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REVIEWS OF RESEARCH
LITERATURE REVIEW

PARENT EMPLOYMENT AND THE USE OF CHILD CARE SUBSIDIES

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The Reviews of Research series synthesizes research on selected topics in child care and early education. For each topic, Reviews of Research provides an in-depth Literature Review and a summary Research Brief. Also, for each, a companion Table of Methods and Findings from the literature reviewed is available on the *Research Connections* web site: www.childcareresearch.org.

What We Know

Research on the relationship between receipt of child care subsidies and low-income women's labor force participation shows subsidy use to be associated with increased rates of employment and improved employment outcomes. Studies to date look for the influence of subsidies in two ways, by modeling hypothetical reductions in child care prices or by building models with data reflecting mothers' actual receipt of subsidies.

The size of potential differences in employment outcomes between subsidized and unsubsidized mothers varies greatly among studies, which in part reflects studies' different assumptions and methodologies.

- ▶ While employment and subsidy use are inherently intertwined, each influencing the other, mothers who use subsidies appear more likely than other low-income mothers to:

- work at a job,
- work more hours,
- work standard schedules,
- sustain employment,
- earn more.

Mothers using subsidies also appear more likely to return to work sooner after child birth.

- ▶ Receipt of subsidies appears to be more strongly associated with improved employment outcomes for some groups of low-income mothers than others:
 - Subsidies appear most likely to increase employment for the least educated women—those without high school degrees.
 - Receiving subsidies is more strongly associated with the probability of working standard schedules for TANF mothers than for non-TANF mothers.
 - Subsidies are associated with greater increases in employment for single than for married mothers.
- ▶ Women using subsidies are more likely to be employed in the retail and service sectors of the economy.
- ▶ Child care subsidies are one of several work supports associated with mothers' employment decisions. Other policies and benefits—e.g. tax credits, cash assistance, medical insurance, food stamps—are also related.

INTRODUCTION

This literature review, second in the series, *Reviews of Research on Child Care Subsidies*, examines research asking the question: “What parent employment outcomes are associated with the use of child care subsidies?”¹ That is, how do employment decisions and patterns for low-income parents with subsidies tend to differ from those of low-income parents without them? For which sub-groups of these parents—e.g., those with or without high school diplomas, with or without cash assistance histories—do child care subsidies appear to make more difference? What factors in addition to subsidies influence parents' employment decisions? While these questions are posed broadly in terms of “parents,” the research to date focuses on “mothers.”

WHAT ARE CHILD CARE SUBSIDIES?

Child care subsidies reduce child care costs for low-income families and have two main goals: support for parents' employment and support for children's development. The primary federal funding source for child care subsidies is the Child Care and Development Fund (CCDF).² CCDF, including funds transferred by states from the Temporary Assistance for Needy Families (TANF) program to CCDF, is a significant source of federal support to improve the affordability, supply, and quality of child care in the United States. CCDF assists low-income families, including families receiving or transitioning from TANF cash assistance, in obtaining child care so they can work, or at state option, attend training or education. States have wide discretion in defining employment and preparation for employment, as well as in setting income eligibility ceilings, family co-payment levels, provider payment rates, and other policies.

CCDF was created along with the major restructuring of the nation's welfare/cash assistance program through the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996. CCDF consolidates four earlier federal programs and includes a combination of both federal and state funds.³ Additional federal funding comes from the

TANF program created by PRWORA; states may transfer up to 30 percent of their TANF block grants into CCDF or spend TANF directly on child care. Some states also provide child care subsidy funds beyond those required through CCDF state matching and maintenance of effort requirements and those provided under TANF. Other federal and state programs, such as Head Start, state pre-k programs, and 21st Century Community Learning Centers, also assist low-income parents in caring for and educating their children, although they generally do not fall within the definition of “child care subsidy” in research reviewed here.

Within the broad group of low-income working families potentially eligible for CCDF subsidies, states serve three sub-groups: families currently receiving cash assistance (TANF) and preparing for or beginning to work, families transitioning from TANF or with a recent TANF history, and low-income working families. At different points in time, the same family may be in all three sub-groups.⁴ Although no longer required to do so, states typically continue subsidy guarantees for families receiving TANF and transitioning off TANF. Some states guarantee subsidies to all state-eligible families who apply, giving the same priority to working families without a recent TANF connection as to TANF and former TANF families. Given state discretion in setting eligibility, co-payment, and provider reimbursement policies in the CCDF program, states have a great deal of flexibility in deciding which families to prioritize and whether to serve all eligible families or establish waiting lists for subsidies.

BACKGROUND ON RESEARCH EXAMINING CHILD CARE SUBSIDIES AND EMPLOYMENT

Still a young field, research on subsidized child care in the United States has grown since the mid-1990s. (See *Introduction to Child Care Subsidy Research*.)

Some of the earliest research in the field built economic models to examine the effect of child care prices on mothers’ employment. Based on national surveys, which lacked data on actual subsidy use,

these studies modeled reductions in child care prices to infer the impact of subsidy receipt.⁵ Other early work exploring employment outcomes associated with subsidy use was carried out within studies of multi-faceted, pre-TANF welfare reform initiatives. Also, several post-TANF “leavers” studies—of families leaving welfare—looked at patterns of child care subsidy use and employment among these families. These lines of inquiry are described more fully below.

