995.

68 One issue with almost all of these studies is that they predict the hourly price of care using selection correction mechanisms, since data are often available on the price of paid care only for working mothers who purchase care. The instruments used vary across studies, and there is reason to believe that the results are very sensitive to the choice of instruments (see e.g. the large difference in estimates obtained by Hotz and Kilburn (1992) and Hotz and Kilburn (1994) who use the same data but different instruments and estimating procedures). In general, the results will be affected by whether the instruments are truly exogenous, as well as how correlated they are with the original variable. The variation in the predicted price of care is used to estimate the employment, care, and quality responsiveness to the price of care.

69 Hagy (forthcoming); Blau and Hagy (forthcoming); Walker (1992); Waite et al. (1991).

70 Cost, Quality & Outcomes Study Team (1995).

71 Interpretation in Waite et al (1991), Blau (1991) and Helburn and Howes (1996).

72 See e.g. Cost, Quality & Child Outcomes Study Team (1995) or Kisker and Maynard (1991).

73 See for example Kisker and Maynard (1991) and Hofferth (1991).

74 Blau and Hagy (Forthcoming). A problem with drawing conclusions based on this paper is that the data are cross-sectional and if places with lower prices of child care draw in more low income families who cannot afford high quality care, the result would not really illustrate the effect of price reductions on the quality of care purchased by a given family that is already purchasing care. For this, we would need longitudinal data.

75 Hagy (forthcoming).

76 Hayes et al. (1990).

77 For example, Cost, Quality & Child Outcomes Study Team (1995) finds that states with more demanding licensing standards have fewer poor-quality licensed centers, and that centers that comply with additional standards beyond those required for licensing provide higher quality services. Here, quality is measured in terms of 'child care experience' Also Howes et al. (1995) find that regulations in Florida on staff-child ratios and provider education improve both child experience measures of quality and child development.

78 Chipty and Witte (1997) find that minimum standards regulations increase the probability that providers exit certain markets (e.g. care for certain age groups).

79 Cost, Quality & Child Outcomes Study Team (1995).

80 Ribar (1995), Chipty (1995), Hotz and Kilburn (1994). Although such regulations may translate into higher costs to parents, they do not appear to improve the wages of child care workers (Blau 1993, Blau 1992).

81 Walker (1991).

82 Phillips (1995).

83 Blau 1992; Walker 1992.

84 Blau 1993; Cost, Quality & Outcomes Team Study 1995.

85 Walker 1992; Blau 1992.

86 Cost, Quality & Outcomes Team study 1995.

87 Of course, the longer run effects will depend on how responsive the supply of *skilled* child care labor is, since the decrease in supply will drive up wages for skilled child care workers. There is as yet no research on this question.

88 See e.g. Berger and Black (1992) for evidence of waiting lists with one subsidy program.

89 Hayes et al (1990)

90 Phillips and Bridgman (1995).

91 Child Care and Development Block Grant Act Section 658E.