

# **Design Phase: National Study of Child Care Supply and Demand — 2010**

## **Literature Review and Summary**

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## I. INTRODUCTION

This literature review and summary is intended to help identify key research questions and conceptual and methodological issues for the design of the National Study of Child Care Supply and Demand 2010 (NSCCSD 2010).

This literature review and summary is informed by two bodies of work. First, we review findings from the two national studies conducted in 1990, as well as more recent surveys conducted at the national, state and local levels that have measured the demand and supply of early and school age care. Second, we summarize the research literature across a range of substantive areas relevant to the design of the NSCCSD.

This literature review and summary is closely aligned with a logic model that identifies how key research questions are linked to constructs and measures. A compendium of measures has also been developed to complement both the literature review and logic model. The compendium reviews and documents existing surveys and survey items, and includes a description of the psychometric properties of items, populations on which the measures have been tested, sample frame coverage issues, and the appropriateness of items for use with key target populations. At this stage of the project, we have developed an initial draft of both the logic model and measures compendium to accompany the literature review and summary.

In this revised draft of the literature review, we have incorporated our review of the past studies and surveys organized by substantive area, noting problems regarding sampling and measures where appropriate. This component of the literature review has grown and been informed by the development of the compendium of measures, through which we had additional opportunities to examine various surveys on a range of issues including sample frame, mode of data collection, and measures. Indeed, a key feature of this literature review, as well as the logic model and compendium, is that they are intended to be “living” documents that will evolve based on issues raised and decisions made by the project team, expert panel, the Office of Planning Research and Evaluation (OPRE), and based on future project work and tasks.

We have taken a broad perspective in this document, reviewing and identifying issues across a range of topical areas. We have taken this approach so as to present a full range of issues and topics that could be covered in a national study of supply and demand, and in order to allow the parameters of the study to be defined through discussions with OPRE, project team members, and the expert panel members. Given budget and time limitations and survey administration concerns, it is likely that not all topics or issues covered in this review can be included in the NSCCSD 2010. To help define the scope of the study, we used criteria including: 1) how central the topic is to our understanding of early and school age care in the United States; 2) the extent to which estimates do not exist, are not up-to-date, are considered to be unreliable, or can not be obtained through other methods; 3) how relevant the data and findings would be for policy and program decision making; and 4) how feasible it will be to develop questions, collect data with good data quality, and create estimates using a national survey.

### *Note to Readers on Terminology*

In the literature review and summary, we use the term “early and school age care” for several reasons. First, we have assumed that a goal of NSCCSD 2010 is to include children from birth through age 13. This age group reflects the age range of children targeted by many federal programs and policies, including the Child Care and Development Fund (CCDF). Second, we need to be clear that while we are encompassing this full age range, we are focusing on time out of school rather than also including time in kindergarten through grade 12. While the expression “early care and education” appropriately describes care for children of all types during the preschool years, using the term “early and school age care and education” would inappropriately suggest that we are focusing on time within school. Third, we note that in the field of child care, the term “school age care” is often perceived as being limited to traditional child care settings as opposed to after school programs, which may be academic or recreational in nature. Our intention in using the term “school age care” is to be succinct and inclusive of all before and after school care arrangements. We note that in sections of the literature review that focus specifically on preschool age children, we do refer to “early care and education.” However when focusing on the full age range from birth through age 13, we use the term “early and school age care.”

### *Organization of the Review*

This review covers a range of issues important for the design of the NSCCSD 2010. In Section II, we provide context, noting why a new national study of supply and demand is needed. We highlight changes in the labor market and demographic characteristics of the U.S. population, policy and program changes, and developments in the field of child development that have taken place since the last studies of supply and demand were conducted. Section III provides a framework for distinguishing among different types of early and school age care services, all of which are of interest and importance for the new survey. This framework reserves the term “market” for one of the several streams of services for early and school age care, while noting that the different streams interact and influence each other. A particular focus of this section is articulating the distinctions among the different service streams. Section IV then focuses specifically on the early and school age care market, including the products and services that are offered, issues pertaining to geographic area, price elasticity and access. In Section V we review the issues related to the demand for care, including the utilization patterns of families; the decision making process; the factors associated with the demand for care; and the demand for quality care. Section VI provides an overview on the supply of care, including what constitutes the supply of early and school age care; factors that are associated with variation in the supply of care; policies and programs that affect the supply of care; the early and school age care workforce; and issues related to the supply of quality including professional development. Next, because the care experiences, programs and policies, and market for Native American and Tribal populations vary markedly from those of the general population, we devote a section to summarizing the issues and challenges in measuring supply and demand for this population. Within

sections V-VII, we begin with a brief overview, providing an outline of the major reasons the topical area should be included in the NSCCSD 2010. We then summarize key themes from past research and data collection that have implications for measurement. We then conclude with a summary of key design and measurement issues. In Section VIII, we conclude by outlining cross cutting and emerging themes that span a number of the substantive areas included in this review.

## **II. PROVIDING A CONTEXT: WHY IS A NEW NATIONAL SURVEY OF CHILD CARE SUPPLY AND DEMAND NEEDED?**

An understanding of how early and school age care markets function is necessary in order to formulate policies that are effective and make efficient use of government resources. Understanding how markets operate requires data on the supply and demand of early and school age care services in a representative sample. The 2010 National Study of Child Care Supply and Demand (NSCCSD) represents an important opportunity to move both policies and research forward.

In this section, we provide an overview of key changes in the economic and labor market, early and school age care policies and programs, and demographic characteristics of the U.S. population, as well as developments in early and school age care research since the last national studies on child care supply and demand were conducted in 1990. These developments together highlight the need for a new NSCCSD, have implications for the design of the study and, more generally, help to set the backdrop for the study. Additionally, we provide a brief overview of recent data collection efforts that have provided information on the supply or demand of early and school age care and education. This section is intended to provide the contextual framework for the remaining sections of this review and rationale for the NSCCSD-2010.

### ***Economic and Labor Market Changes***

#### ***Parental employment***

The percentage of mothers in the labor force with children under the age of 18 increased from 66.7 in 1990 to 72.9 in 2000 and then decreased slightly to 70.5 in 2005 (*Women in the labor force: A databook*, 2006). This overall trend, however, masks important shifts in the employment patterns of mothers. In particular, mothers are reentering the labor market more quickly after the birth of a child (Overturf Johnson & Downs, 2005); this shift is particularly pronounced among single parents (Wolf, 2003). The economic boom that began in the mid-1990's coupled with welfare reform drew large numbers of low-income and, in many cases, single parents into the labor force (Acs & Loprest, 2005). Between 1994 and 2004, the percentage of single parents who were employed increased from 59 to 74 percent; this increase was particularly pronounced among less-educated single mothers (at least through 2002) (Acs & Loprest, 2005; Lerman, 2003). In 2002, roughly 40 percent of low-income single parents were employed in the labor force full-time year round and another 22 percent were employed part-time, year round (Acs & Loprest, 2005). Together these changes in the labor market participation of mothers with young children and single- and low-income parents have affected the demand for early and school age care, in particular care for infants and toddlers and care that is affordable to low-income families.

### *Service industry and 24-hour economy*

The expansion of sectors of the service industry that employ low-skill workers has also played a key role in both increasing the rates of employment among low-income parents and in reshaping the type of care that is needed. Hours of employment within the service industry often fall outside of traditional hours, leading Presser (2003) to refer to this sector as the 24-hour economy. Parents employed in this sector, who are disproportionately low-income parents, are in need of care that includes early mornings, evenings and weekends<sup>1</sup> (Tekin, 2004). Additionally, more and more parents today are employed in jobs with schedules that vary and rotate and, as such, need care that permits flexible scheduling (Henly, Schaefer, & Waxman, 2005; Henly, Schaefer, & Waxman, 2006). Findings from the Community Survey of the National Study of Child Care for Low Income Families indicate that roughly 75 percent of the low-income families in that sample who used non-parental care worked nontraditional hours (Burstein, Layzer, & Cahill, 2001). Yet, the formal child care market, in particular center care, shows only a limited response to the rapid growth of the service industry and the 24-hour economy. (In contrast, family child care providers have responded to this change to a larger degree, see Collins et al., 2004). The results of several studies suggest that parents who work evenings, weekends, and other nonstandard hours are faced with more limited care options than parents working traditional schedules (Collins, Kreader, & Layzer, 2004).

### *Changes in Early and School Age Care Policy and Programs*

Since 1990 important changes in policy and programs that affect early and school age care have taken place (see Adams & Rohacek, 2002b for brief review). The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 ("PRWORA, Pub.L.no. 104-193," 1996) combined four federal child care funding programs into the Child Care and Development Fund (CCDF), giving states greater flexibility in the administration of their child care subsidy programs. Because CCDF eliminated the entitlement of current and former welfare recipients to child care subsidies, the change also increased state flexibility in prioritizing who would be eligible for the expanding (yet finite) pool of resources. There were substantial increases in the funds available for subsidies under the new policy. First, the total allocation in 1996 exceeded the funds available through the four previous funding streams. Second, states were allowed to allocate Temporary Aid to Needy Families (TANF) funds for child care (directly or through transferring TANF funds to CCDF). Third, there have been substantial overall increases in funding over time. Between 1996 and 2005 funding for child care (from multiple funding streams including CCDF, TANF and the Social Service Block Grant-SSBG) increased from 2.6 billion to 12 billion (Adams, Zaslow, & Tout, 2007; Zaslow, Acs, McPhee, & Vandivere, 2006). It is worth noting, however, that much of the growth in funding took place between 1996 and 2002, and there has been a leveling off of growth in funding since then.

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<sup>1</sup> It is important to note, that the expansion of the workday has also allowed parents to rely on parental or relative care exclusively by coordinating care schedules around parents' and relatives' availability.

A primary goal of the CCDF is to subsidize the price of care for low-income families, thereby increasing the affordability and accessibility of care for these families. A second goal is to improve the quality of child care for all families ("Public Welfare, 45 CFR, pt.98," 2002; "Public Welfare, 45 CFR, pt.99," 2002). States must set aside a minimum of four percent of CCDF funding to improve the accessibility and quality of child care.

The enactment of PRWORA has had several important implications for early and school age care markets (Guzman & Freed, 2006). First, welfare reform helped to “pull” low-income parents into the workforce through the implementation of lifetime limits on welfare assistance and by requiring recipients to be employed and/or in job training or education to qualify for aid. Second, the pull of parents into the workforce highlighted the need for early and school age care as a work support for low-income families. Third, as noted in Guzman and Freed (2006), the passage of PRWORA put pressure on states to invest in early care and education in order to meet federally set work participation rate requirements. Fourth, the goals of the CCDF have helped to call attention to the quality of early care and education. Indeed, states have often exceeded the four percent “quality set aside” in seeking to invest in improvements in the quality of early and school age care (Pittard, Zaslow, Lavelle, & Porter, 2006). Welch-Ross and colleagues (2006) note that in FFY 2001, nine percent of state and federal child care expenditures were allocated to quality enhancements. Fifth, it helped to set the stage for expanded efforts to tailor policies, target priority groups, and increase control of early and school age care policies at the state level. This, in turn, resulted in an increased diversity of care policies across the states.

Adams and colleagues (2007) note that CCDF provides funds for parents to purchase child care through the available market and may have effects on the size and characteristics of child care that is available in this way. Other early care and education services operate through publicly funded federal and state programs. At the same time as funds for low income families to purchase market-based early care and education have been expanding, publicly funded early care and education programs have also expanded. These programs include Head Start, Early Head Start as well as some state funded pre-kindergarten and full-day kindergarten programs (which may aim to be available universally or through targeted programs for low-income families).<sup>2</sup> Between 1980 and 2005 the number of children attending pre-kindergarten programs increased from 96,000 to 1,036,000 (National Center for Education Statistics, 2007a). While enrollment in kindergarten increased slightly from 3.1 million in 1980 to 3.7 million in 2001 large shifts occurred in enrollment in full-day programs. In 1980, 28 percent of children enrolled in kindergarten attended full-day programs by 2001 it had increased to 60 percent (Wirt et al., 2004). While PRWORA focuses on helping low income working parents on the road to self-sufficiency and improving the quality of market-based care for all families, the focus of the publicly funded early care and education programs is more explicitly to support the school readiness of low income children (and for universal pre-kindergarten programs, of all children).

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<sup>2</sup> Many pre-K programs (e.g., programs in Georgia and Florida) rely heavily on market-based programs to provide pre-K care.



The expansion of early and school age care has been made possible, in part, by increases in funding. Over the last decade there have been marked increases in federal and state funding for early and school age care. As noted above, across various funding streams including the CCDF, TANF, and SSBG, federal funding for child care increased from 2.6 billion in 1996 to 12 billion in 2005 (Adams et al., 2007; Zaslow, Halle et al., 2006). More recently, the Deficit Reduction Act of 2005 increased federal funding for CCDF alone to 5 billion per year (Guzman & Freed, 2006). From 1996 to 2005 federal appropriations for Head Start increased from \$3,569,329,000 to \$6,843,114,000 (Administration for Children Youth and Families, 2007). Between the 2004-5 and 2005-6 program years, total spending on state pre-kindergarten programs increased \$380 million or 13 percent (W. Barnett & Kelley, 2006). A range of funding sources also help to make up federal funding of after school programs including CCDF, TANF, 21<sup>st</sup> Century Community Learning Centers (21CCLC), and Workforce Development funds. In FY 2006 federal funding and state CCDF funds for after school programs totaled \$7,161,093,316 (Afterschool Investments, n.d.-b). In 2006, CCDF funds served an average of 1,770,100 children per month, 46 percent of whom were school age children ages 5-12 (Afterschool Investments, n.d.-b).<sup>3</sup>

States are finding ways to supplement available funds to expand public early and school age care programs. For example, 7 of the 17 states included in the National Study of Child Care for Low-Income Families (Collins et al., 2004) supplemented Federal Head Start funds. Likewise, 12 out of the 17 states included in this study had funding other than state dollars for their pre-kindergarten programs including federal funds (under the Title I of the Elementary School Education Act) and funds provided by local community boards (see Collins et al., 2004). In FY2006 state funds made up 2.1 of the 7.1 billion dollars spent on after school programs (Afterschool Investments, n.d.-b). In addition to CCDF funds, states received approximately one billion in funding from 21CCLC in FY 2005. Twenty-first Century Community Learning Centers Programs is the only federal program dedicated to funding after school services, with each state managing its own grant competition and both public and private organizations eligible to receiving funds of a minimum of \$50,000 annually for 3-5 years. States must target programs that serve poor and low-performing schools (Afterschool Investments, 2004). Workforce Development funds provide funding for low-income youth ages 14-21 who face barriers to employment including criminal offenders, homeless youth and school dropouts. These multiple funding streams are each operated through different federal agencies including the Department of Health and Human Services (CCDF), Department of Education (21CCLC) and Department of Labor (Workforce Development funds).

Increased demand for after school care and programs has led many state and local governments to coordinate efforts and develop interagency and public private collaborations in order to expand services available and improve the quality of care for this age group. States and local governments have played an instrumental role in developing networks that help to bring together private businesses, parents, schools and government agencies for joint planning and for sharing resources and information on best

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<sup>3</sup> Across states, the percentage of children receiving CCDF funds who were school age in 2005 ranged from a low of 6 percent in Wyoming to a high of 53 percent in Illinois (Afterschool Investments, n.d.-a).

practices (Afterschool Investments, n.d.-b). Coordination efforts have also focused on ways to improve the quality of care, the development of quality rating systems and program standards, licensing, and professional development (Afterschool Investments Project, 2006). In addition, given the overlap in service populations, many states are beginning to coordinate CCDF and 21CCLC and other federal funds in order to improve quality of school age care, expand the options and accessibility of care available to families, sustain the long-term viability of new and established programs, and in an era of economic slowdown, maximize available funds (Afterschool Investments, 2004, 2006). For example, in South Carolina state agencies have coordinated funding from CCDF and 21CCLC to expand and support after school programs in underserved areas. As another example, in Washington DC a public-private partnership has been formed to support and leverage funding for youth programs (Afterschool Investments, 2006). These coordination efforts, however, face several challenges including differences in philosophy and goals, varying administrative practices and policies and competition for scarce resources (Afterschool Investments, 2004). More generally, it is unclear whether states will continue to be able to find ways to extend funds for early and school age care programs during difficult economic times and given state budget cuts (Pittard et al., 2006; Welch-Ross et al., 2006).