Federally-funded research conducted by Child Care Policy Research Partnerships—focused on subsidy programs and using subsidy administrative data—began in 1995, a year before national welfare reform.⁶ Additional waves of child care policy research came after the enactment of PRWORA. This research was funded in part by CCDF funds set aside for research. The Child Care Bureau and the Office of Planning, Research, and Evaluation, both within the Administration for Children and Families, also commissioned several large-scale studies to examine aspects of the operation of the new Child Care and Development Fund.⁷ Growing recognition of the importance of child care subsidies has also led other federal agencies, states, and private foundations to support research in this area.

CURRENT POLICY LANDSCAPE

There has been a significant increase in federal and state funding for child care in the decade since enactment of PRWORA. For both federal fiscal years (FFY) 2002 and 2003, \$4.8 billion in CCDF was available through block grant funding—more than double the \$2.2 billion available in 1996. Combined with state matching, maintenance of effort, Social Services Block Grant, and TANF dollars transferred to CCDF or spent directly by states on child care services, an estimated \$11.8 billion in FFY 2002 and \$11.5 billion in FFY 2003 were available for child care. In 2002 and 2003, an average of 2.4 million children was served each month from these combined federal and state sources.⁸ The Deficit Reduction Act of 2005 extended the CCDF mandatory funding stream through FFY 2010, increasing child care funding available through state match by \$200 million per year, or a total of \$1 billion over 5 years.

According to a recent survey conducted by the Government Accountability Office (GAO), in states that do not serve all eligible subsidy applicants, TANF families in required work activities and families transitioning from TANF typically receive priority over other low-income working families. (U.S. Government Accountability Office, 2005.) While, in 2003, just 18 percent of families receiving CCDF subsidies also received TANF cash assistance, down from 21 percent in 2000, many states serve TANF families and families transitioning from TANF directly through TANF funds rather than through the CCDF program.

Also according to the GAO, in March 2005, 31 states provided subsidies to all applicants with incomes under their state income eligibility ceilings—whether or not they had TANF connections—while 19 states and the District of Columbia did not. CCDF allows states great discretion in setting eligibility limits, co-payment policies, and provider reimbursement rates, which can affect the level of benefit per family, and ultimately whether or not the state has a waiting list or serves all eligible families. For example, a state may choose to set generous reimbursement policies and small co-pay requirements, but not serve all eligible applicants. Similarly, a state could have lower provider reimbursement rates and high co-pays, but not have a waiting list. States frequently make adjustments to these policies. The same GAO report noted that between 2001 and 2005, eleven states lowered their income eligibility ceilings, six raised them, and five both lowered and raised them. (U.S. Government Accountability Office, 2005.)

CRITERIA FOR SELECTION OF STUDIES FOR REVIEW

In preparing this literature review, the authors scanned research from a wide range of sources—academic institutions, research organizations, and state agencies—and considered both peer-reviewed and other reports—published and about to be published. Several criteria of equal importance guided the selection process. An initial selection criterion was study completion since the 1996 passage of PRWORA and

establishment of CCDF. Research published since this watershed in child care policy has the highest value to policymakers and researchers alike.⁹ A related criterion was a report's policy relevance.

Seventeen studies were chosen for review, based on these guidelines. Drawn from a variety of research approaches (described below), the selected works use sound methodologies, and their analyses support their conclusions. A table on the methods, data, and findings of the 17 studies accompanies this review. The table summarizes groups studied and questions asked, as well as methods, data, and findings in these reports. (See *Parent Employment and the Use of Child Care Subsidies—Table of Methods and Findings*, at www.childcareresearch.org.)

DESCRIPTION OF STUDIES

Until recent years, when child care subsidies became more widely available, and thus could be studied directly, most research inferred the likely impacts of subsidies on parents' employment outcomes. Recognizing that subsidies reduce the price of care for families that receive them, these early studies use empirical models to estimate employment decisions (e.g., choosing to work, the number of hours worked, work schedules, months between the birth of a child and a mother's decision to return to work) at various child care prices. The studies often rely on large data sets that include information about family characteristics and labor force decisions that are sometimes supplemented with additional information, such as state and federal tax rules and program benefit levels. Different researchers focus on different groups of families (e.g., families with single and married mothers) and vary in the ways they take into account additional factors that also might influence child care and employment decisions, such as family and child characteristics, the availability of unpaid care, variation in other policies that affect work and child care, and the conditions of the local labor and child care markets.

A separate and smaller body of studies, which also rely on large data sets, directly examines associations between subsidy receipt and employment. These data

Table 1: Types of Studies Reviewed

Type of Study/Method	Studies Reviewed
<i>National surveys</i>	
Without direct information on parent's receipt of subsidies	Anderson & Levine, 1999; Bainbridge, Meyers, & Waldfogel, 2003; Baum, 2002; Han & Waldfogel, 2001; Houser & Dickert-Conlin, 1998
With information of parents' receipt of subsidies	Blau & Tekin, 2001a; Tekin, 2004a; Tekin, 2004b
<i>Smaller-scale surveys with information on parents' receipt of subsidies</i>	
Danziger, Ananat, & Browning, 2003; Meyers, Heintze, & Wolf, 1999	
<i>Welfare experiments</i>	
Crosby, Gennetian, & Huston, 2001; Gennetian, Crosby, & Huston, 2001	
<i>Studies using administrative data from subsidy systems</i>	
Jefferys & Davis, 2004; Lee et al., 2004; Lemke, Witte, Queral, & Witt, 2000; Queral, Witte, & Griesinger, 2000; Okuyama & Weber, 2001	

sets include information about whether or not a family received subsidies, and have become more feasible since the late 1990s, as many more families received subsidized care. One such large data set available for analysis is the National Survey of America's Families (NSAF). Other researchers have re-analyzed data collected to evaluate welfare reform experiments—for instance, Crosby, Gennetian, and Huston (2001)—to see if child care subsidies had any effects on labor force decisions for families who participated in these studies. Still other researchers have analyzed administrative data on families using subsidies, generated by state agencies as they operate subsidy systems.

A definitive way to examine the effects of subsidies on employment decisions and patterns would be to use a true experimental design, in which families are randomly assigned either to receive subsidies or be part of a control group. Such a study, underway in Cook County, Illinois, is described later in this paper.

The studies reviewed employed a variety of methodological approaches and data sources. See Table 1, "Types of Studies Reviewed," for a list of reviewed studies using each research approach.

National Surveys

National surveys have an important strength; findings from these studies are nationally representative of the population studied. A key limitation of national surveys is that since they typically are designed to answer a broad array of research questions, they often have only a few questions on a particular topic such as receipt of child care subsidies, and as such often cannot provide depth on the topic. Due to their large, representative samples, national surveys are quite strong sources. However, because the surveys lack randomly assigned control groups, they cannot establish causal relationships between the variables being studied.

Eight of the papers reviewed used national survey data (Anderson & Levine, 1999; Bainbridge, Meyers, & Waldfogel, 2003; Baum, 2002; Blau & Tekin, 2001a; Han & Waldfogel, 2001; Houser & Dickert-Conlin, 1998; Tekin, 2004a; Tekin, 2004b).

These eight studies used economic modeling techniques to assess the likely impact of child care subsidies on women's employment. As Table 1 indicates, five of the eight national survey studies do not contain information on the use of child care subsidies. In the studies that do not include information on subsidy use (Anderson & Levine, 1999; Bainbridge

et al., 2003; Baum, 2002; Han & Waldfogel, 2001; Houser & Dickert-Conlin, 1998), receipt of child care subsidies was simulated by modeling the effect of a decrease in the price of child care on women's employment decisions. Lacking data on actual child care subsidy use, these studies may not capture the experience of participating in a child care subsidy program.

The reviewed studies using information on actual subsidy use were able to directly examine relationships between subsidies and employment. (Blau & Tekin, 2001a; Tekin, 2004a; Tekin, 2004b) These studies based on survey data can establish correlations, not causes. All three studies used the same data set, the National Survey of America's Families (NSAF). This presents two limitations. First, their findings all share the same strengths and weaknesses of their common data source. Second, some validity issues in the NSAF child care subsidy data could mitigate the strength of their findings. NSAF analysts have reported that problems with participants' responses to a survey question about receiving assistance paying for child care led to underreporting on some forms of child care assistance related to subsidy use.¹⁰

Smaller-Scale Surveys with Data on Subsidy Receipt

Surveys of more limited geographic scope have strengths and weaknesses similar to national surveys. Appropriate sampling techniques allow researchers to select samples representing broad populations and effectively characterize the population studied throughout smaller regions, such as states or localities. Like national surveys, however, surveys of smaller areas cannot establish causal relationships.

Two of the studies reviewed employed smaller-scale surveys (Danziger, Ananat, & Browning, 2003; Meyers, Heintze, & Wolf, 1999). Danziger and colleagues (2003) used data from the Women's Employment Survey, studying the impact of subsidies on work for subsidy-eligible welfare recipients in an urban Michigan county. Meyers and colleagues (1999) studied women on welfare in four California counties.

Welfare Experiments

Two papers reviewed examined aspects of child care subsidy delivery in the context of pre-TANF experimental studies to test potential changes in the welfare system (Crosby, Gennetian, & Huston, 2001; Gennetian, Crosby, & Huston, 2001). The experimental design of these studies provides potential for strong explanatory power, however, both the treatment and control groups were eligible to receive subsidies; what varied was how the subsidies were delivered or their value. In addition, the child care subsidy data included in these welfare experiments are limited since child care was not the focus of the experiments. Their main focus was analysis of how efforts to encourage work within cash assistance programs affected employment and income, which in turn would affect child care use—and potentially subsidy use. In these experiments, subsidies were provided in combination with other related benefits, making it difficult to assess the impact of child care subsidies on employment independently from other benefits.