The simultaneous expansion of funding for low-income families to purchase market-based child care, and of funding for public programs which may not require payment or require limited payment, raises important new issues about both the supply and demand sides of the early care and education market. For example:

- Has the expansion of publicly funded pre-kindergarten programs affected the supply of child care? Witte (2003) has hypothesized, for example, that center slots for four-year-olds help to pay for the more expensive slots for infants and toddlers (Witte, 2003). If enrollment in child care centers of older children declines, are slots for infants and toddlers less feasible? Is the supply of center-based infant and toddler care declining as the supply of program-based Head Start and pre-kindergarten for older children increases?
- With the expansion of funding for both market-based and program based early and school age care, how can we best estimate the number of children benefiting from public funds? Should estimates of low-income families utilizing child care subsidies distinguish between those who are and are not utilizing other public programs?
- Is the overall number of slots for older and younger children across different types of early and school age care increasing, or is the distribution across types changing without an overall expansion?
- Are particular subgroups of low-income families accessing different sources of public funding for early and school age care?
- What proportion and number of families are accessing multiple sources of public funding for early and school age care?
- How has the rapid expansion of public subsidies and public early care and education programs affected the market price for early and school age care?

### *Developments in the Research on Early Childhood*

Interest in early and school age care has also grown among researchers, policy makers, and the general public as a result of recent findings that speak to the role that early care and education play in the development and well-being of children, and that underscore the economic benefits that investments in early care and education offer. Work by economists, including work by James Heckman, has called for renewed interest in public funding for early childhood programs. Their work has been motivated by findings that suggest that investments made early in life have the potential to yield higher returns than investments made in later life, and that the benefits of investments in early childhood exceed the costs (Heckman & Masterov, 2004).

In addition, as summarized in a review by Adams, Tout, and Zaslow (2007), there is a growing body of evidence linking the quality of early care and education to children's development. Research looking at naturally occurring variation in the quality of early care and education finds that quality predicts to concurrent outcomes as well as to outcomes during the early years of schooling. These associations are substantially smaller in magnitude than those between family characteristics and measures of children's development. They are also open to the possibility that self selection underlies the results, that is, that parents with certain characteristics (such as greater orientation to children's early literacy development or school readiness), both select the care settings for their children and have ongoing input into their child's development at home. Thus it is important to note that the pattern of findings persists, though is reduced in strength, with more rigorous controls for background characteristics. It is also important to note that some of the evidence from this body of work indicates that children at particular risk, for example those whose mothers have the most limited education, or who start their preschool years with lower scores on measures of cognitive development, benefit more from exposure to higher quality early care and education (National Institute of Child Health and Human Development, Early Child Care Research Network, & Duncan, 2003).

A separate body of research (also summarized in Adams et al., 2007), looking at the effects of participation in high quality early childhood intervention programs, generally considers impacts in experimental or quasi experimental research designs rather than correlational evidence. These results point to both initial and longer-term impacts of participation, particularly in intensive programs of multiple year duration (such as the Abecedarian program, in which children were enrolled full time from infancy through school entry). Results of these intensive intervention studies point to impacts that endure through adolescence and into early adulthood. Additionally, studies estimating the cost-benefit ratio of such programs have found high societal and economic benefits, such as an approximate \$37,000 increase in gross earnings due to higher educational attainment. Overall total benefits from the benefit-cost comparison in the Abecedarian study was \$158,278 compared to \$63,476 in program costs (Barnett & Masse, 2007). Cost-benefit comparisons are based on projected earnings, value or cost savings to society (e.g., lower rates of incarceration, welfare participation) using assumptions based on available data.

Together these findings have helped call attention to the importance of quality in early care and education and to the value of public investments in early care and education. This research both reflects and has helped to further shape policies and programs that provide supports for parent's economic self-sufficiency while at the same time providing opportunities to support children's development.

### ***Changing Demographic Landscape***

Since the 1990 studies were conducted, the demographic characteristics of the U.S. population have changed. For example, Hispanics have become the largest minority group, surpassing African Americans in 2002 (U.S. Census Bureau, 2008). Today, one in five children are foreign born or have a parent who is foreign born (Federal Interagency Forum on Child and Family Statistics, 2007). Among Hispanics and Asians the percentage of children who are foreign born is 55 and 19 percent, respectively (Federal Interagency Forum on Child and Family Statistics, 2007). By 2010, it is estimated that children of immigrants will constitute at least one quarter of children in the U.S. (Urban Institute, 2006).

The increased diversity of the population has implications for both the supply and demand of early and school age care. As will be noted in later sections, a challenge in measuring the workforce is capturing informal providers who may have concerns about participating in a government-sponsored survey or who may not speak English (Whitebook et al., 2004b). The linguistic diversity of the population of the early and school age care workforce also has implications for the delivery of training and education for the workforce. On the demand side, the linguistic diversity of children and families has likely meant an increased need for bilingual early and school age care providers (childstats.gov, 2008; National Center for Education Statistics, 2007b).

### ***Efforts to Measure Early and School Age Care Supply and Demand Since 1990***

Our data infrastructure is lacking up-to-date and complete information on the supply and demand of early and school age care. Such data are needed to inform policy and programs and provide basic information about the early and school age care needs, utilization patterns, and preferences of families with children, as well as the range of options and availability of care, the characteristics of providers, and the quality of early and school age care available to and used by families.

As is discussed in the section on demand, several national and state studies have collected data since 1990 on the early care and education utilization patterns of families and children. However, with few exceptions such as the work by Shlay and the National Study of Child Care for Low-Income Families, data are lacking that directly assess the child care preferences and decision making processes of families. Particularly lacking are data at a national level, and data on families relying solely on parental care. Additionally, many of these studies are limited in scope either focusing on specific subgroups (such as low-income populations) or lacking representativeness and/or sufficient sample sizes to examine families eligible for or participating in federal programs. As summarized in the

supply section below, there have been recent efforts to measure the supply of child care at the state and local level as well as one national study of after-school programs in public elementary schools. Some of these studies have included data from multiple states. As such, they help to provide an emerging picture of the supply of care at the state level, and by extension the beginnings of a national picture. The National Study of Child Care for Low Income Families exemplifies recent efforts to build a national portrait of supply from the state and local level. Market rate surveys which states are encouraged<sup>4</sup> to conduct every two years under CCDF regulations provide another data source on the supply and price of child care at the state and local level; however, the methodology and data quality of these surveys varies across states (Weber, 2007). A recent publication by Grobe, Weber, Davis, Kreader, and Pratt (2008) provides guidance to improve the measurement in market rate surveys.

Across these various data sources the field is hampered by varying definitions for key constructs such as type of care, parental preferences and choice, and quality of care, to name a few, and a lack of consensus on the target populations including the age range of children or how the early and school care workforce should be defined. Additionally, we lack parallel data on supply and demand collected in the same time frame for specific locations and as a result, it is difficult to address issues of how supply and demand are linked.

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<sup>4</sup> While CCDF regulations strongly encourage states to carry out market rate surveys every two years many states do not do so.

### **III. PLACING THE EARLY AND SCHOOL AGE CARE MARKET IN BROADER PERSPECTIVE**

What is a child care market? It is essential that the National Study of Child Care Supply and Demand be based on a sound and useful definition of the child care market if the Study is to provide credible results regarding markets for early and school age care. We begin our discussion of the child care market by describing the broader set of early and school age care services, placing market-based early and school age care in the context of these other sets of services.

#### *Scope of the Market*

An important precursor to defining the early and school age care market is determining which segments of care are considered to be in and outside of the market. Economists typically identify services and products as falling within or outside of the market in terms of whether services are offered to the public, and whether they involve “Arms Length Transactions” (ALT), defined as transactions in which the primary relationship between the buyer and seller is an economic one. Most care provided by centers or through family child care providers can be seen as falling into this category. Providers involved in ALT usually offer their services to the general public (e.g., no group affiliation or eligibility requirements are imposed) and prices charged generally reflect supply and demand in the market (e.g., goods or services are not offered for free or at a substantial discount to market prices because of pre-existing close personal relationships).

Clearly, a significant amount of early and school age care falls outside of the scope of the economic market as defined above. We identify three categories of care in addition to market-based care: (1) care provisions where personal relationships are a central part of the transaction, (2) publicly-provided care where public policy determines the price and who receives the goods, and (3) affiliation-based care, where association with a particular entity is central to the transaction.

Much of family, friend, and neighbor care<sup>5</sup> is seen as falling outside of the market because the pre-existing relationship between family and provider means that care is not offered to the general public, and the transaction regarding price of care is not an Arms Length Transaction. However, the availability of family, friend, and neighbor care will affect the demand for market-based early and school age care. Briefly, family, friend, and neighbor care typically refers to care that is provided by relatives or non-relatives who are known to the family either through personal relationships or proximity (e.g., neighbors see Brandon, 2005). Friend, family and neighbor providers *tend* to serve one child or one family’s children. Because a key distinguishing feature of family, friend, and neighbor care is the personal or proximal tie between the provider and recipient, this type of care is typically not considered to be part of the public market in that it is not accessible to others. Additionally, the price of family, friend, and neighbor care is often set at or below market prices. A further issue is that in some areas (e.g. Miami-Dade county, Florida), the majority of family child care providers are not regulated and thus do

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<sup>5</sup> Family, friend, and neighbor care is defined in greater detail in pages on page 13.

not abide by rules requiring registration and minimum standards (Witte & Queralt, 2006). Complicating matters, however, is the possibility that family, friend and neighbor care providers can be providing care to both families with whom they share a personal tie and families with whom they have no preexisting connection. Publicly funded pre-kindergarten and Head Start are also not viewed as part of the market since they are not characterized by ALT, prices are often below market prices, and most slots are not open to the general public. Instead public pre-K and Head Start are seen as a funding stream that affects the demand for market care since they provide services that are either substitutes for or complementary to market-based care. Affiliation-based care involves an association with an entity such as a particular employer or faith-based organization. In this instance, again, most slots are available based on the affiliation rather than open to the general public, and the affiliation alters the nature of the transaction regarding the price of care. Affiliation-based care also has the potential to affect the demand for and supply of market-based care.

These distinctions help to define what falls within and outside of the market. The distinctions also help to provide a framework for understanding how different types of early and school age care services can interact to affect the demand for and supply of market-based services. Making these distinctions helps to anticipate that the same survey tools may not be useful in studying transactions that are embedded within personal relationships or affiliations, and transactions that are mainly economic in nature. Having said that, a key goal of the NSCCSD will be to have close comparability on corresponding items from a range of care settings (e.g., home- and center-based care).<sup>6</sup>

While it is helpful to make clear distinctions among different types of early and school age care services, laying them out as different service types quickly makes clear the potential for overlap. Thus, for example, there is care that is based on personal relationships but funded through public funding streams (family, friend and neighbor care paid for through a subsidy). As another example, a number of states have placed publicly-funded pre-kindergarten programs in market-based care settings such as child care centers. Likewise, after school programs can be offered in public school buildings but provided by private organizations at or below market prices. In short, while these categories are helpful in identifying the various service types and key distinctions, overlap across categories and hybrid care arrangements (containing features from two or more categories) exist.

Figure 1 presents our proposal for a conceptualization of different types of early and school age care including care that is provided to infants, toddlers, preschool and school aged<sup>7</sup> children. The 1989/1990 study concentrated on market-based care (for preschool

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<sup>6</sup> For example, recent work in developing the provider questionnaires for the NSCCSD suggests that it may be best to have a questionnaire for home-based providers that includes questions comparable to the center-based questionnaire as well as some questions specific to family, friend, and neighbor providers. Additionally, activities of children in center-based care (using a representative classroom) and home-based care can be compared.

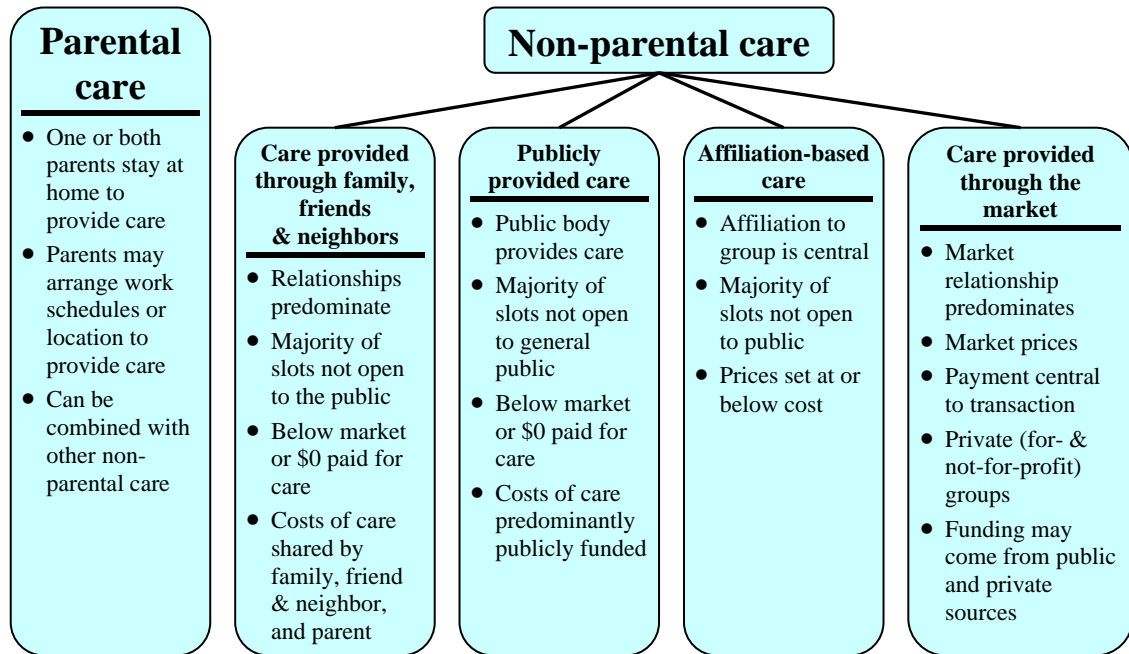
<sup>7</sup> As is noted in the Section 5, for example, most school age children who receive before or after-school care are in center-based care, relative care, or self-care. It will be important to consider how self-care can or should be depicted in the conceptual figure below.

and school aged children) although a number of Pre-K and Head Start programs were included in the Profile of Child Care Settings (PCS) study.

An important question in designing the new NSCCSD is what types of care to include. A thorough study of care provision would consider all types of care. The narrowest meaningful study would focus on a single type of non-parental care (e.g., market-based care). Clearly, the more inclusive the study, the more expensive it will be. Together the four boxes falling under non-parental care can be seen as comprising the overall quantity of early and school age care available with each box identifying a separate segment of available care. This figure, as discussed above, also distinguishes between market and non-market forms of care. This distinction is crucial as the market is where prices are negotiated and set and it is the setting in which such important policies as reimbursement rates, eligibility requirements and co-payment schedules play out. Additionally, as will be discussed in the demand section, the figure recognizes the importance of parental care in the design of the NSCCSD, in particular with respect to the decision not to use non-parental care. The more parental care available the less use will be made of the non-parental care arrangements. Lastly, it is important to note that this figure does not depict licensing and regulation standards as these standards differ by state. Moreover, there are considerable advantages to keeping distinct licensing and regulations and types of care in our conceptualization while recognizing the need to capture variation in licensing and regulation. Nonetheless, it may be important to consider how state licensing and regulation affects the supply of care and to identify the types of care that might be subject to licensing and regulation. A recent study by the National Association for Regulatory Administration (NARA) and the National Child Care Information and Technical Assistance Center (NCCITAC) (2005) reveals some themes regarding licensure that may be useful in the design of the NSCCSD. According to this study, child care centers were licensed in all 50 states. In 47 states, at least some family child care homes were licensed. Whether family child care providers were licensed depended on the number of children in care. Two of the three states that do not license family child care providers do have a registration process in place (NARA & NCCITAC, 2005). Publicly provided programs, such as those in schools, tend to be licensed by a different agency than other child care providers. Likewise, religiously-affiliated care is exempt from licensing.