Administrative Data Studies

Five of the studies reviewed here examined data from agencies administering child care subsidy programs (Jefferys & Davis, 2004; Lee et al., 2004; Lemke, Witte, Queralt, & Witt, 2000; Queralt, Witte, & Griesinger, 2000; Okuyama & Weber, 2001). Two of these papers (Lemke et al., 2000; Queralt et al., 2000) studied current or former welfare recipients, in Massachusetts and in Miami, Florida, respectively, who were receiving subsidies. Lee and colleagues (2004) studied TANF populations in three states and included both those who did and did not receive subsidies. The remaining two papers (Okuyama & Weber, 2001; Jefferys & Davis, 2004) focused on the sectors in which parents using child care subsidies were employed. Okuyama and Weber (2001) summarized findings from seven employment studies conducted in four states and the District of Columbia. Jefferys and Davis (2004) replicated the employment study approach in Okuyama and Weber for four Minnesota counties.

Data collected by state management information systems (MIS) to administer programs can be a valuable information source for research. Researchers using these data are able to capitalize on stores of information about child care subsidies collected by MIS. Some studies have linked child care subsidy administrative data from other programs, such as TANF and Unemployment Insurance data or with census data (e.g., Jefferys & Davis, 2004; Lee et al., 2004).

Administrative data also have several limitations. Since the data are collected for program administration purposes, they do not necessarily contain all the data elements that researchers would include were they designing the data collection, such as outcome information. Also, there may be local-level variations in how specific variables in the administrative database are defined, making cross-site comparisons challenging. Finally, like survey studies, studies relying solely on administrative data are by definition non-experimental. All data come from subsidized families; none come from a non-subsidized comparison group. Therefore, the data cannot show cause-and-effect relationships between variables studied.

THEMES EMERGING ACROSS THE STUDIES

As stated above, much of the research on the impact of subsidies on labor force participation has been indirect. Recognizing that subsidies reduce the price of child care for families that receive them, these studies first estimate the empirical relationship between the price of care and employment. They then use empirical models to estimate employment levels at various hypothetical prices for child care. These studies have found that estimated employment levels increase as the hypothetical price of child care is reduced. From this, they infer that child care subsidies can have an effect on employment, but the size of the estimated effect varies greatly across studies. Studies using data that reflects actual subsidy take-up also imply a relationship between subsidy use and increased employment. In these models—as in models using hypothetical child care prices—the effect size varies greatly. Further, some studies focusing on similar

groups have produced inconsistent findings. While different populations may be part of the source of differences in effect sizes, it appears that the way models are structured is a major source of these differences. (Blau & Tekin 2001b).

While the research discussed here focuses on how child care subsidies may influence parental employment, it is important to note that we do not intend to imply that the relationship between child care subsidies and employment is causal or unidirectional. Child care and employment decisions appear to be inherently intertwined.¹¹ It is reasonable to assume that in most cases, employment and child care decisions are made simultaneously, with families optimizing both through an interactive process. Moreover, for parents who are aware of and eligible for subsidies, obtaining and retaining subsidies is also woven into the process.

The following sections highlight key findings from recent literature on the relationship between subsidies and employment. They present variations within the general finding that receipt of child care subsidies—sometimes modeled as reduction of child care prices—is associated with increases in mothers' employment. First, we review the relationship of various employment characteristics to subsidy receipt. Second, we review individual and family characteristics by which subsidies appear likely to have differential impacts on employment; including education level, TANF status, and family structure. Third, we consider some characteristics of subsidy program delivery and their influence on employment. Finally, we consider subsidy in relation to other factors influencing employment; namely, the quality and availability of child care, and the effects of other policies and benefits.

It is important to note that this paper reports on patterns beginning to emerge in the focused subset of the literature reviewed for this paper. Given the types of studies reviewed (non-experimental in most cases,¹² some with simulated subsidy data) and the small number of studies for each finding, the resulting picture remains preliminary.

Employment Characteristics

Within the body of studies on how child care subsidies may affect employment, most researchers have defined employment as a binary variable—employed or not employed. However, some have additionally or alternately examined other aspects of employment, described below.

Danziger and colleagues (2003) operationalized employment as the percentage of months employed in a one-year period. They also assessed earnings as an indicator of employment. They found that use of child care subsidies was associated with an increased percentage of months worked in one year and with increased earnings. Lee and colleagues (2004) examined employment retention as a measure of employment among TANF recipients and leavers. They found a strong correlation between subsidy use and employment retention, with people using subsidies staying in jobs longer.

Baum (2002) examined low-income mothers' decisions to return to work after the birth of a child, measuring timing of the return in terms of the child's age. Not surprisingly, lower percentages of mothers overall returned to work by their child's first than second birthdays. Reducing child care costs, however, increased the probability by 7.5 percent that mothers would return to work in the first year of their babies' lives, and by 8.2 percent in the second.

Tekin (2004b) studied the relationship between child care subsidies and working standard (daytime, weekday) hours, and found that single mothers receiving subsidies (both those receiving welfare and those not) were 6.1 percentage points more likely to work standard hours than mothers not receiving subsidies.

Other studies (Okuyama & Weber, 2001; Jefferys & Davis, 2004) focused on the types of jobs in which women using subsidies are employed, by employment sector. They found retail and services industries the most common employers of parents receiving subsidies.

Individual and Family Characteristics

Several studies reviewed suggest that subsidies have different impacts on employment for different groups of people.

Education Level

Subsidies appear likely to have a stronger effect on employment for women who are less educated. Anderson and Levine (1999) found that reducing child care expenses resulted in the largest gains in employment for mothers with the least education. For single mothers with no high school degree, the employment rate moved from 25 to 33 percent—a 32 percent increase. Although this was a marked improvement, similar to those found in “successful” welfare to work programs, the authors point out that this level of employment is still much lower than for better-educated women.

TANF Status

Subsidies may affect families who receive cash assistance differently than other families, but studies are inconsistent about the direction of the effects. These different results may relate to different policy environments (e.g., studies from the pre-TANF versus post-TANF eras and studies reflecting different states' CCDF and TANF policy choices), subpopulations studied, or research approaches used (e.g., estimated versus actual subsidy data; analytic techniques).

Bainbridge and colleagues (2003), using pre-TANF national Current Population Survey data to estimate subsidy use, found that subsidies had no significant effects on the workforce decisions of single mothers on welfare but increased the probability of work for single, low-income mothers not on welfare. In contrast, Lemke and colleagues (2000) and Queralto and colleagues (2000), using longitudinal administrative data sets on current and former welfare families receiving subsidies in Massachusetts and Florida, respectively, found an increase in subsidy availability associated with increased employment for families currently and formerly receiving welfare.¹³ Local in scope,¹⁴ both studies were effectively conducted in a post-welfare reform context, since both states studied

were operating under welfare waiver programs generally similar to the subsequent TANF program.¹⁵

Blau and Tekin (2001a), using TANF-era subsidy data (from the NSAF), have more tentative findings that support the findings of Lemke and colleagues (2000) and Queralto and colleagues (2000). Blau and Tekin (2001a) interpret their findings to show that subsidies increase employment and school enrollment among welfare recipients, but not among those outside the welfare system.

One study suggests that using subsidies has a greater impact on the work schedules of TANF families than non-TANF families. Tekin (2004b) found that welfare recipients who receive child care subsidies were 14 percentage points more likely to work standard hours than those who do not receive subsidies. For low-income mother's not receiving welfare—who are overall more likely than welfare mothers to work standard hours—subsidy receipt increased the probability of working standard hours over nonstandard hours by only 1 percentage point.

Family Structure

In studies using child care subsidy simulations, the reduction in child care prices tends to predict different patterns of employment for single parents than for parents who are secondary earners in two-parent families, or for unmarried than for married mothers. Estimates of the size of the difference vary, however.¹⁶ Han and Waldfogel (2001) found that a fifty-cent-per-hour subsidy would increase unmarried women's employment rate by 8-9 percent and married women's by 5 percent; a dollar-per-hour subsidy would increase unmarried women's employment by 19-20 percent, married women's by 12-13 percent. Houser and Dickert-Conlin (1998), using a different methodology,¹⁷ found a slighter potential effect: a subsidy equal to 50 percent of the price of care would increase unmarried women's employment rate by 4.2 percent and secondary earners' employment by 4.1 percent.

Since the large majority of families actually using subsidies are headed by single parents, these simulations do not reflect actual subsidy use under current federal and state policies.¹⁸ The studies using direct

information about subsidy receipt (Blau & Tekin, 2001; Tekin 2004a; Tekin 2004b) reflect this; their samples are comprised of single-mother families only.

Characteristics of Subsidy Program Delivery

Two welfare experiments found that providing enhancements to subsidy programs, such as resource and referral assistance in finding and selecting child care did not affect employment or the amount of child care used (Crosby et al., 2001; Gennetian et al., 2001). Enhanced subsidy programs did, however, have an effect on the type of child care used; practices designed to inform parents about regulated and subsidized care options appeared to result in more use of formal and regulated care. These two related papers are based on the same set of welfare studies, with one paper (Crosby et al., 2001) looking at effects on preschoolers and school-aged children (aged 3-9), and the other (Gennetian et al., 2001) examining effects on infants and toddlers.

Subsidy in Relation to Other Factors Influencing Employment

Subsidy receipt is only one factor in the child care and employment choices parents make. When child care subsidies are examined in concert with other selected factors influencing employment, the influence of child care costs on family decisions is put into perspective.

Quality and Availability of Care

Two pioneering studies that worked to develop measures of child care quality and availability indicate that these factors are also associated with women's labor force decisions (Han & Waldfogel, 2001; Lemke et al., 2000). Lemke and colleagues (2000) used resource and referral data on child care programs' capacity, years of operation, and accreditation to create measures of availability, stability, and quality. Their simulations found that, for Massachusetts subsidy recipient's currently or formerly receiving welfare,¹⁹ increases in the stability and quality of child care were associated with greater increases in the probability of work—over job training—than were reductions in

child care costs. Modeling an increase in the stability of family child care providers—operationalized as an increase in median years in operation from 3 to 6 years—increased the probability of mothers working by 11.1 percent. Increasing the quality of care—as measured by accreditation—also significantly increased the probability of work.

Han and Waldfogel (2001) developed measures of quality and availability based on information about licensing policies and practices and licensed capacities, not on any direct quality or availability measures. Using national Current Population Survey data on married and unmarried mothers, they examined relationships between employment and child care regulations and child care inspections, finding marginally significant results for both. The presence of stronger child care regulations was associated with a marginally significant increase in the employment of married, but not single, mothers. A greater number of child care inspections was linked to a marginally significant increase in workforce participation for both married and unmarried mothers.