**Figure 1. Overarching structure of provision of early and school age care**



- *Parental care* is when one or both parents stay at home to care for their children.
  - Parents may arrange their work schedules or location to care for their children
  - Parental care can be combined with market-based or publicly-provided care.
- *Family, Friend, and Neighbor care*, as noted above, is characterized by care in which personal relationships predominate.
  - The personal relationship is as important as or more important than the monetary or non-monetary compensation.
  - A second distinguishing feature of family, friend, and neighbor care is that care is either not provided, or only peripherally provided, to the general public.
  - Family, Friend and neighbor care is also provided at or below market price, and in many cases no monetary payment takes place.
    - Payments may be funded through public streams such as subsidies.
  - The cost of care (e.g., equipment, supplies, etc) is shared by the provider and parent.
- *Publicly provided care* includes a variety of programs and services including publicly provided pre-kindergarten, Head Start and Early Head Start. Publicly funded care and policy decisions provide a backdrop against which early and school age care plays out and affects the demand for market-based and other non-market types of care.

- The key distinguishing feature of this type of care is that public funding and public policy decisions dominate.
- The price of care for families/parents is below market and in many cases there is no out of pocket cost for families/parents.
- The majority of slots have eligibility requirements and no or few slots are open to the general public. An exception is publicly-provided but universal Pre-K.
- In *Market-based care* the market or an “arms length” relationship predominates.
  - Payment of care is viewed as a central part of the transaction.
  - A majority of slots are open to the general public.
  - Organizational forms and goals vary and include:
    - For-Profit
    - Not-for-Profit
    - Some public programs and employer-based, faith-based & other affiliation-based programs where:
      - the majority of slots are open to the public and
      - payment is set at market prices and is central part of the transaction
    - In-Home Care including:
      - Family Child Care—mainly sole proprietors
      - Nannies
      - Other market based home care where the majority of slots open to the public and payment is a central part of the transaction
  - Funding sources vary and payments can be made by families, child care subsidies (e.g., CCDF and TANF), pre-k funding; and from other private sources (e.g., employers and other affiliations-based groups, charities)
- *Employer-provided, faith-based and other affiliation-based care* is characterized by care in which affiliation with the group providing care is a central part of the transaction.
  - Majority of slots have affiliation requirements and no or few slots are open to the general public
  - Prices may be at or below market
  - Their availability affects the demand for market based care.

Table 1 presents a comparison of the child care arrangements for which data were collected from households in the 1990 National Child Care Survey (NCCS) and those proposed for the 2010 NSCCSD. As seen in Table 1, The NSCCSD defines care arrangements similarly to the NCCS using the same two-week reference period though there are some key distinctions. Specifically, the NSCCSD asks households to report about any person or organization that provided care during the last two weeks, irrespective of the number of times the care was provided or the amount of time spent in the care arrangement. In contrast, the 1990 NCCS collected data on arrangements that

the focal child attended on a regular basis at least once in the last two weeks. The NSCCSD's less restrictive definition may help improve reports of care arrangements that provide coverage for short gaps of time or when primary arrangements fall through. The 2010 NSCCSD also proposes to collect data on care arrangements types similar to those in the NCCS; thus, providing the potential for comparisons in the care arrangements of children over time. However, there are several differences worth noting. First, the NSCCSD will collect data that will allow for the identification of, and distinction between, friend and neighbor care and family care providers. The 1990 study collected data on whether care was provided by an unrelated adult but not whether there was a personal relationship with the provider prior to the start of care thus it is not possible to distinguish between family care providers and friend and neighbor care. Second, for those using center care, parents will be asked to identify the name of the center or program using an address-based list of programs and centers in the respondent's community. If the program or center is not included in the list, the respondent will be asked to provide the name and street the center or program is located in. Using this information, analysts can then determine whether the program is a child care center, preschool, Head Start program and such. (Preliminary results from cognitive interviews and feasibility test suggest this approach is working and that respondents are willing to provide this type of information.) Third, in contrast to the NCCS, the NSCCSD does not collect data on self-care directly. Instead, analysts can identify children in self-care by comparing data from parent's work schedules to children's care schedules. This approach may improve data quality on self-care given the social desirability bias in reporting cases of self-care. In short, the data proposed to be collected on child care arrangements in the NSCCSD provides a crosswalk and potential for trend comparisons with the NCCS while providing more detailed data to better identify and distinguish between different types of care than was possible in the NCCS.

**Table 1: Comparison of types of care arrangements in the 1990 NCCS and the proposed 2010 NSCCSD**

Types of Care	1990 NCCS	2010 NSCCSD <sup>1</sup>
<u>Definition of Care</u>	Includes programs child attends and people who care for child on a regular basis, at least once a week for the last two weeks.	People or organizations that cared for child in the last two weeks.
<u>Parent</u>		
Parent only	<b>X</b>	<b>X</b>
Former Spouse/Partner	<b>X</b>	<b>X</b>
<u>Family, Friend, or Neighbor<sup>2</sup></u>		
Relative	<b>X</b>	<b>X</b>
Grandmother or grandfather	<b>X</b>	<b>X</b>
Siblings*	<b>X</b>	<b>X</b>
Aunts, uncles, aunt/uncle in-law	<b>X</b>	<b>X</b>
Other relatives		<b>X</b>
Friend or neighbor	<b>?<sup>3</sup></b>	<b>X<sup>3</sup></b>
<u>Family Care Provider</u>	<b>?<sup>3</sup></b>	<b>X<sup>3</sup></b>
<u>Center or Program</u>		
Center or Day care	<b>X<sup>4</sup></b>	<b>X<sup>5</sup></b>
Preschool	<b>X<sup>4</sup></b>	<b>X<sup>5</sup></b>
Before/after school	<b>X<sup>4</sup></b>	<b>X<sup>5</sup></b>
Head Start (3-5 years old only)	<b>X</b>	<b>X<sup>5</sup></b>
Lessons, clubs, sports, or other activities	<b>X</b>	<b>X<sup>5</sup></b>
<u>Self care</u>	<b>X</b>	<b>X</b>

<sup>1</sup>Information reported on this table is based on the draft of National Survey of Child Care Supply and Demand (NSCCSD) that was tested in the spring and summer of 2009. Changes to the instrument, which may impact the information reported in this table, may occur before the national fielding of the study.

<sup>2</sup>Follow-up questions in both the NCCS and NSCCSD collect data on whether care is provided in the child or provider's home.

<sup>3</sup>The NCCS collected information on whether the child was cared for by someone not related to child and distinguished between individuals who were 18 years and older and those who were under the age of 18. Nonrelated individuals can include friend and neighbors or family care providers. The NSCCSD collects information on whether provider had a personal relationship with the child before care began and whether the provider cares for other unrelated children, thereby allowing for the identification of family care providers. The NSCCSD also directly asks whether friends or neighbors cared for the child.

<sup>4</sup>The question in the 1990 study asked if child was in day care, nursery, preschool, or before/after school care and thus does not allow analysts to separate type of center care.

<sup>5</sup>The NSCCSD will not collect this information directly from parents. The name and address of programs and centers will be collected from responding parents and this information can be used by analysts to assign programs to its corresponding type (e.g., Head Start, preschool, before or after school program, etc.).

## IV. DEFINING THE MARKET

Having placed the market for early and school age care in the context of other sources of early and school age care services, we next turn to more carefully defining the child care market. There is a large scholarly and policy literature in economics that develops and uses different ways of defining a market for research and policy purposes. This literature comes mainly from industrial organization research and has been used extensively in antitrust cases. Both the U.S. Department of Justice (USDOJ) and the U.S. Federal Trade Commission (FTC) make extensive use of economically-based market definitions in their enforcement of antitrust laws and in their review of proposed mergers (for example, see U.S. Department of Justice & Federal Trade Commission, 1992, rev. 1997). Market definition research has also been used in many court cases related to antitrust enforcement actions and mergers (for example, see "Federal Trade Commission v. Tenet Healthcare Corporation," 1999; "Toys "R" Us, Inc. v. Federal Trade Commission," 2000; "United States v. Von's Grocery Co.," 1966).

We will begin this section by describing the current state of the art when defining markets both for research purposes and for policy purposes. We will proceed to describe how markets are defined in court cases as these cases have provided the foundation for the economic perspective of the early and school age care market. We will next briefly describe the major characteristics of the early and school age care market and how early and school age care markets have been defined in previous research. Finally, we conclude with a brief description of recent attempts by states to define care areas in order to insure that the "equal access" provisions of the Child Care & Development Fund (CCDF) regulations are met.

### *Market Definition in Research*

For research purposes, markets are defined both in terms of geography and in terms of the good or service provided (see Kaplow & Shapiro, forthcoming for a recent survey). In the early and school age care setting, this would dictate that we define what types of early and school age care services (e.g., are group care providers and Family Child Care providers in the same market or in different markets) are in the market and over what geographic area the market extends. The literature considers both supply and demand side factors when defining markets.

### *Demand side factors*

On the demand side, economists typically estimate systems of demand equations in order to obtain estimates of "own-price elasticities" of demand and "cross-price elasticities" of demand. The own-price elasticities of demand indicate how responsive the demand for a firm's product/service is to changes in its own prices, hence the term own-price elasticity. In layman terms, own-price elasticities of demand indicate what proportion of consumers will change their behavior if a firm were to change its prices (e.g., leave the firm if the firm were to raise prices). The cross-price elasticities of demand indicate how responsive the demand for a firm's product/service is to changes in the prices charged by other firms.

For example, what proportion of consumers would be willing to change to firm B if firm A were to raise its price?

Economists use the estimated elasticities to decide which firms' demands are sufficiently responsive to each others' price changes to be in the same market. The less elastic a firm's demand is to changes in the price of another firm, the less likely the two firms are to be in the same market (for an example of this approach, see Werden & Froeb, 2007).

This literature frequently calculates "diversion ratios", the fractional change in overall sales that is captured by other firms in the market. High diversion ratios indicate that firms are in the same market and low diversion ratios indicate that the firms are in different markets.

### ***Supply side factors***

On the supply side, economists typically look at exit and entry behavior. Firms are generally considered to be in the same market if a sustainable change in prices by one firm either causes a new firm to enter the market or causes a firm currently in the market to exit (see Kaplow and Shapiro, forthcoming for a discussion).

## ***Market Definitions for Antitrust Policy***

The U.S. Federal Trade Commission (FTC) and the U.S. Department of Justice (USDOJ) enforce U.S. antitrust laws and make practical use of market definition to do so. The FTC/USDOJ Merger Guidelines draw upon the research literature and consider both demand and supply side factors when defining a market (U.S. Department of Justice & Federal Trade Commission, 1992, rev. 1997).

### ***Product market definition under the Merger Guidelines***

The merger guidelines define a market as a product or group of products and a geographic area in which it is produced or sold such that a hypothetical firm with a monopoly in the market could impose at least a "small but significant and nontransitory increase in price" (SSNIP). The Merger Guidelines define the SSNIP as being approximately a 5 percent increase in prices. Clearly, a firm would only be able to sustain such an increase if the elasticity of demand for its product was low. Hence, the use of the estimated own-price elasticities of demand and cross-price elasticities of demand (see Kaplow & Shapiro, forthcoming for a discussion and critiques of this definition).

### ***Geographic market definition under the Merger Guidelines***

The Merger Guidelines approach to geographic market definition formally parallels its approach to product market definition. Under the Merger Guidelines, one starts with the merging firms' production locations. One asks if a hypothetical monopolist in one location (say a downtown location or a particular suburb) could profitably impose a SSNIP. If the price increase would wind up being unprofitable, say over a 1 year time horizon, then the market is defined too narrowly and the geographic area of the market

needs to be expanded. The price increases could be unprofitable either because substantial numbers of consumers change providers or because new firms enter the market.

The most widely used empirical method for delineating relevant geographic markets in antitrust and merger cases is the Elzinga-Hogarty test. The test specifies two criteria: (1) most consumers in the geographic area purchase from providers in the geographic area and (2) most providers in the geographic area have consumers that live in the geographic area.

Basically, one starts with a narrow geographic market (typically a modest radius around a couple of providers) and then progressively expands the candidate geographic market to include more distant providers until two conditions hold: (1) some large fraction of providers' business comes from the candidate geographic market and (2) some large fraction of individuals resident in the candidate geographic market use providers in the candidate geographic market. See Kaplow and Shapiro (forthcoming) and Scheffman and Spiller (1987) for discussions. This methodology has been used extensively in hospital merger cases (for example, see "Federal Trade Commission v. Tenet Healthcare Corporation," 1999). Frech et al. (2004) provide a summary of the use of this market definition methodology in hospital merger cases.

This methodology has been criticized (see Kaplow & Shapiro, forthcoming; Scheffman & Spiller, 1987). Scheffman and Spiller (1987) suggest that residual demand analysis be used to define markets and Kaplow and Shapiro (forthcoming) suggest that one compare sales loss in the market to the loss that would make SSNIP just barely profitable (called the "critical loss").

### *Early and School Age Care Markets*

Early and school age care markets are very localized because parents overwhelmingly prefer to have their children cared for in their own residential neighborhoods (Queralt & Witte, 1998). Families incur substantial search costs to learn prices and care characteristics although resource and referral agencies help to lower these costs somewhat.

Early and school age care providers have been characterized as multi-product firms, because children of different ages require quite different types of care. For example, preschoolers require supervision and developmental activities while infants require more physical care and different types of developmental activities. Care for younger children is more labor intensive (enforced by minimum staffing requirements) while care for older children requires more indoor and outdoor space. Early and school age care providers choose both the prices they will charge and the characteristics of care they will offer. In economic terms, early and school age care providers are seen as offering differentiated products, with providers offering similar products competing.

### ***Product market definition***

As far as we are aware, only one study has attempted to rigorously define the early and school age care market (Chifty & Witte, 1997, 1998). In terms of product definition, Chifty and Witte (1998) assume that child care centers provide different products than family child care providers, pre-kindergarten or Head Start. Consistent with our conceptual model depicted in the previous section, they argue that pre-kindergarten and Head Start programs are not in the same market as centers because they generally offer only part-day, part-year programs and generally receive most of their funding from public bodies and often charge zero prices.

### ***Geographic market definition***

Chifty and Witte (1998) use data from 1989/90 Profile of Child Care Setting (PCS). The PCS contained detailed information regarding the location of centers<sup>8</sup> and detailed classroom level information on the price and characteristics of care. Chifty and Witte (1998) defined early and school age care markets using the five-digit zip code location of each center. They began by calculating the distance between centers. Next, they defined geographic markets by allowing different distances between centers in the market, experimenting with distances from 3 to 20 miles.<sup>9</sup> They found that the three-mile base radius for market definition provided economically reasonable market definitions. One reason the base radius chosen was quite small was that the PCS over-sampled large metropolitan counties. The base radius of 3 divided the PCS centers into 225 geographic markets, with an average of four providers per market. The firms in the markets were on average 2 miles apart.

Chifty and Witte's work provides a base upon which to build, but it does not (and could not using the PCS) make use of the more sophisticated market definition methodologies available in the antitrust literature and in court cases.

*Geographic definitions based on equal access.* The CCDF regulations require that prices for early and school age care be set in such a way that low-income children receiving CCDF subsidies have equal access to early and school age care services. Some states have tried to define geographic areas that ensure that this requirement is met when setting reimbursement rates on the basis of market rate surveys.

For example, if equal access is interpreted as meaning that low-income children receiving CCDF subsidies should be able to access the same types of care as more economically advantaged children, then geographic areas for determining reimbursement rates should include families across the income distribution. Such geographic definitions have produced contiguous geographic areas in some parts of states, but require the use of non-contiguous communities in other parts of states.