This research should be viewed with an awareness that the field is far from consensus about creating measures of availability or quality using extant data. Many economists believe that the number of licensed slots available in a community reflects that community's demand for licensed care. If there are fewer slots in the community, this reflects a lower level of demand, not less availability. In addition, the number of licensed slots is, in part, related to what programs a state decides should be licensed. For instance, some states license virtually all family child care homes while others license virtually none. These two states may have the exact same number of slots of care available, but one state would be viewed as having child care markets with more availability if the number of licensed slots were the measure used.

There may be even less consensus on quality measures. Some researchers strongly believe that, at this point in the development of child care research, quality in child care settings is insufficiently reflected by administrative data such as licensing rules or number of accredited programs. Instead quality must be

ascertained from direct observations of settings. Others believe that extant data on structural factors linked to quality, such as group size, child-staff ratios and teacher qualifications are sufficient proximal measures of quality; the research described above did not use such measures.

Effects of Other Policies and Benefits on Employment

In addition to child care policies, a variety of other policies (e.g., those related to taxes, health insurance, food stamps, family leave) also influence labor force decisions. It is instructive to take other work supports into account when examining the effects of child care subsidies on employment decisions. The one study reviewed here which examined child care as well as other policies and accounted for their benefits in its model, Houser and Dickert-Conlin (1998), found small effects on labor market participation from both child care subsidies and improvements to the Earned Income Tax Credit (EITC). As noted above, a subsidy equal to 50 percent of the price of care was found to increase single women's employment by 4.2 percent. The model also showed small effects for the 1994-1996 increases in the EITC, which were found to increase the average single parent's probability of working by 2 percent.

METHODOLOGICAL ISSUES

Several methodological issues in the research on child care subsidies and low-income women's employment became apparent from the review of the literature.

Simulated Versus Actual Subsidy Data

One limitation in this literature is that a substantial minority of all studies reviewed here lack data on actual child care subsidy use and instead utilize simulated subsidy data. Research that uses survey data on subsidy receipt or subsidy administrative data provides a more realistic basis for characterizing subsidies and their potential impact. For example, simulated data studies may overestimate likely impacts of subsidy because they assume everyone eligible receives one,

which in reality is not the case. And, as already noted, simulated data studies cannot take into account the experience of participating in a subsidy program.

Econometric Analyses

A number of the studies reviewed based their analyses on econometric modeling techniques. Econometric analysis is a valuable tool for monetizing the impact of different variables, yet the technique has limitations. As with any model, its analyses are based on stated assumptions about relationships between variables. When assumptions are apt, these analyses can be quite powerful, but if assumptions are inaccurate, the results will also be inaccurate. Econometric modeling studies have more potential for this type of inaccuracy than techniques which stay closer to the data and report results more directly and transparently grounded in the data.

Strengths and Weaknesses of National Surveys

Just one national data set used in papers reviewed here includes information on child care subsidy use—the National Survey of American Families. Researchers have been hampered by the small number of national data sets which contain child care subsidy data.²⁰

A key strength of national surveys is their representative samples. However, a frequent drawback in papers using national survey data is the substantial time lag between data collection and the publication of research, particularly for secondary data analyses. In many cases the data used for the analysis were collected five to ten years prior to publication of the paper. For example, Bainbridge and colleagues' article, published in 2003, analyzed data from 1991 to 1996.

This time lag is problematic for research on child care subsidies, since major federal policy changes occurred in 1996 with welfare reform, creating the TANF program, changing child care subsidy policies, and expanding subsidy use. Relevance to the TANF policy environment of research based on pre-TANF data varies. In some cases these data reflect pre-TANF

(Aid to Families with Dependent Children) policy; in other cases they reflect trial policy similar to subsequent TANF policy, which some states implemented through AFDC waivers. Some of the divergence in findings across studies cited in the TANF Status section above may be due to different policy contexts at different times and places. In addition to changes in policy, changes over time in labor and child care markets may affect the relevance of findings. Women's labor force behavior, attitudes about work, changing costs of living, and other factors may be more powerful influences on behaviors than a modeled change in child care prices.

Causality

As noted throughout, we do not intend to suggest that there is a simple causal relationship between subsidy use and employment. Although it is easy inadvertently to describe this relationship in causal terms, evidence from the non-experimental studies reviewed here does not warrant that. While these studies point to likely impacts of subsidies on employment, they also point to employment's likely effects on subsidy use.

Sample Selection Bias Issues

Because the findings summarized here are correlational and not causal, it becomes particularly important to account for possible sample selection bias when studying the relation between employment and subsidy. As some authors note (for example, Danziger et al., 2003), there may be an unknown third factor which drives both employment and subsidy use, like the motivation to work in a job. Some of the studies reviewed acknowledge the issue (Lee et al., 2004) or seek to address it through various analytic techniques (Danziger et al., 2003). The non-experimental studies reviewed here, however, are unable to account for selection bias in the definitive way that random assignment studies could, by evenly distributing such factors and thus their effects.

AREAS FOR FURTHER STUDY

Subsidy Data

The trend toward studies that measure likely impacts of the actual receipt of subsidies on employment—rather than simulate subsidies' potential impacts through modeled reductions in child care prices—needs to continue. Most of the studies reviewed here that include measures of subsidy receipt use child care subsidy administrative data, although a few use NSAF data. Clearly, there is need for more surveys to include carefully crafted questions on subsidy use. Additional studies are also needed that use child care administrative data in creative combination with survey data, as well as with other administrative data. When using administrative data, researchers need to be aware of and devise ways to control for selection bias; families that use subsidies may differ from those who do not in ways that also relate to their employment.

Experimental Studies

Experimental studies that can solidly establish causal relationships between subsidies and employment outcomes are also needed, despite the challenges in designing experiments which fairly make subsidies available to one group but not another.

Impacts on Other Family Members

This literature reviewed focuses on the relationship between subsidies and mothers' employment. However, the experiences of other family members in relation to subsidies and employment also warrant exploration. Relatives care for approximately one-eighth of the children served through the Child Care and Development Fund.²¹ How does subsidy receipt affect the type of work, number of work hours, or work schedules of other family members?²² Also, how do associations between subsidy use and family members' employment differ among subgroups, for example, immigrant populations?

Comparable Policy Contexts

Future research needs to be as explicit as possible about the policy context under study and ways it may or may not compare with policy contexts in other times and places. As noted, some research reviewed here was conducted in a pre-TANF policy environment, potentially limiting its policy relevance. Beyond the pre- and post-welfare reform issue, there are also the issues of wide variation in policies across states and—over time—within states. Again, authors need to be clear in describing the policy context under which their data were collected.

Quality and Availability Issues

While the studies reviewed here all document associations between lower child care costs and increases and improvements in women's employment, two (Han & Waldfogel, 2001; Lemke et al., 2000) have also found associations between quality of available care and employment outcomes. Research often examines relationships between program quality and child outcomes. Relationships between quality care and parent employment and other family outcomes also warrant further attention. Further work is needed to develop more refined ways to measure quality of care across geographic study areas.

Impacts of Other Work Supports

More studies are also needed which look at the impacts on employment of child care subsidies along with the impacts of other work supports, such as medical assistance, food stamps, and EITC. Beyond influence on employment, research also needs to look for influences of subsidies and other work supports on family income and self sufficiency.

STUDIES TO WATCH FOR

Three studies supported by the Child Care Bureau promise to deepen understanding of subsidies effects on employment. A study led by Chapin Hall at the University of Chicago is examining employment outcomes related to subsidy use by linking administrative data from three states' child care subsidy, TANF and Unemployment Insurance systems to individual-level Census data from the American Community Survey. Placing subsidy administrative data in the context of Census survey data will allow the study to see any employment differences between the eligible families who use subsidies and those who do not.

An experimental study in Cook County, Illinois is randomly assigning low-income families to either a subsidized treatment group or non-subsidized control group. Led by Abt Associates, the study will follow participating families for two years to observe the differences subsidies make in the families' employment and child care satisfaction and child care stability. The experimental design will allow the study truly to detect subsidies' effects on these outcomes.

A second experimental study in Washington State, also led by Abt, investigates the effects of different co-payment schedules for families receiving child care subsidies on parental employment, child care choices and patterns of use, and the use of other public benefits. The treatment group families will be subject to a co-payment schedule that includes fewer "notches"—where payment amounts jump from one income level to the next—than the existing schedule. The treatment schedule also requires substantially lower co-payments for some families.

SUMMARY AND CONCLUSIONS

A growing body of research is shedding light on the ways child care subsidies are achieving one of their central goals—supporting employment for low-income parents. The research to date examines associations between parents' employment and their subsidy use, each of which relates to the other.

Some studies build models using data reflecting mothers' actual receipt of subsidy, while others infer the influence of subsidies by modeling hypothetical reductions in child care prices.

The size of potential employment differences between subsidized and unsubsidized mothers varies greatly among studies. This in part reflects their different assumptions and methodologies.

Preliminary findings on the relationship between parents' use of child care subsidies and their employment outcomes—summarized in this review and the accompanying table of methods, data, and findings—include the following:

- ▶ Receipt of child care subsidies is associated with increased rates of employment and improved employment outcomes for low-income mothers. While employment and subsidy use each influence the other, mothers who use subsidies appear more likely to:
 - work at a job,
 - work more hours,
 - work standard schedules,
 - sustain employment,
 - earn more money.

Mothers using subsidies also appear more likely to return to work sooner after the birth of a child.

- ▶ Receipt of subsidies appears to be more strongly associated with increased or improved work for some groups of low-income mothers than others:
 - Subsidies appear most likely to increase employment for the least educated women—those without high school degrees.
 - Receiving care subsidies appears more strongly associated with the probability of working stan-

dard schedules for TANF mothers than for non-TANF mothers.

- Subsidies appear to be associated with greater increases in employment for single than for married mothers.
- ▶ Retail and service sectors of the economy are the most likely to employ women using subsidies.
- ▶ Child care subsidies are just one work support associated with mothers' employment decisions. Other policies and benefits—e.g. tax credits, cash assistance, medical insurance, food stamps—are also related.