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<sup>8</sup> Zip code information was not available in the public use tapes for the PCS. Chifty and Witte obtained zip code information for the centers from Ellen Kisker.

<sup>9</sup> They also tried using counties to define markets.



In this section, we have attempted to lay out an approach, based on the economic literature, to defining the child care market including key aspects that help to identify whether products and services fall within or outside of the market.

## V. DEMAND FOR EARLY AND SCHOOL AGE CARE

### *Overview and Context*

The majority of children in the United States currently spend some portion of their time in non-parental care. Analyses of the National Household Education Survey 2001 (NHES) indicate that roughly two-thirds of children under the age of six, not yet in kindergarten, receive some type of non-parental care; with children living in families at or near poverty more likely to be in non-parental care than children in families above the poverty line (Kinukawa, Guzman, & Lippman, 2004). Similarly, of more than 10,000 children born in the United States in 2001 and tracked by the Early Childhood Longitudinal Survey- Birth Cohort (ECLS-B), half were in some kind of regular non-parental care arrangement at 9 months of age. Among school age children under the age of 15, 40 percent are in some type of care arrangement during non-school hours (Carver, Iruka, & Chapman, 2005).

Research to date indicates that the demand for early and school age care varies significantly by child and family characteristics such as age of child, family income and economic resources, and parent's work circumstances. Also shaping the demand for early and school age care are parental preferences and values.

While preferences and values are believed to play a critical role in early and school age care demand, parental preference and values regarding early and school age care are not well understood and to date have not been directly and/or well measured in many national and state representative surveys, with few exceptions.<sup>10</sup> The decision making process itself, regarding whether or not to use early and school age care and, if so, which type of care, has also been the focus of only limited research (for exception see Witte & Queralt, 2004). The results of studies completed to date suggest that the decision to use non-parental care is driven in part by need (such as parental employment, parent's work schedules), income, and family structure (with single and low- income parents more likely to use early and school age care than their counterparts). The care needs of children also play a role in the decision to place children in non-parental care and the type of care they receive. Parents of infants, for example, appear to place a premium on infant-caregiver relationships while parents of preschool aged children (ages 3-5) may seek care arrangements that provide opportunities for learning and socialization.

While several surveys carried out since the 1990 studies of supply and demand were conducted have provided data on the overall use of early and school age care and utilization by type of care, we are lacking current and comprehensive information on the factors that shape and reflect the demand for early and school age care. Our measurement of demand has relied extensively on "met" demand through the examination of actual care utilization patterns; much less is available on unmet demand.

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<sup>10</sup> The lack of data on parental preferences and values reflects both the difficulty in obtaining high quality data on this issues, as well as the fact that some (including many economists) believe that it is not possible to measure either preferences or values directly (see also discussion on Cross Cutting and Emerging Themes).

The measurement of demand also requires a multidimensional approach that goes beyond measures of overall utilization, use of different type of care, and indirect measures of parental preference to include, for example, number or arrangements, time spent in care and tenure in care arrangement. The demand of early and school age care is also dynamic from both the parent and child perspective. Children often experience changes in care arrangements (Adams et al., 2007) both as their needs change and as a result of instability in their care arrangements. Parental demand of care can shape the local supply market but this pathway is likely bi-directional, with supply affecting decisions parents make both in terms of the care they select for their children and their employment patterns (see Collins et al., 2004; Shlay, Tran, Weinraub, & Harmon, 2005). A comprehensive measurement of the demand of early and school age care for all families with children, including those using and not using early and school age care, can provide valuable opportunities to inform policies and programs.

### ***Key Themes from Past Research and Data Collection With Implications for Measurement***

#### ***What are the early and school age care utilization patterns of children and families?***

A large body of available data and research indicates that the early and school age care arrangements of children vary by both child and family characteristics. In this section we focus on type, amount, and stability of early and school age care and how these vary by child age and family income, when possible. This review calls attention to the need for multiple measures of early and school age care utilization patterns and suggests important data elements that are needed to capture the early and school age care needs and experiences of children and families. This summary also underscores the need for a consistent definition of care types or, at minimum, a common taxonomy from which various categories of care can be constructed by data users. Without such comparability across surveys, our ability to maximize the current data infrastructure on utilization patterns of early and school age care and to link these patterns to broader research questions or to simply construct a portrait of the early and school age care experiences of children are hindered.

The summary below is drawn from national data sources including the NHES, Early Childhood Program Participation Survey (NHES, ECPP) and After School Programs and Activities Survey (NHES, ASPA); the National Survey of American Families (NSAF), Survey of Income and Program Participation (SIPP) and the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B). We turn to the different datasets as appropriate given their strengths and availability of estimates in published research. We also summarize data on utilization patterns across datasets noting consistencies and, where apparent, inconsistencies in light of data collection approaches and definitions of different types of care.

*Types of early and school age care.* As noted above, the majority of preschool age children are in a non-parental care arrangement for part of the day. While variation across data sources in the categories and definitions of care used make direct

comparisons difficult, the available data suggest that children are in a range of different care settings including family, friend and neighbor care, family child care, and child care centers (Adams et al., 2007). Additionally, there appears to be consensus among the substantive consultants and expert panel members as well as researchers in the field, more generally, that at least three types of care—center or school-based, family child care, and family, friend and neighbor care—should be captured in the NSCCSD, although the distinctions between the types are not always clear or consistent. For example, the 1990 Profile of Child Care Settings study included only centers and regulated family child care providers, and disaggregated providers by profit status, with Head Start, public schools, religious organizations, independent providers, and other providers included in the non-profit category and chain and independent providers included in the for-profit category. In the 1990 National Child Care Survey, these classifications were further disaggregated into 10 categories: center, parent, relative in child’s home, relative in other home, in-home (non-relative), family child care, sibling/self-care, lesson/club/sport, before/after school, and other care (Hofferth et al., 1991). More recent surveys such as the National Survey of Household Education (NHES), Early Childhood Longitudinal Survey (ECLS), and National Survey of America’s Families (NSAF), to name a few, collect data on a varying range of settings and providers and most collect data sufficient to identify center-based, family child care providers, family, friend and neighbor care, and, for school age children, center or school-based programs, sports or other activities, and self-care.

In this section, reflecting emerging or agreed upon definitions as well as the availability of data, we refer to center-based care as care provided by an individual or organization in a non-residential setting including centers that are for-profit or non-profit. Family child care refers to providers who offer care to a group of children, at least some of whom are non-related, in the provider’s home. Family, friend, and neighbor care, sometimes referred to as informal care, is inclusive of related and non-related providers who care for children either in their own home or in the child’s home on a regular basis (see Brandon, 2005). Friend, family and neighbor providers *tend* to serve one child or one family’s children. A distinguishing feature of family, friend and neighbor care (identified and proposed by Brandon, 2005) is that there is a “relationship by family [ties] or proximity to the caregiver and the child’s family” (p.2). Moreover, while the distinction between family child care and family, friend and neighbor care varies from state to state, family friend and neighbor care is generally exempt from licensing within the guidelines of specific states. It is worthwhile to note that the legal distinction between family child care and family, friend, and neighbor care is not always clear in the literature or possible with existing data. Because defining factors for each type of care vary by state, the inclusion of key data elements used in states’ distinctions between providers (i.e. number of unrelated children served, whether provider is regulated, where care is provided) could increase the comparability of state data over time. Center or school-based programs for school age children provide supervised activities and care in non-residential settings such as schools or child care centers. Sports and other activities refer to organized sports, music lessons that school age children may attend for enrichment purposes and/or supervision during hours that parents are unable to provide care, while self-care refers to times when a child is responsible for him or herself and outside of the supervision of an

adult (Lawrence & Kreader, 2006). Finally, it is important to note that these definitions reflect the literature and are not intended to contradict or replace the definitions and distinction set forth in Sections III and IV.

*Utilization patterns among preschool age children.*<sup>11</sup> Data from the 2001 NHES indicates that roughly equal percentages of children (under the age of 6) receive care in a home-based and center-based setting. Among those receiving care in a home-based setting, a slightly higher percentage of children receive care from a relative (28 percent) than a non-relative (23 percent) (Kinukawa et al., 2004). Among children living in families below the poverty line, just over a third are in home-based relative care (Kinukawa et al., 2004; see also Adams et al., 2007). Using NHES data, Brandon estimates that family, friend and neighbor care accounts for just under half of the total amount of time children under the age of 2 spend in non-parental care (Brandon, 2005). These findings are consistent with data from the ECLS-B which finds that at 9 months of age, 26 percent of children are in relative care (often with a grandmother), 15 percent are in non-relative care (either in their own home or another family's home), and 9 percent are in center-based care (Flanagan & West, 2004). In contrast, among children age 3 to 5, family, friend and neighbor care accounts for just over a quarter of total non-parental care (Brandon, 2005). Morrissey and Banghart (2007) report that close to a quarter of children are in family child care at some point during their preschool years. Center-based care is also a common experience for young children with over half of children aged 3-5 in a center-based arrangement compared to 16 percent among children ages 0-2, according to estimates from the NHES (Kinukawa et al., 2004). The use of center care also varies by family income, with children from low-income families and those not receiving subsidies less likely to be in center-based care than children from families with higher income (Adams et al., 2007; Kinukawa et al., 2004; Lee et al., 2003). The NHES, which also allows identification of faith-based centers, indicates that roughly 9 percent of children under the age of 6 attend center care provided by faith-based organizations (Kinukawa et al., 2004).

*Utilization patterns among school age children.* Among school age children the use of before and after school non-parental care is a common experience as parents rely on such arrangements to provide adult supervision and care and/or supplement their child's academic experience. The NHES: After-school Programs and Activities (ASPA) and NSAF are two of the major national sources of information of care arrangements of school age children currently available. These data sources indicate that the care arrangements of school age children are complex and include a greater range of care types than found among pre-school age children (Lawrence & Kreader, 2006). According to the NHES, 20 percent of children in grades K to 8 regularly attend a before school non-parental care arrangement (Kleiner, Nolin, & Chapman, 2004) and 40 percent attend at least one weekly after school non-parental arrangement (Carver & Iruka, 2006). Overall, 68 percent of children are in a non-parental care arrangement before or after

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<sup>11</sup> The reader should note that the 1990 National Child Care Survey also collected data on the utilization of non-parental care and type. Since this focuses on *current* patterns of utilization in order to inform the design of the NSCCSD 2010, the findings from the 1990 study are not summarized here, unless appropriate.

school, roughly a third of whom participate in more than one arrangement (Lawrence & Kreader, 2006). The most common non-parental arrangement for school age children (grade K to 8) is school or center-based programs (19 percent); relative care (17 percent) and self care (13 percent); the latter may suggest an unmet need for care, in particular for older middle-school age children who are more likely to be in self-care than younger children (Kleiner et al., 2004). Two percent of children in K-2 and 7 percent of children in grades 3-5 are in self-care compared to 27 percent of children in grades 6-8 (Carver & Iruka, 2006). Moreover, though grandmothers provide just over half of all relative care for school age children, 23 percent of relative care among this age group (K to 8<sup>th</sup> grade) is provided by siblings and this percentage increases to just over a third (34%) among children in grades 6-8 (Kleiner et al., 2004). The care arrangements of school age children also vary by time of year, race/ethnicity, and maternal employment. During the summer months, two-thirds of children are in some form of non-parental care arrangement. The most common types of non-parental care used are relative care (34%), summer programs (24%) and self-care (11%) (Lawrence & Kreader 2006) Roughly a third of white children (35%), 55 percent black children and 40 percent of Hispanic and Asian children participated in at least one weekly non-parental care arrangement, with black children more likely to be in center or school-based care and relative care (Carver & Iruka, 2006; Lawrence & Kreader, 2006). Although no differences are found in the percentage of children participating in after school care arrangements or in the type of care they attend by family income, over half of school age children whose mothers are employed 35 hours or more (57%) are in a non-parental after school arrangement compared with 20 percent of those whose mothers are not in the labor force and 32 percent of those whose mothers are working part-time (Carver & Iruka, 2006). Finally, data from the 2005 NHES indicate that 46 percent of children whose parents report having concerns about their neighborhood's health and safety are in an after school arrangement compared with 39 percent of those whose parents report no concerns (Carver & Iruka, 2006).

While several studies have shown that parents express a great deal of interest in after school programs (After School Alliance, 2008) utilization rates, particularly among older youth, are lower than would be expected (Lauver, Little, & Weiss, 2004). More information is needed about how available and accessible programs are to families and what keeps youth from participating in after school programs. Utilization rates appear to be strongly influenced by program characteristics such as cost and ease of access/transportation. Youth interest in programs also affects utilization. Finally, research suggests that low-income children may have less access to safe, high-quality programs, and parents in poor and dangerous environments may be more likely to restrict their children's activities to the home (Harvard Family Research Project, 2007).

*Time in care.* Another key dimension to include in measures of demand is the amount of time children spend within and across arrangements. The amount of time children spend in care varies by type of arrangement, age, and income. Overall, children under the age of 6 whose parent report using at least one child care arrangement (excluding self-care and school) spend an average of 32 hours in a care arrangement per week (Overturf Johnson, 2005). Among children in low-income families receiving

nonparental care, 38 percent of children under the age of 6 spend 15 or more hours per week in a non-parental care arrangement and 22 percent are in care for 35 or more hours a week (Zaslow, Acs et al., 2006). Among those in center-based care, preschool age children spend an average of 29 hours in center care per week compared to an average of 36 hours among those in family care and 31 hours among those in family, friend and neighbor care. These findings from recent surveys echo those of the 1990 National Child Care Survey, which also collected data on number of hours children spent in primary care arrangements. Among children with employed mothers in nonparental care, children under the age of 5 spent an average of 35 hours a week in their primary non-parental arrangement while children ages 5 to 12 spent an average of 12.5 hours in 1990 (Hofferth et al., 1991). According to Capizzano et al. (2002), school-age children with employed parents in nonparental care, spend an average of 13.9 hours in supervised after school arrangements during the school year and 23.2 hours in supervised care during the summer. Among those receiving after school care, black children and children whose families are below the poverty line spend more time in after school care arrangements than white or Hispanic children and families with incomes above the poverty line (Carver & Iruka, 2006). Among school age children receiving after school care, children in relative (10.6) or non-relative (10.2) care spend more time in care than children participating in center or school-based care (7.3), in supervised activities (4.5) or in self-care (4.6 hours) (Carver & Iruka, 2006).

*Indicators of stability and complexity of care.* Another aspect of care that is important to consider is the stability and complexity of care; though it is unclear whether this is feasible to include and measure in a cross-sectional study. A large body of research indicates that some children experience a non-trivial amount of change in their care arrangements, and this is particularly evident among children from low-income families (Weber, Jensen, Miller, Mosley, & Fisher, 2005). Data from the NICHD Early Child Care Network indicate that by 6 months of age children have experienced 1.8 arrangements and by age three 5.05 arrangements (NICHD Early Care Network, 2003 cited in Weber, 2005). Data from the National Study of Child Care for Low-Income Families, however, indicates that many children experience stability in their care arrangements with more than half of the children in their study having experienced only one or two arrangements since birth (Lazyer & Goodson, 2006). Research also suggests that frequent changes may have negative implications for children's development and outcomes (Adams, Holcomb, Snyder, Koralek, & Capizzano, 2004; Adams, Zaslow, & Tout, 2006; National Institute of Child Health and Human Development et al., 2003). From a demand perspective changes in children's care arrangements may reflect parental preferences (if parents move their children to care that they perceive better meets their own needs and/or the needs of their children). However, factors outside of the parent's control also likely play a role in changes in care. For example, loss of subsidies may mean that parents can no longer afford their child's care, or an unreliable/unsatisfactory provider may cause a parent to find alternative care. Job instability (in particular for low-income parents) and seasonal work schedules can also contribute to instability. For example, parents with summer months off may take their child out of a non-parental care setting. Instability in care for school age children is also related to the school year schedule, as different types of care are needed during the school year vs. summer months.