As researchers continue to build evidence on the relationship between subsidy receipt and employment outcomes, they need to take creative advantage of administrative data on child care and other work supports, as well as strengthened survey data on child care. They also need to undertake more experimental studies to solidify understanding of subsidy effects suggested by non-experimental studies. Random assignment or not, all future research needs to reflect explicit understanding of the policy context of the subsidies examined. While research to date has focused almost exclusively on subsidies' relation to mothers' employment, future research needs also to examine ways subsidies influence the employment of other family members. Future research also needs to study the impact of subsidies in a broader context—looking more deeply into the ways that parents weigh child care subsidies, other public benefits, and the availability of quality care in their communities when making their employment and child care decisions.

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ENDNOTES

1. The first literature review in this series is Schaefer, S. A., Kreader, J. L., & Collins, A. M. (2005). *Predictors of Child Care Subsidy Use*. New York: Child Care & Early Education Research Connections. <www.childcareresearch.org/location/ccra7459>
2. The Child Care and Development Fund was created by 1996 and 1997 amendments to the Child Care and Development Block Grant. The name "Child Care and Development Fund" does not appear in legislation and is the name adopted by the Department of Health and Human Services to refer to the consolidated funds.
3. Aid to Families with Dependent Children Child Care, Transitional Child Care, and At-Risk Child Care—previously authorized under Title IV-A of the Social Security Act—were consolidated with the Child Care and Development Block Grant.
4. A current TANF family may become a former TANF family, and a family with no recent TANF history may begin to receive cash assistance from the TANF program.
5. See Blau, D. M. & Robins, P.K (1988), Child-care costs and family labor supply, *The Review of Economics and Statistics*, 70(3), 374-381 and Connelly, R. (1992). The effect of child care costs on married women's labor force participation. *The Review of Economics and Statistics*, 74(1), 83-90.
6. The ACF Office of Planning, Research, and Evaluation (OPRE) funded, and CCB oversaw, the first two rounds of *Child Care Research Partnerships*; CCB funded and oversaw round three.

7. OPRE funded and oversaw the *National Study of Child Care for Low-Income Families*; CCB funds and, with OPRE, oversees the *Evaluation of Child Care Subsidy Strategies*, an experimental study.
8. Child Care and Development Fund (CCDF) Report to Congress for FY 2002 and FY 2003, forthcoming.
9. Some studies completed after PRWORA analyzed data that had been collected in the course of studies of pre-TANF welfare reform initiatives. The latest studies included in this review are from 2004.
10. For discussion of responses to child care financial assistance questions in NSAF, see Giannarelli, L., Adelman, S., & Schmidt, S. (2003). *Getting help with child care expenses* (Occasional Paper No. 62). Washington, DC: Urban Institute.
11. The econometric studies cited here generally assume parents make a joint decision about child care and employment; thus, the studies structure their models as a joint decision. Connelly (1992) authored the original paper in this literature which specified the model of the impact of child care costs on women's labor force participation. The theoretically-based assumption of a joint child care and employment decision, sometimes made implicitly, is based on economic theory, as articulated in Connelly (1992). See Anderson and Levine (1999) for a review of earlier econometric literature which follows from Connelly's model.
12. The two experimental studies reviewed here (Gennetian et al., 2001; Crosby et al., 2001) are welfare policy experiments for which the child care subsidy portion of the experiment dealt with provision of enhanced services around child care subsidies, such as resource and referral services. As such, these studies, while useful, do not directly address the impact of the presence or absence of subsidies, the key issue in this paper.
13. In Lemke and colleagues (2000), the comparison was between families' likelihood of working and likelihood of participating in education or training. In Queralt and colleagues (2000), the effect for former welfare recipients was less robust than for current recipients but still statistically significant. This finding resulted from only one of several analytical techniques utilized.
14. Lemke and colleagues (2000) used data from Massachusetts; Queralt and colleagues (2000) used data from Miami-Dade county in Florida.
15. State welfare waiver demonstration programs generally are comparable to the post-TANF policy environment, as these state welfare demonstrations were the policy experiments that TANF often implemented nationally.
16. In addition to studies reviewed here, see two earlier studies, Michalopoulos, Robins, and Garfinkel (1992) and Kimmel (1992).
17. Houser and Dickert-Conlin's (1998) analysis took into account the full range of federal programs and benefits (EITC, AFDC, housing assistance, Food Stamps, Medicaid) in addition to child care subsidies.
18. Income in families with two earners typically exceeds state income ceilings for subsidy eligibility. According to the U.S. Child Care Bureau (2003), 85 percent of families receiving CCDF subsidies were headed by single parents.
19. As noted above, Lemke and colleagues (2000) compared families' likelihood of working with their likelihood of participating in education or training.
20. Other national surveys that have collected child care data—e.g., National Study of Child Care for Low-Income Families and Survey of Income and Program Participation—were not used in the subset of studies of subsidies and employment reviewed here.
21. Approximately one-quarter of the children served through CCDF are cared for in legal, non-regulated settings; of these approximately one-half are cared for by relatives.
<www.acf.dhhs.gov/programs/ccb/research/04acf800/table4.htm>
and <www.acf.dhhs.gov/programs/ccb/research/04acf800/table5.htm>
22. Research (Roschelle, 1997) has shown that in many families, relatives are not able to provide substantial child care assistance since they are also employed. However, in some of these cases relatives provide care for children occasionally or for small periods of time.

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