The use of multiple care arrangements may reflect the need of parents to patch together care to meet their work schedules. Alternatively, some parents may choose multiple care arrangements in order to expand the care experiences of their children. Data from the 2001 NHES (ECPP) indicate that one in four children under the age of 6 receiving nonparental care are in multiple care arrangements, with a higher percentage of children aged 3-5 in multiple care arrangements than children ages 0-2 (Kinukawa et al., 2004). Among school age children with at least one nonparental care arrangement (grades K-8), one third are in multiple care arrangements according to the NHES, After-School Programs and Activities (Kleiner et al., 2004). Among low-income children with employed mothers in nonparental care, data from the NSAF indicate that just over a third of children under the age of 6 are in multiple care arrangements (Capizzano & Adams, 2000). However, data from the NHES (ECCP) find little variation in multiple care arrangements by family income Kinukawa et al., 2004). It is possible that the discrepancies across data sets and studies are due to differences in the samples or differences in the levels of poverty examined.<sup>12</sup>

The National Child Care Survey of 1990 also collected data to measure the complexity of children's care arrangements. Specifically, the study collected data on primary and secondary arrangements and included parental care as a category in both. As such, the study found that only 28 percent of families have only one care arrangement (Hofferth et al., 1991).

### ***What does parents' decision-making process look like?***

To date there is a lack of data on parent's search and decision-making processes. In part this reflects the difficulty of collecting survey data on these issues, particularly through retrospective questions. Efforts have also been hampered by the lack of a clear theoretical model. Recent work, however, has begun to address this gap. Researchers, for example, are beginning to take a closer look at the decision-making process of parents, examining why parents decide to use or not use non-parental care, how they go about searching for care, and how they select their care. Such research can help inform policies and programs by tailoring information and supports to more closely match the needs of parents.

The Child Care Policy Research Consortium (2003) has developed a conceptual model to depict parental child care decision-making.<sup>13</sup> The model includes key factors in the decision-making process and how various factors shape and affect the decision-making process. According to the model, the decision making process is shaped by parents' values, beliefs, and opinions that help to influence how parents think about early and school age care and consumer information (which encompasses parent's awareness and knowledge of options and prices, as well as sources of information). Together these components help to shape parental preferences about early and school age care. Key to

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<sup>12</sup> For example, NHES data are based on nationally representative households in the U.S. in 2001. The NSAF is based on nationally representative children and adults under the age of 65 in the U.S. in 2002.

<sup>13</sup> This summary is based on a presentation by Bobbie Weber (Weber, 2007).



this model is the assumption that parental preferences are dynamic—the factors that help to shape parental preferences vary over time and may change. More generally, parental preferences are seen as a “dynamic set of opinions” and viewed as part of a complex set of family management decisions. For example, parental preferences are seen as being shaped and made simultaneously with decisions about employment and influenced by the needs of both parents and (all) children in the family. In the next step, parental preferences are reconciled with opportunities, constraints, and barriers both internal to the family (e.g., family income, number and ages of children, employment schedules, access to transportation, awareness of care options and financial assistance, need for flexibility, and competing demands on financial resources) and external to the family (e.g., supply and range of options, price of care, and availability of subsidies). This process of reconciliation results in the use and selection of early and school age care, including the decision to use care, type of care selected, number of arrangements, time spent in care and price paid for care.

This model can be extended and applied to the decision to use or not use subsidies. Additionally, this model recognizes that the decision process may not be linear (i.e., proceed along the same steps in the same direction) for all or many parents. Consistent with a body of research in cognitive psychology, parents may not undertake each of the steps depicted in the model, may place greater emphasis on one stage(s) than another, and/or may return to early stages of the decision making process.

### ***What are the factors associated with the demand of early and school age care?***

A large body of research, as well as the conceptual model developed by the Research Consortium, suggests that the early and school age care needs of families and their actual utilization patterns are shaped, in part, by parent, family, and child characteristics. Family income and economic circumstances; parental employment patterns, including work schedules and flexibility; family structure; place of residence; and child’s age and developmental needs all shape the early and school age care needs and use patterns of families. Parental preferences, values and beliefs also play an important role in the use of early and school age care. In this section, we review the research on the factors shaping the demand for early and school age care.

*Family economic circumstances.* Clearly, as illustrated by the review of the data in the section above, family income is a key factor in early and school age care decisions of families. Family income affects the amount of money families can spend on early and school age care and the range of care options available to them (see also Section VI. Supply). Overall, families with children under the age of 14 spend an average of \$92 per week on child care. This amount varies with child’s age: families with children under the age of 5 spend an average of \$122 per week and families with children ages 5-14 spend an average of \$60 per week, according to data from SIPP (Overturf Johnson, 2005). Capizzano, Adelman and Stagner (2002) using data from the NSAF 1999, the most recent year for which data are available, found that families paying for summer care for school age children spent an average of \$297 per month as compared to \$266 per month during the school year.

The amount spent on early and school age care can also affect the amount of money that families have available for other needs. Indeed, low-income families spend a disproportionate amount of their income on early and school age care when they do not have subsidies or publicly provided care. Families living in poverty spend approximately one quarter of their monthly income on early and school age care compared to 7 percent spent by families living above poverty (Overturf Johnson, 2005). Additionally, families with children under the age of 5 spend a greater proportion of their monthly income on early and school age care than families with older children (10 percent versus 4 percent) (Overturf Johnson, 2005).<sup>14</sup>

*Subsidies and specific publicly-funded programs.* The availability of child care subsidies as well as government programs helps to expand the early and school age care options available to low income families. Child care subsidies are designed to address the economic burden that the cost of early and school age care presents for low-income families, and Head Start and Pre-K programs, which aim to provide specific educational and supplemental services to preschool aged children, also address this burden.

*Utilization patterns of families receiving subsidies.* Subsidies increase the purchasing power of low-income families and, in turn, expand the range of child care options available to them (Collins et al., 2004). Recent research suggests that child care subsidies have helped to bring regulated center and family child care within the financial reach of low-income families (Adams & Rohacek, 2002b; Kathleen Snyder, Bernstein, & Koralek, 2004, see also discussion below). For example, among families eligible to receive child care subsidies in three states (Massachusetts, Illinois, and Maryland), families receiving subsidies were more likely to use center-based care than non-subsidized families (Lee et al., 2003). Using data from the NHES (ECCP), Kinukawa et al. (2004) found that 57 percent of children aged 0-6 (not yet in kindergarten) in families receiving subsidies were in center-based care compared to just over a third of children from families not receiving subsidies (irrespective of family income). Weinraub et al (2005) finds that 77 percent of families receiving subsidies compared with 58 percent of families not receiving subsidies used center care; families receiving subsidies were also more likely to use registered or licensed care than their non-subsidized counterparts (Weinraub, Shlay, Harmon, & Tran, 2005). However, subsidy receiving families in her study were no more likely to be in higher quality care than non-subsidized families. Raikes and colleagues (2005), using data from the Midwest Consortium, also report that 60 percent of parents in their sample reported having more care choices because of subsidies<sup>15</sup>. Findings from the National Study of Child Care for Low Income Families, on

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<sup>14</sup> Please note we do not review the findings on price of care from the 1990 National Study of Child Care. However, the 1990 study collected data on the following: hourly and weekly expenditures for primary and secondary arrangements; proportion of families paying for care; percentage of family income spent on care; and assistance paying for care, including the use of child care income and tax credits.

<sup>15</sup> Parents in Raikes' (2005) study were selected to participate if they received care from a randomly selected provider in one of the four states (Iowa, Kansas, Missouri, and Nebraska). Providers were selected at random from state lists of licensed and subsidy receiving providers including infant and preschool center-based care, licensed family child care, registered family child care, and license exempt home providers (Raikes et al., 2005).

the other hand, suggests that subsidy receipt does not affect the type of care selected by families receiving subsidies. Instead the results of multiple regression models in which both subsidy receipt and parental preferences are included suggest that parents first decide on the type of care, irrespective of subsidy receipt (Lazyer & Goodson, 2006). In addition, local market conditions including the availability of center care, reimbursement rates, and providers' willingness to accept subsidies, can limit the options available to subsidized low-income families (Urban Institute, 2004). For example, a third of parents in the Midwest Consortium sample reported that some providers refused to accept subsidies (see also section on Supply).

*Barriers to subsidy use.* In response to data suggesting that many families who are eligible for subsidies do not use them, several recent studies have examined potential barriers to subsidy use. The available data suggest that approximately 12 to 39 percent of families eligible for subsidies receive them and that subsidy receipt is often short-lived (Kinukawa et al., 2004; Child Care Bureau cited in Shlay, Weinraub, & Harmon, 2007; Zaslow, Halle et al., 2006). Results from the Five State study indicate that the average spell of subsidy receipt was 3 to 7 months, though a proportion of children and their families reentered the system within 12 months. Reentry rates ranged from 35 to 58 percent across the five states included in the study (Meyers et al., 2002). In a study of subsidy duration in Rhode Island, Witte and Queralt (2005) identified additional reasons for variation in subsidy duration (Witte & M. Queralt, 2005). These included the level of family income, age/school status of the child, number of children in the family receiving a child care subsidy, and regional variation. Families with an income over 125 percent of the federal poverty level (FPL), those with younger children, and those with more than one child receiving a subsidy were likely to maintain a subsidy longer than families under 125 percent FPL, those who have only school age children, and those in which only one child was receiving a child care subsidy. As noted in Zaslow et al. (2006) variability in estimates of subsidy receipt is in part due to variation in state eligibility specifications, as well as variation in which families are included in the denominator of the estimate in specific studies (e.g., families who are eligible according to federal versus state eligibility guidelines or families leaving welfare versus all income-eligible families).

Using qualitative data collected through focus groups with low-income mothers living in Philadelphia who were eligible for but not currently using subsidies, Shlay and her colleagues (2004) found that parents' knowledge of and perceptions about the subsidy system played a key role in whether or not subsidies were used. Specifically, not knowing about subsidies, not believing subsidies were needed, and misperceptions about eligibility status were among the main reasons noted for why subsidies were not used. Together, perceived need and misperceptions about eligibility accounted for why 75 percent of women in the sample were not receiving subsidies. Likewise, roughly one-half of mothers in a low-income sample from Washington State and a quarter of mothers in a Philadelphia sample reported not having a need for subsidies (Schumacher & Greenberg, 1999; Shlay et al., 2001). In a similar study conducted with over 600 parents who had recently left the welfare system, Shlay found that only 29 percent of families leaving TANF were using subsidies. Of those not receiving subsidies, over half did not qualify for subsidies because they did not meet the employment requirement (Shlay &

Weinraub, 2008). Shlay and Weinraub (2008) also argue that lower subsidy uptake rates among Hispanics welfare recipients compared with blacks suggests that future efforts to transition “welfare recipients into the workforce may require different approaches for different racial/ethnic groups” (p. 36). Among those who were aware that they were eligible and indicated a need for subsidies, Shlay et al. (2004) found that the main reasons for not using subsidies included perceived “hassles associated with the subsidy system” and concerns that the use of subsidies would constrain choice of care. Their findings echo those of others. For example, Adams, Holcomb, Snyder, Koralek, and Capizzano (2004) note that recertification requirements for continued subsidy benefits may deter parents from reapplying for subsidies over time (cited in Zaslow, Halle et al., 2006). Parents of school age children may need to apply for recertification more frequently, especially during times of transition such as shifts from school year to summer care which may require a change from part-to full-day care (see Witte and Queralt, 2005; *State child care subsidy administration policies for school-age care*, 2007). Additionally, Adams and colleagues (2004) found that problems with communication and coordination between welfare-to-work caseworkers and child care administrators lengthened and complicated the subsidy application process for parents. Specifically, having a number of staff and agencies involved in the subsidy process, the dispersion of staff throughout multiple locations, inconsistent access to shared management information systems across agencies, and the quality of both staff training and staff members relationships with clients all added to the complexity of the application and recertification process (Adams, Holcolmb, Snyder, Koralek, & Capizzano, 2005). Not surprisingly, subsidy uptake rates appear to be higher among parents who are receiving other forms of government assistance such as TANF, who have court-ordered child support agreements (Adams et al., 2004) or who use center-based providers who accept subsidies and presumably take responsibility for or are knowledgeable about the application process (Shlay, 2002; Shlay et al., 2004; Kathleen Snyder et al., 2004). These findings suggest that the receipt of subsidies may be increased by streamlining the application process or coordinating subsidy receipt with the receipt of other benefits. The timing of payments, frequency with which recertification is required, variation in parental work hours and work schedules, and seasonal or short-term increases in wages that push families above eligibility status, are also all cited as sources of difficulty in maintaining subsidies (Adams, Rohacek, & Snyder, 2008; Meyers et al., 2002). For example, data from the Five State Study indicates that length of subsidy receipt was shorter in states that required families to recertify every six months (Meyers et al. 2002) and Shlay and Weinraub (2008) report that subsidy uptake rates were higher among those working a consistent work schedule with the same work days each week. While examining these issues in depth may be beyond the scope of the NSCCSD, this review suggests potential areas of questions that could be developed to collect data on the perceived and experienced barriers to subsidy use, as well as potential subgroups to consider in the analysis stage.

*Subsidies and self-sufficiency.* In addition to increasing the purchasing power of families, subsidies provide an important and needed support for families making the transition from welfare to self-sufficiency (Lawrence & Kreader, 2006; Lee et al., 2003; Lemke, Witt, & Witte, 2007). As noted in Guzman & Freed (2006), the price,

availability, stability, and quality of child care are often reported by parents as barriers to employment, constraining the employment options and trajectories of parents. In the ASPE funded study of TANF *caseloads*<sup>16</sup> in six states, for example, child care problems were the most commonly reported barriers to employment. Among TANF *leavers* in eight states, the percentage reporting child care as a barrier to work ranged from a low of 15 percent in South Carolina to a high of 40 percent in Illinois (ASPE Staff, 2003). Among subsidy-eligible parents in Washington state, over half reported being unable to work certain shifts, roughly a third reported working fewer hours, and one-fifth reported having turned down a job because of child care (Miller & Hu, 1999).

The results of several recent non-experimental studies indicate that subsidy programs are addressing the goal of facilitating employment for low-income families. Subsidy receipt is associated with improved employment outcomes including higher rates of employment (Lemke, Witt, & Witte, 2001; University Consortium on Welfare Reform, 2003; Witte & Queralt, 2003), longer, more sustained employment spells (Gennetian, Crosby, Huston, & Lowe, 2002; Lee et al., 2003; Meyers et al., 2002); faster return to employment after the birth of a child (Baum, 2003 cited in Lawrence & Kreader, 2006), and shorter unemployment spells (Ficano, Gennetian, & Morris, 2006), as well as higher wages (Danziger, Ananat, & Browning, 2004; Schexnayder, Schroeder, Faliski, & McCoy, 1999). Subsidies appear to be particularly helpful in improving the employment outcomes of the most vulnerable parents, such as those without a high school degree, single mothers, and TANF recipients and leavers (Anderson & Levine, 1999; Han & Waldfogel, 2001; Lawrence & Kreader, 2006; Lee et al., 2003). Subsidies also appear to be associated with work schedules, with mothers (especially TANF recipients) who are receiving subsidies, being more likely to work standard shifts than their counterparts (Tekin, 2004 cited in Lawrence & Kreader, 2006). Future experimental random assignment studies, however, are needed to establish the role that subsidies play in supporting employment for low-income families.

Recent research has also addressed how child care subsidy policy levers can be used to promote employment outcomes among subsidy recipients who are and are not involved in the TANF system. For example, a study by Schexnayder and colleagues (2008) examined the impact of various policy levers enacted by local workforce boards in the state of Texas. Changes made to the baseline policies included increased reimbursement rates; increased income eligibility; increased co-payments; or a combination of the three. Schexnayder and Len (2008) found that all policy changes made by local workforce boards to the baseline policy led to longer subsidy durations spells while fewer effects were found on employment durations. Increased co-payments, increased eligibility limits, and a combination of increased eligibility limits and co-payments were each associated with the longer employment-related subsidy spells. Thus, despite an increase in parental co-payments, an increase in income eligibility limits was associated with longer employment-related subsidy spells. Among non-TANF families only, longer employment spells were associated with a combination of increased income eligibility limits and increased co-payments while shorter employment spells were unexpectedly

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<sup>16</sup> ASPE funded three separate studies of TANF “Caseloads”, “Applicants,” and “Leavers” using different samples and survey instruments. As such, the findings may differ across the three studies.

found for increased reimbursement rates. The Evaluation of Child Care Subsidy Strategies study by MDRC and Abt will provide another opportunity to examine the effectiveness of different child care subsidy policies on families and providers. This study represents an important opportunity in the field to understand the implications of varying early and school age policies at the state level. The study is examining subsidy strategies in four sites including Miami-Dade County, Massachusetts, Cook County, and Washington State. It will evaluate the impact of various policies on employment, welfare participation and child well-being using a variety of methods and data sources, including administrative data, direct child observations and assessments, and surveys, and will also include an implementation component and cost-benefit analysis to examine the financial costs and benefits of programs (MDRC, 2008). Early results are now available from one of the sites: Miami-Dade County, in which differing literacy curricula were implemented on a large scale in subsidized child care centers to examine their effects on school readiness skills. Findings indicate that each of the curricula changed teachers' interactions with children and 2 of the 3 curricula implemented were found to have effects on children's literacy (MDRC, 2008).

*The role of transportation: barrier and facilitator.* The role of transportation in accessing child care and in parents' decision making process more generally, is beginning to receive greater attention by both researchers and policy makers. This interest has grown in part as a result of studies that have shown that transportation can act as an impediment to employment and self-sufficiency among TANF recipients and may limit the access of low-income families and families living in rural areas to child care. Further sources of recent interest in the role of transportation are evidence of the extent to which children and families spend time transporting to and from care arrangements, and recent efforts at the federal, state, and county levels to improve accessibility of care by improving access to public transportation and/or centralizing the availability of center care (Bowyer et al., 2006; Howell, 2006; Mitchell & Stoney, 2006). For example, several cities in California and New York have used federal and state transportation funds to open child care centers near transportation hubs, and offered public transportation vouchers and "guaranteed rides home" to parents using centrally located centers. Other cities have begun to explicitly incorporate child care into their planning, and land use and economic development decision making and to study ways to improve the accessibility and ease of public transportation for parents with young children (Dektar, n.d.; Howell, 2006; LINCC Partners, 2008).

Studies of TANF recipients and leavers have found that access to transportation is associated with getting and staying employed, in particular for those living in rural areas (Dektar, n.d.; Howell, 2006). For example, among TANF recipients in Oregon, 71 percent of those with access to a car were employed compared with 49 percent of those without a car (ASPE, 2004). The results of surveys also indicate that the location of care plays an important role in parents' decision making process. Over a quarter of parents of young children in California reported that having center care that was near work was an important factor in their decision to use a particular center and 19 percent reported that having care near their home was important (LINCC Partners, 2008). Data from the NHES indicate that among parents of school age children in an after school care

arrangement 78 percent reported the location of the arrangement as very important in their decision to use that care (Carver & Iruka, 2006). Additionally, in a recent national survey of public elementary schools, 23 percent reported transportation to be a barrier to participation in fee-based afterschool programs and 13 percent reported transportation to be a barrier to participation in 21<sup>st</sup> Century Learning Center programs (Parsad, Lewis, & Tice, 2009). Recent estimates suggest that nationwide, parents of young children travel an additional 5-6 miles each day to transport their children to and from child care and that children under the age of five spend an average of 65 minutes commuting to and from care, and school age children spend an average of 61 minutes (Howell, 2006). Among school age children participating in an after school care arrangement, 15 percent are transported to their care arrangement by their parents, 9 percent by their school or center-based program; 6 percent by their school; and 11 percent by other modes (Carver & Iruka, 2006). Mode of transportation varies by maternal employment status, mother's work shift, neighborhood conditions, and family poverty status. Children whose mothers are employed part-time, who are not in the labor force, or who are working a variable shift, children with parents reporting concerns about neighborhood safety, and children living in families above the poverty threshold are more likely to be transported by their parents (Carver & Iruka, 2006).

*Parents' work characteristics.* Parental employment is another key factor shaping the early and school age care needs and utilization patterns of families. Parents' work schedules including the times of day and days of week they work, as well as the regularity and/or flexibility of their work schedules, appear to play an important role in the care options they seek out and types of care they eventually use. It is worth noting, however, that there is very little empirical evidence as to why parents select jobs with nonstandard hours and the extent to which the decision to work nonstandard hours is related to the care of their children (see Presser, 1995 for exception).

Forty percent of employees work the majority of their hours during non-daytime, weekday hours, with a high percentage of nonstandard jobs found in the service industry (Presser 2003). Yet, as noted above, few centers offer care outside of the traditional work week and hours of 9 to 5, Monday to Friday (Collins et al., 2004; Presser, 2003). The lack of centers providing care outside of the traditional work week suggest that the formal child care market has been slow in responding to parents' changing and diverse work schedules. Indeed, the results of several studies indicate that parents who work evenings, weekends, and other nonstandard work hours are faced with more limited early and school age care options than parents who work during traditional daytime hours. For example, Layzer and Goodson (*After-school programs in cities across the United States*, 2003) found that mothers who work nonstandard hours are more likely to use relative care than any other type of care for their children. More generally, few centers provide care during evening hours or weekends (see also Kathleen Snyder et al., 2004; Urban Institute & Child Trends, 2004). Data from SIPP indicate that 16 percent of children ages birth to 4 whose mothers work nonstandard shifts are in center-based care compared to 26 percent of children whose mothers work standard day shifts (Overturf Johnson, 2005). Further, data from the 2005 NHES: ASPA show that school age children with mothers who work variable shifts (41%) are less likely to be in a non-parental care arrangement

after school than those whose mothers work regular shifts (49%). Among those receiving non-parental care with a mother working a variable shift, 15 percent were in a center and school based arrangement compared with 22 percent of children with mothers working a regular shift. School age children receiving non-parental care with mothers working variable shifts were also more likely to be in multiple arrangements that included self-care (27%) than those with mothers working regular shifts (Carver & Iruka 2006). Additionally, Han (2005) and Henley and Lambert (2005) found that nonstandard hours are associated with the use of multiple care arrangements and poorer quality care (Lambert & Henly, 2007).

Recent work by Henly and colleagues also suggests that it is not only important to consider the hours and schedules of parents, but the regularity and predictability of their work hours and schedules (Henly et al., 2005). A study by Lambert and Waxman (2005) in four industries (retail, hospitality, banking, and transportation) found that unpredictable schedules were quite common (Lambert & Waxman, 2005). Moreover, Henley et al. (2006) found that work schedules in the retail sector are often posted one week ahead of time, with many last minute changes, and that workers are often scheduled for different days and hours from day-to-day or week-to-week. Results from their study indicate that unpredictable work hours and schedules make it difficult for parents to maintain consistent child care arrangements and regular family routines (Henly et al., 2006). Lack of predictability in work hours was also associated with higher use of informal care and multiple arrangements (which were more difficult to maintain and coordinate); as well as care arrangements made at the last minute, with many of these arrangements falling through, causing absenteeism or lateness at work (Henly, 2008).

Parents whose work schedules change periodically or have little predictability, whose number of work hours vary, or whose work may require overtime may also face difficulty finding care providers who are accommodating or flexible in terms of scheduling, in part because providers (especially center-based care) require regularity in their care hours. Additionally, a criticism of child care subsidy policies is that they may be inadequate for workers with nontraditional hours; for example, reimbursement rates are set at market prices yet care provided during nontraditional hours tends to be more expensive. Parents working nontraditional work hours may also be more likely to experience changes in the number of work hours, putting them at risk of losing their eligibility status for subsidies and other work supports (Henly, 2008; Lambert & Henly, 2007). Research suggests that parents working nontraditional hours turn to relatives or rely on other informal home-based arrangements to meet their child care needs. According to data from SIPP, among children ages birth to age 4 with mothers working nonstandard shift hours, 36 percent were cared for by fathers, 31 percent by grandparents, and 15 percent by siblings or other relatives. Among children (birth to 4) whose mothers work a standard shift, 22 percent were cared for by fathers, 28 percent by grandparents, and 9 percent by siblings and other relatives (Overturf Johnson, 2005). It is important to note that parents may choose to work nonstandard hours or with varying schedules because of the availability of or preference for relative care (Presser, 1995). In short, recent research suggests that it is important to consider and collect data on parents' work hours, timing of work hours or schedules, and the regularity or predictability of work schedules.



*Family structure.* Family structure also helps to shape the early and school age care needs and utilization patterns of families. All else being equal, single parents have one less adult available to share in the care of a child, the coordination (e.g., transportation to and from arrangements) of care, and child care related expenses. The findings of several studies bear this out. Overall, children from one parent families are more likely to be in non-parental care, spend more time in care arrangements and are more likely to receive home-based care, including relative and non-relative care (National Institute of Child Health and Human Development Early Child Care Research Network, 1997; National Research Council and Institute of Medicine, 2003). Data from SIPP indicate that 38 percent of never married parents use grandparent care compared to 27 percent of married parents (Overturf Johnson, 2005). Wolf (2003) also found that children from single-parent households were placed in early and school age care at earlier ages and spent more time in early and school age care than children from two-parent households. Additionally, single parents spend about twice the proportion of family income as married parents on child care (U.S. Census Bureau, 1999) and are significantly more likely to apply for and receive subsidies than two-parent households (Kinukawa et al., 2004; Zaslow, Acs et al., 2006).

The availability of other adults in the household is also likely to shape the early and school age care needs and utilization patterns of parents (Adams et al., 2006). Parents living in extended family households may need to rely less on market care. Alternatively, the presence of relatives in a household may signal the needs of aging parents or relatives for care rather than their availability to assist with child care. Also important is the presence and ages of siblings. As illustrated by the findings summarized above, recent work suggests that many families use adolescent or sibling care, and that the age of children (adolescent and child cared for), family structure and income are related to its use (Capizzano, Main, & Nelson, 2004).

*Child characteristics.* The care needs and utilization patterns of families are also influenced by the characteristics of their children. The care needs of infants, toddlers, preschool, and school age children differ, reflecting differing developmental needs. For example, as noted above, parents of preschool age children may seek out care arrangements that help to provide and facilitate the acquisition of school readiness skills, while parents of infants may place a greater emphasis on care arrangements that foster a close relationship with a caregiver and permit more one-on-one time. As the review above indicates, the early and school age care arrangement vary markedly by age of child; this variation reflects both the needs of children and families and (as is discussed in the supply section) the care options available to families with younger versus older children. Additionally, families with children of different ages are often faced with the challenge of finding arrangements that meet the needs of multiple children, coordinating these arrangements, and ensuring that their arrangements fill their work-related child care needs (e.g., provide coverage during the hours the parent is at work). For example, as Morrissey and Banghart (2007) find in their review of family child care, families with more than one child are more likely to use home-based care, in part because children of mixed ages are more likely to be accepted in this care type. Witte and Queralt (2004)

find that parents with subsidies tend to choose the same type of care for all the children that they place in subsidized care. Families with school age children may also face challenges finding and arranging for before and after school care, particularly those whose work schedules do not allow them to transport their children between school and care arrangements.

Families with children who have special needs also face challenges finding and keeping appropriate care because options are more limited (McGregor, Mulligan, Morris, Harper-Whalen, & Buck, 2002). The Individual with Disabilities Education Act (IDEA), however, is intended in part to increase access to educational opportunities of children with disabilities by guaranteeing that states provide a free public education to all children. Today, just over half of preschool age children with an identified disability are served in a public school setting within regular classrooms (Mulvihill, Cotton, & Gyaben, 2004). While policy and funding changes have increased the opportunities, programs and services available to families of children with special needs, they have also brought about new challenges. For example, Rous et al. (2007) in a recent review call attention to the need to pay close attention to transition phases for young children with special needs as they move from early intervention programs, to preschool, and to public school setting (Rous, Hallam, Harbin, McCormick, & Jung, 2007). Mulvihill et al. (2004) note the dosage of care (part- or full-time), care setting, care philosophy, and training of staff as key issues for the population of children with special needs.

Families with children who have socioemotional or behavioral problems face limited options, as well (Gilliam & Shahar, 2006). Although more is being learned about school age expulsions and suspensions, little research to date has focused on expulsions or mandatory removals from child care settings and preschool (pre-kindergarten) programs<sup>17</sup> among young children. The recent research on this issue that has been carried out suggests that approximately 6.7 per 1000 children enrolled in preschool are expelled each year, and that the rate of expulsions is higher among boys and black children, and lower in Head Start, faith-based and for-profit child care centers than in non-profit, non-Head Start and non-faith based centers (Gilliam & Shahar, 2006). Early childhood expulsion may signal later behavioral problems and predict to later school performance and education outcomes. Alternatively, preschool and child care setting expulsions may signal a need for training and support among providers on how to handle children with greater emotional or behavioral needs (see Gilliam & Shahar, 2006).

Language minority children and their families may also face challenges finding care that meets their needs. Recent data from the NHES (ASPA, 2001) indicate that language minority children under the age of 15 in grades K to 8 are less likely to be in non-parental care (52%) or self-care (11 percent) compared to their non-language minority counterparts (75 percent and 16 percent, respectively) (Thurlow, Duran, & Kato, undated).

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<sup>17</sup> Please note, the term “preschool” has multiple meanings in the field of early care and education. For example, it may refer to public pre-kindergarten or public/private child care programs for 3-5 year old children. Throughout this literature review, we clarify the meaning of the term preschool whenever possible.

*Need for flexibility in families' daily lives.* Together, the economic circumstances of families, work characteristics of parents, and family structure each play an important role in shaping the needs and utilization patterns of families. Previous work by Emlen (1998a) also indicates that the intersection of work, family, and caregiver flexibility likely affects both early and school age care needs and choices. A parent experiencing lack of flexibility in one area, such as family resources, may seek to compensate for this by finding flexibility at work (for example, in work duties or schedules), or from a caregiver (for example, regarding hours of operation) (Emlen, 1998). The work of Emlen is consistent with that of Henley and colleagues (2008), who as noted above, find that lack of flexibility and predictability in employee's work schedules can have adverse effects on child care arrangements and family life. Data from the Midwest Consortium (Raikes et al., 2005) indicate that the majority of families experience flexibility in all three arenas, with 76 percent reporting flexibility in work schedules, 72 percent from their caregiver and 71 percent at home. However, low-income families and parents receiving subsidies report much lower levels of flexibility, in particular at home (Raikes et al., 2005).

*Parental preferences.* As noted in the review by Zaslow, Halle, et al. (2006) our understanding of parental preferences has been limited by the lack of direct measures. Indeed much of what we know about parental preferences is through indirect measures, typically in the form of comparing the early and school age care utilization patterns by family characteristics such as race/ethnicity, income, age of child, and marital status. Qualitative studies such as those conducted by Shlay and others have helped to fill in this gap (Shlay et al., 2005). For example, in a recent study with low-income African American parents, Shlay and colleagues randomly administered a set of different care scenarios embedded with different (randomly assigned) situational factors (such as long or short distance to parent's work, or experience of the caregiver) to identify parental preferences for early and school age care. The results of the study indicated that parents would be willing to pay higher prices for providers exhibiting positive characteristics such as quality of caregiver-child relationships and caregiver qualifications. Commute time between the parent's job and the child care site, as well as the racial and economic diversity of the child care setting, were also seen as important factors but to a lesser extent.

These findings are consistent with quantitative data from the Midwest Child Care Research Consortium that indicate that the qualities parents most look for when selecting an early and school age care provider are warmth, reputation, stimulating activities, good physical facilities, similar values, trust, and provider credentials (Raikes et al., 2005). In contrast, race, ethnicity or language of provider were noted as least important, with price, location and type of care listed in the middle. Across type of care the reasons for selecting the care varied, with those using center care listing number of children, physical facilities, staff turnover, and accreditation as most important, while those in family care more likely to rate having a provider who shares similar values, who is known and well trusted, and of similar race/ethnicity and language as important (Raikes et al., 2005).

Using data from the NICHD Study of Early Child Care, Wolf (2003) found linkages between maternal work attitudes, beliefs about child care, and early and school age care use. Mothers who were more committed to their work roles were more likely to perceive child care as being beneficial to children than mothers who were less committed. In addition, mothers with greater work role commitment placed their children in care earlier than mothers with more traditional work role attitudes (Wolf, 2003).

Research by Caldera et al. (2003) with Mexican American families with infants indicates a strong preference for relative care, in particular grandmothers and aunts who were viewed as appropriate substitutes for maternal care. Also prominently voiced among the families in this study was the issue of trust and safety and, in particular, distrust of strangers. As a result, if family members were unavailable, a viable alternative for these Mexican American families was center care. Adult providers in center-based care were perceived to be more able to closely supervise the children than providers in other settings.

While observed racial/ethnic differences in child care utilization patterns have been viewed as an expression of family preferences, Meyers & Jordan (2006) and others have warned that the effect of race/ethnicity on child care preferences may be difficult to distinguish from other factors, such as availability, price and quality of care options available to racial/ethnic minority families or the presence of barriers such as language or legal status (Meyers & Jordan, 2006). Indeed, Hernandez has found evidence to suggest that Mexican families living in Mexico have high levels of enrollment in pre-kindergarten and do not exhibit a strong preference for relative care as has been suggested in U.S. based studies (Hernandez, Denton, & Macartney, 2007). Consistent with the parental search and decision model discussed above, Meyers & Jordan (2006) argue that child care decisions are dynamic and complex reflecting “accommodations to market, social, and family realities” with parents making choices that accommodate their roles as caregiver and economic provider in light of competing demands and needs such as quality, hours, cost, and convenience (Meyers & Jordan, 2006). These decisions are often made with limited and imperfect information about the range of options and available resources.

### ***What are parents looking for with respect to the quality of care?***

Recent work has recognized the importance of collecting data measuring quality from the parents’ perspective. Parent-based measures may be particularly critical in attempts to build profiles of quality for family, friend and neighbor care if these providers are difficult to capture or identify in sample frames for the supply-side provider survey (Emlen, Koren, & Schultzke, 2000). More generally, parents’ perceptions and beliefs about the quality of care may play a key role in the search process and the decision to use non-parental care, as well as the type of care used. Meyers (1993), for example, found that mothers who had concerns about the quality of their children’s safety in child care were more likely to drop out of a work preparation program. Hofferth and Chaplin (1998 as cited in Brandon, 2005) found that parents concerned with the training and

qualification of staff were more likely to use center care while those concerned with creating a home-like environment were more likely to use family or relative care.

Efforts to identify and develop scales and items for use in measuring parents' perspectives on quality were spearheaded by Emlen, Weber, and others in Oregon in the late 1990's and early 2000's (Emlen et al., 2000). With feedback from *both* parents and professionals, this work led to the compilation of a 15-item scale that covered a range of quality dimensions including: 1) caregiver's warmth and interest in child; 2) rich activities and environment; 3) caregiver's skills in meeting the child's needs and handling discipline matters; 4) information sharing by caregivers; 5) caregiver's supportiveness towards parents; 6) whether parents feel that the child is in a safe and healthy place, and 7) whether the child feels safe and secure. These scales have been used in local (e.g., Chicago Longitudinal Ecological Study), state (e.g., Oregon population survey; Alaska Family Survey), regional, multi-state (e.g., FACES) and national studies—most recently in the National Households Education Survey, Early Childhood Program Participation (see Emlen et al. 2000; Kinukawa, et al. 2004). The scales have been validated through replication with various samples, have correlated well with other aspects of child care including affordability, accessibility, and flexibility, as well as global measures of satisfaction with care; and were found to have good levels of comparability with other external and observable measures of quality (Emlen et al., 2000).

Recent work by Shlay and colleagues (2005) also calls attention to the need to create measures of quality that are “parent driven” or at a minimum reflect not only what researchers and policy makers define as quality, but also what parents define as quality and include characteristics parents look for in providers. Without such a match, initiatives to improve the quality of care may not be met with greater demand by parents. Shlay et al.'s (2005) analyses of child care preferences among low-income African-American families, for example, find that parents rated most highly aspects of safety and hygiene, caregiver-child interactions, and caregiver warmth. The provision of individual attention, experience taking care of children, training and education in child development or child care; warm caregiving; planned activities for learning and playing were also deemed important by parents. Interestingly, the type of care appears not to be central in parents' evaluations, suggesting that type of care is not a proxy for quality from the perspective of parents. In a more recent study with 93 white, Hispanic, and African-American welfare leavers, Shlay, Weinraub, and Harmon (2007) found that among the factors rated most important were (again) safety and sanitation practices, STAR ratings, caregiver warmth and disciplinary attitudes, amount of attention the child received, meeting of state regulations for child-staff ratios, presence of curriculum and computers (Shlay, Weinraub, & Harmon, 2007). Rated as least important by these mothers was accreditation, the race/ethnicity of the provider, flexible care hours, and familiarity with the provider. In addition, Shlay et al. (2007) found some racial/ethnic differences in preferences. African American parents exhibited preferences for neighbor over relative care and for licensed over unlicensed care. In addition, they preferred caregivers with training in child development, caregivers with a lot of experience, and caregivers with religious training compared to providers who did not have these attributes. White and Hispanic parents both expressed a preference for care in closer proximity to their job

(compared to providers located further from their job), caregivers who accepted subsidies (as opposed to not accepting subsidized children), and caregivers who spoke a mixture of Spanish and English (as opposed to mostly Spanish) with the children. Hispanic parents also voiced a preference for care during evenings and weekends and for a mix-racial composition of children served. White parents in the sample expressed preferences for the teaching of letters and numbers, and for celebration of holidays and traditions of multiple cultures. Together the results of these studies indicate accord between parents' (including low-income parents') expressed preferences and the characteristics of care that are included in measures of child care quality, including widely used direct observation measures (Weinraub, 2008). Additionally, Weinraub (2008) and her colleagues argue that these findings indicate a high level of consensus across race/ethnicity in parental preferences and definitions of quality and that differences in child care utilization by race and ethnicity may result from differences in preferences for certain "bundles" of characteristics associated with the various types of care (see also Meyers & Jordan 2006). However, though consistent with other ethnographic research (Chaudry, 2004), their studies have been based on small samples of families and it is unclear the extent to which these findings extend to other subgroups.

It is worth noting that the studies reviewed here have largely or exclusively focused on parents' preferences for care for preschool age children. Much less is known about what parents look for in school age care and how they may define quality for this age group. Data from the 2005 NHES indicate that parents of school age children may rate quality in a similar manner as parents of preschool age children and they appear to be looking for care with similar characteristics. For example, the following were rated as very important by parents when asked to rate the factors that were important in selecting their child's after school care arrangement: reliability (90%); availability of care provider (81%); location (78%); learning activities (61%); time with other children (55%); cost (44%) and number of children in setting (37%). Few differences were found by child's grade, although some were found by race/ethnicity. A higher percentage of parents of black children (86%) rated location as very important compared with parents of white (73%) and Hispanic (81%) children. Parents of Hispanic (70%) and black (75%) children were more likely to rate learning activities as very important than parents of white children (51%). Lastly, 60 percent of parents of black children rated costs as very important compared with half of parents of Hispanic children and just over a third of parents of white children (Carver & Iruka, 2006).

### ***Design and Measurement Issues for the 2010 Survey***

In this section we review key design and measurement issues that the research suggests are important to consider in the development of the demand based study for the NSCCSD 2010.

#### ***Definitional challenges***

As noted throughout this review, a key challenge facing the field is a lack of uniformity in definitions and terms in the types of care that parents use, want and need. While

multiple surveys at both the national and state level collect data on the use and type of early and school age care, a lack of uniformity in categories of care has hindered our ability to make direct comparisons across data sets and over time. Despite the lack of comparability in our current data infrastructure, there appears to be a growing consensus in the research field and policy world about some minimal distinctions in terms of type of care. These include center-based care, family child care providers, and family, friend and neighbor care for preschool age children. For school age children, there is less consensus though researchers and those in the after school field seem to agree that key categories to include are center- and school-based programs, family, friend and neighbor care (with family care distinguishing between grandparent, sibling and other relatives), family child care providers, self-care, and after school activities. It also worth noting that although the broader terms school age care and after school care are often used interchangeably in the literature, school age care tends to be used when referring to younger children while after school care is used to refer to activities and programs for middle and high school students. The term after school care also is often subsumed under the broader umbrella term of out-of-school time programs that includes after school programs and summer youth programming, vacation and holiday activities and programs, and, in many instances, any time youth are not in school.

Despite the growing consensus, additional and more refined categories are likely to yield a clearer understanding of the early and school age care experiences of children and the preferences of families. For example, the review of findings on relative care suggests that when focusing on family, friend and neighbor care, it may be important to provide further distinctions among relatives. Grandparents represent a significant proportion of relative care providers, and their use is likely related, in part, to parental preferences. Siblings also represent a common form of relative care and use of sibling care has important implications both for the children providing and receiving such care, in particular for the school age population. While the NSAF has provided valuable information on the prevalence of and context under which self-care take place, the NSCCSD can provide more recent estimates and add to our understanding of the factors associated with self-care. While several national survey sources provide data on more traditional types of care (e.g., center-based, family child care, family, friend and neighbor care, before and after school care), there is less information on less commonly used but needed types of care. These include care arrangements for children who are sick and cannot attend school or regular care arrangement, and summer care<sup>18</sup> for school age children. In addition to developing questions that include the language that parents and providers use and are familiar with, it will also be important to consider whether the NSCCSD should develop a minimum threshold for time spent in care and frequency of participation for children to be considered to be participating in an after school care program. The NHES:ASPA, for example, defines after school care as care that the child participates in at least once a week. The William T. Grant Foundation, on the other hand, takes uses a more narrow definition and defines after school programs as adult structured, formal programs for children ages 6-18 that operate during the school week and during the hours of 3-6 p.m. The steering committee for the NSCCSD has proposed using a

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<sup>18</sup> The National Survey of America's Families, 1999 collected data on summer time arrangements (see Lawrence & Kreader, 2006).

minimum of two hours per day, three days per week as the threshold for inclusion for out-of-school arrangements.

Recent research by Goerge and Cusick (2006) also indicates that enrollment figures in after school programs are often double that of actual attendance and thus it may be useful to collect data on both enrollment and attendance in after school programs (George & Cusick, 2006). Likewise, it will be important to consider what types of activities fall under the broader category of after school care, in particular how after school enrichment activities and sports should be treated. The steering committee for the NSCCSD has proposed the following inclusion criteria for formal (e.g. not friend, family, or neighbor care) out-of-school programs: more than one activity is provided (e.g. tutoring only or karate classes would be excluded), services are provided at least three days per week and two hours per day, no parental supervision is required. The steering committee recommended excluding drop-in programs, exclusively holiday or sick care, and residential programs. Lastly, just as the early care and education field has divided the preschool years into three age ranges (0-2; 3-4; 5-6), it may be important to divide the school age years by age range reflecting important developmental milestones and varying needs. Questionnaires for after school programs often divide youth into grade range (Elementary, Middle School, and High School) or age range (5-8, 9-12, 13-15 and 15-18).

Additionally in order to explore the impacts of policies and programs, data are needed on use of licensed, regulated, and registered care. However, parents are likely not able to report on this dimension and data on licensed, regulated and registered care will likely need to be collected through the supply side.<sup>19</sup>

Several definitional issues also need to be addressed for children with special needs. From the demand side survey, key issues include how should special needs be defined; what age range should we sample or include; and what are the key questions or issues that are unique to this population that should and can be explored in a *national* survey. As alluded to in the review above, the term special needs can be used to refer to a wide range of conditions including socioemotional and behavioral needs, as well as physical, psychological and mental conditions. In general the literature has defined special needs through three dimensions: 1) condition lists; 2) functional impairments; and 3) activity limitations (Mulvihill et al., 2004). Recent surveys including the NHES and the National Survey of Children's Health (NSCH) have included questions that help to identify children with special needs across these dimensions and to identify those who have received a medical diagnosis of their condition. Mulvihill et al. (2004) argues that these dimensions provide too narrow a definition for describing children with special needs. In contrast, the Maternal and Child Health Bureau Division of Children with Special Health Care Needs has adopted a broader definition of special needs to include children with physical, emotional, cognitive and behavioral conditions that require services beyond those that are usually provided to children of the same developmental age (Mulvihill et

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<sup>19</sup> For example, a comparison of data collected through parent-based report of Head Start attendance and provider verification follow-up interviews in the ECLS-K found high levels of inaccuracies in parent reports (West & Bose, 2002).



al., 2004). Approximately 8.8 percent of children under five and 16 percent of children aged six to eleven years old fit this definition (U.S. Department of Health and Human Services Health Resources and Services Administration Maternal and Child Health Bureau, 2008). The NSCCSD design team has recommended that the definition of special needs be restricted to children up to the age of 13 who have received a medical diagnosis. This recommendation is consistent with CCDF policy and the Individuals with Disability Education Act (IDEA) which ensure the educational rights of children with disability by giving states the responsibility to provide a free and appropriate public education to all children (Mulvihill et al., 2004). Also guiding this decision are data quality concerns; specifically, the potential for over reporting of socio-emotional and behavior problems. While CCDF extends subsidies to children with special needs through the age of 18, the NSCCSD team has recommended that we limit the special needs population to age 13 in order to minimize costs—including special needs children through age 18 would require that all children in the household up to age 18 be screened in order to identify those with special needs. This change in the screener would significantly increase costs without providing commensurate benefits, given the relatively low incidence rates of special needs.

### ***Multidimensional measures***

As noted in the summary above, in addition to type of care it may be important to include other dimensions of care including time spent in care, primary arrangement, and indicators of stability and complexity (such as multiple care arrangements). The inclusion of measures to capture time spent in care is important for three reasons. First, the time children spend in care has been associated with children's developmental outcomes. Children who spend more time in center-based care have been found to have higher scores on measures of cognitive and language development but also to exhibit more conflict with peers (see Adams et al., 2007 for a review). In addition, more extensive time spent in non-parental care in early childhood overall has been found to be associated with less positive social behavior among children from both lower and higher income families (see Adams et al., 2007). Second, data on the time spent in non-parental care allows data users and researchers to identify children's primary non-parental care arrangement, typically defined as the care arrangement in which the child spends the most time. The identification of primary arrangements is useful for two reasons. Primary care arrangements are likely to have a stronger effect on child developmental outcomes. From a survey administration perspective, the identification of a primary care arrangement can reduce respondent burden and interview length if auxiliary questions regarding care arrangements (such as quality of care, search process, etc.) focus on the primary arrangement (an approach taken in the NHES, for example).

Several indicators can be used to measure the complexity of children's care arrangements. A commonly used indicator is the number of care arrangements currently used by the child, which is often used to compute the percentage of children in multiple care arrangements. It is worth noting that measures of multiple care arrangements from the child perspective underestimate the complexity of care arrangements from the perspective of parents with more than one child. Also missing are measures of how

parents coordinate multiple care arrangements including barriers they may face. For example, data are needed on how parents manage or coordinate transportation or transitions between multiple arrangements.

Measures of child care stability are also less commonly collected, and tend to lack definitional and conceptual consistency (see Weber, 2005). These include duration or tenure in care arrangements and number of care arrangements ever used or used over a reference period.<sup>20</sup> Additionally, Weber (2005) suggests four measures of stability including number of providers, transition (at least one change), prime primary provider ratio (PPPR) (amount of time spent with primary care provider relative to all care), and duration of arrangements. That data on these indicators of stability are uncommon likely reflects data quality concerns, as well as logistical concerns about collecting such data. For example, asking about tenure or duration in care for all care arrangements can extend interview length and increase respondent burden, especially if such questions are asked about each type of care. Care or event histories (such as those collected for marriages or births) provide an alternative that can provide rich histories of children's care experiences but are likely to be costly to administer and the ability of parents to recall the needed detailed information may be a concern. However, it is worth considering whether current point-in-time measures (e.g., current arrangements) are sufficient to address key research questions. Given that many children experience some degree of change in their care arrangements, it may be worth asking parents to report the number of changes a child has experienced in the last year, for example.

### ***Decision making process and parental preferences***

One of the many contributions the NSCCSD 2010 can make to the field is collecting data on the decision making process of parents, including the decision of whether or not to use care. In fact, much of the data available on the decision-making process is limited to parents currently using care. Data from parents not currently using care can elucidate the reasons why parents choose not to use non-parental care and may help identify potential barriers that can be addressed through policies and programs. Data are also lacking on parents decisions regarding the use of Pre-Kindergarten and Head Start specifically, as well as how and why parents use multiple care arrangements and the combination of arrangements they select.

The model developed by the Child Care Research Policy Consortium, coupled with the measures developed and used in prior qualitative and quantitative studies, provides a good foundation to identify key constructs and potential measures. Key elements, for example, include parental values and beliefs both about early and school age care and employment (see Wolf, 2003), parent's social networks<sup>21</sup>, parental knowledge and

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<sup>20</sup> It may be possible to collect data on the stability of care from the provider perspective as well.

<sup>21</sup> Raikes and colleagues (2005) find that most parents find their care arrangements through a referral or friend (43%), 23 percent find the provider on their own, 7 percent found their care through an employer referral and 6 percent through a child care resource and referral service.

awareness of costs and options, as well as access to consumer information, and parent's willingness to pay.

The 1990 study also asked parents about the various types of arrangements they considered; the number of other types of providers who were considered, and the amount of time that elapsed between looking for and finding their arrangement (Hofferth et al., 1991). These questions were asked of both families using non-parental care as well as those reporting not having a regular arrangement. Unfortunately, sample size constraints hindered the analysis of these questions for school age children (i.e. search questions were not asked of parents who indicated that school was the primary care arrangement). It is worth noting that the measures included in the 1990 study are behavior-based (see section VIII for further discussion on behavior-based measures). This work can also inform the development of items to measure parental preferences. The work of Shlay and Raikes with colleagues suggests a core set of dimensions to include in measures of parental preferences, in particular with respect to aspects of care and the quality of care parents seek. Their work and that of others is helping to move the field beyond indirect or proxy measures of preferences. Nonetheless, it is worth noting, that as with the case of parental measures of quality (see section below), measures of parental preference may be open to social desirability bias. Indeed, as is discussed in Section VIII, behavior-based measures of preferences are particularly attractive because they may provide better data quality and capture both unmet needs and "realized" preferences.

Additionally, research on the labor market search process may be applicable to the study of child care search and decision-making processes. This body of work may provide a basis upon which to build and expand our conceptual model, and help to identify key aspects of the search process critical to measure. In the 1990 study, parents were asked about four aspects of quality: 1) child related characteristics including child/staff ratios, group size, and age range; 2) provider related characteristics including the presence of warm and loving teaching or parenting style, reliability, training and credentials, experience, and whether the provider is a parent; 3) program related characteristics including opportunities for enhancing school readiness, cognitive and social development, religious instruction, and whether instruction was conducted in the parent's culture; and 4) facility related characteristics including number of toys, equipment, health and safety issues, and parents perception of whether care provided a "home-like" setting (Hofferth et al., 1991). Parents were also asked what the most important decision was in the search process. Over a third indicated that quality of care was the most important. Those indicating that quality was most important were asked a series of follow up questions.

In addition, to measures of parent perceptions about the quality of their children's current arrangements it may be valuable to include measures that capture parents' perception about the availability and access to quality of care in their community (see Shlay et al., 2005). Such data can identify areas and groups for which resources are needed or highlight the need for increased dissemination of information. Data on parents' perceptions about the availability and quality of care may be particularly useful in exploring parents' decision to use or not use non-parental care, and may be particularly

helpful in informing policy and supports to guide the transition to TANF to work and self-sufficiency. Measures on parents' awareness of information on the quality of care, whether they have accessed such information, and, more generally, what types of information parents need and use in making decisions about child care may also prove useful. Recent studies suggest that parents often lack information regarding the quality of care but would use such information if it were made widely available and disseminated (Cornell University, 2002; Witte & Queralt, 2004; Zaslow, Halle et al., 2006).

### ***Subsidy use and barriers to subsidy utilization***

There is a growing body of evidence to suggest that parent-based reports of subsidy use have data quality problems (see Gennetian, Ficano, & Morris, 2003; Guzman & Freed, 2006). Concerns stem primarily from evidence suggesting that subsidies may not be a meaningful term for parents and that subsidy receipt may not be a conceptually distinct event for parents. For example, qualitative work by Synder et al. (2006) suggests that subsidy recipients may not distinguish between child care subsidies and TANF, and thereby may underreport subsidy receipt (Snyder, Banghart, & Adams, 2006). Likewise, parents whose subsidy payments are made directly to their child care provider or whose subsidy application was facilitated by their provider may be less likely to report receipt of a subsidy (see Guzman & Freed, 2006). Additionally, as Guzman and Freed (2006) report, while several surveys, such as NHES, SIPP, NSAF, and the ECLS-B, have collected data on child care subsidy utilization and participation in other government assistance programs, the wording of such questions produces data that make it difficult to link subsidy receipt to specific individuals or child care arrangements (see also Gennetian, 2006). Work by Grobe and Weber (2003) also calls attention to the need for dynamic measures of subsidy use. To date many of our measures both from administrative and survey sources are static in nature, capturing use of subsidy at one point in time. However, we know that subsidy receipt is often characterized by short spells and that length of subsidy receipt is linked to employment outcomes. Grobe and Weber (2003) suggest that data on subsidy receipt should include information on length of spell and reentries into subsidy receipt (see also Witte & Queralt, 2005). Also needed are data that allow for the linkage of subsidy receipt to specific children, and specific child care arrangements (see Gennetian et al., 2003). As noted above, measures on barriers to subsidy use are critical for tailoring programs and policies and in disseminating information to parents. The results of the qualitative studies suggest important aspects to include in a new survey, such as perceived administrative hassles, frequency of recertification, awareness of subsidies and knowledge of eligibility rules.

Given the results of recent research that has begun to shed light on the policy levers that are most critical to sustained employment and self sufficiency, the NSCCSD may present a unique opportunity to further explore the effects of policy. A key challenge, however, will be sampling: the size of the sample of subsidy recipients possible to obtain in a national study given low subsidy uptake rates in the general population, as well as the costs associated with oversampling subsidy recipients or subsidy eligible families. Also important to consider are state variations in subsidy policies and whether a large enough sample of state variations can be captured in the NSCCSD to analyze meaningful policy

differences across states. As a note, though these state variations will be examined descriptively, care will be taken in comparing states throughout the NSCCSD study as the usefulness of naturally occurring policy variations has been questioned due to both contextual variables inherent in state comparisons and other selection effects (e.g. states that offer more services likely have more resources or place a higher value on services than states that offer fewer services).

### *Measuring family early and school age care needs*

Until recently, the measurement of family early and school age care needs has been primarily indirect, focusing on family characteristics in relation to patterns of child care utilization. While the emphasis in this work has been on examining family economic resources and work patterns in relation to utilization of child care, this approach has also been extended to other parent, family and child characteristics, with variations in patterns of child care utilization seen as a reflection of need. For example, the use of multiple care arrangements has often been seen as a signal of unmet needs—parents having to patch together care to meet their needs.

While there have been few attempts to measure family needs directly, there are some notable exceptions in recent work. For example, with a growing emphasis of welfare reform on improving and facilitating the economic self-sufficiency of low-income working parents, a number of surveys have included a range of items that aim to capture work-related child care needs and child care-related barriers to employment (see for example ASPE Staff, 2003; Child Trends, 2006). Examples of items focusing directly on work-related child care needs include questions about the hours, times of day and days of week for which care is needed; whether flexible or last minute changes in child care schedules are needed; and the proximity of work to arrangements. Questions on child care-related barriers include questions on the reliability of child care providers and arrangements; the availability of sick child care; and the presence of alternative or backup arrangements (see Guzman & Freed, 2006 for a review of available measures). For example, using data from the NSCH, Child Trends estimates that roughly one in every 10 children in 2003 had parents who experienced child care related job problems. Among those living in families with income below 150 percent of the federal poverty line, 15 percent reported having quit, changed or not taken a job because of child care problems compared to 9 percent of those living in families with incomes above 150 percent of poverty (Lippman, Guzman, Keith, & Kinukawa, 2007).

There is also a need for the measurement of family needs beyond the economic and employment circumstances of families to encompass need for care with specific characteristics (across a variety of domains including educational, socioemotional, linguistic and physical care needs) and in relation to cultural differences. As noted above, studies by Emlen and Shlay with colleagues indicate that parents place a value on and have a need for care that is accessible, flexible, and that has specific features of quality. For example in Shlay et al.'s study (2005), parents gave lower ratings to vignettes that include child care involving long commutes or distance from parents.

More generally, a key problem is the lack of data that permit a distinction between need and actual utilization of care. Recent research in the area of health and health care service usage may serve as a potential resource from which we can draw items to measure these issues. Unit of analysis is an issue here as well, as child level data may underestimate need from the perspective of parents of multiple children.

### ***Data quality of parent-based measures of quality***

The research on parent-based measures of quality raises several concerns regarding the quality of these measures.

- *Variation in parent-based reports.* Analyses of the data from the 2001 NHES Emlen items suggest that parents tend to respond close to the ceiling, providing ratings of excellent quality. Depending on the specific dimension, only 13 to 29 percent of parents report that their child's care is good, fair or poor rather than excellent. The dimensions of care that parents are most likely to rate as *less than excellent* in quality (with about a quarter of parents responding that the quality of care is good, fair or poor) are caregiver warmth and interest in the child, rich activities and environment, and the caregiver's skill in meeting the child's needs and handling discipline. Parents from families with incomes near or below poverty are more likely to give ratings of below excellent on the quality dimensions (Kinukawa et al., 2004). In short, while variability within and across measures is low, patterns of variations across key characteristics are found and these patterns are in the expected direction. Additionally, analyses by Kinukawa and colleagues (2004) suggest that distinguishing between reports of ratings at excellent versus below excellent may be sufficient to identify areas in which quality is a concern. On the other hand, if more detailed levels of quality are needed, alternative measures or response scales should be sought or developed.
- *Parent knowledge.* An important limitation of parent-based measures is that parents may not be able to report on all aspects of quality (just as providers may not be the most appropriate sources of data on caregiver warmth). For example, parents may only be able to report about the quality of care they observe, perceive and experience. An examination of missing data and "don't know" responses by Emlen and Child Trends suggests, for example, that parents may be less likely to report about process based items that measure interactions outside of the presence of parents (e.g., "*The caregiver helps children make their own decisions*"). Emlen (2007) also suggests that parents who interact less with providers may be less able to report accurately about certain aspects of quality; this may be of particular importance for parents whose primary language differs from that of their provider (Emlen & Weber, 2007).
- *Social desirability bias and quality of parent based measures.* A more general concern related to the quality of data from the Emlen et al., items and other

To counter against this possibility, it may be worth using the dimensions of quality in traditional measures of parent-based measures to ask about dimensions of quality that were a concern when parents changed a child care arrangement. This approach is consistent with behavior-based measures of preference and unmet need that is described later in Section VIII and resembles the approach taken in the 1990 study. Asking about reasons for changing child care arrangements rather than about the current arrangement may help to minimize social desirability bias in parent based measures of quality.

An alternative approach, which also appears to avoid social desirability issues, was developed by Shlay et al. (2005). Drawing from commonly used definitions of quality included in existing measures, they constructed vignettes describing care with varying characteristics and quality. Parents were then asked to report on how much they would like to use the type of care described in the vignette for their children, what they would consider a fair price for such care (i.e., willingness to pay), and how much they would be willing to pay for child care in general (i.e., what families can afford to pay). The results of their study suggest that this approach can help identify key aspects of quality desirable to parents. For example, parents in their study rated vignettes more highly if the setting were described as licensed and lower if the setting was described as unlicensed or unsanitary. Moreover, parents were willing to pay more for licensed or certified care. However, it is unclear what meaning and understanding parents had of the term “licensed” care. Nonetheless, the results of this study suggest that parents are placing a value in the implicit meaning conveyed in these terms and labels. Likewise, Mocan (2001) found that parents’ ratings of quality tend to be higher than that of observers but the aspects of quality deemed important by parents were not different from those identified by researchers. His findings suggest that parents may inflate their rating of quality but use similar dimensions to rate the quality of their children’s care. Additionally, there may be valid reasons why observer and parent-based measures of quality differ. For example, quality from a parent’s perspective is likely to include more than those characteristics that can be observed in a classroom or home (Weber, personal communication November 16, 2007).

- *School age care:* As noted above, much less is known about parents’ preferences and definition of quality for school age care, and the role that

While recent work has attempted to develop measures of quality of school age care, much of this work has focused on center and school-based programs (Little, 2007). Developments in this area have been influenced by the early care and youth development literatures (see Granger et al, 2007). Measures tend to emphasize interaction between providers/staff and children, opportunities for skill building, and physical and psychological safety (Granger, Durlak, Yohalem, & Reisner, 2007). In her review, Little (2007) suggests that the two overall categories— structural and process—of quality for early childhood care and education are also applicable for school age care. As in early care and education, structural features of quality school age care include child to staff ratios and group size; program management; staff qualifications: education level and training; and tenure and years of experience. Process features of school age care may include: child-adult interactions and relationships; variety in program and curriculum; opportunities for autonomy and choice; and organizational supports for staff.

- *Comparability across parent and provider based measures of quality:* Given recent research by Shlay and others that indicates a high level of consensus between parents and researchers on how quality of care should be defined, a national survey of supply and demand may provide the perfect opportunity to develop and collect data on measures of quality for parents that are comparable to those that take the perspective of providers. Though agreement between parents and providers is not necessarily expected,<sup>22</sup> this study would allow for an examination of differences in parents’ and providers’ ratings of quality.

### ***Perceptions of availability and access to quality of care***

In addition, to measures of parental perceptions about the quality of their children’s current arrangements, it may be valuable for a study of supply and demand of child care

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<sup>22</sup> Provider and parent assessments of program quality are not expected to necessarily align because of the different lenses through which parents and providers see care. Parents take a family-focused perspective that takes into account both the effect of the program on the child and the responsiveness/flexibility of the provider to the family’s needs (Emlen, Koren, Shultz, & Weber, 1999)



to include measures that capture parents' perceptions about the availability and access to quality of care in their community (see (Shlay et al., 2005). Such data can identify areas and groups for which resources are needed or highlight the need for increased dissemination of information. Data on parents' perceptions about the availability and quality of care may be particularly useful in exploring parents' decision to use or not use non-parental care, and may be particularly helpful in informing policy and supports to guide the transition from TANF to work and self-sufficiency. As noted earlier, behavior-based measures of accessibility and availability may yield better quality data.

### *Access to information*

Recent studies suggest that parents often lack information regarding the quality of care but would use such information if it were made widely available and disseminated (Cornell University, 2002; Witte & Queralt, 2004; Zaslow, Acs et al., 2006). Indeed there are several state and local efforts to increase the availability and access to information of quality, price and supply of child care to parents (Child Trends, 2007). Measures are needed about the parent's awareness of information on the quality of care, whether they have accessed such information, and, more generally, what types of information parents need and use in making decisions about child care.

## VI. SUPPLY OF EARLY AND SCHOOL AGE CARE

### *Overview and Context*

The supply of early and school age care includes providers in the priced child care market (e.g. child care centers, family child care providers); friends, family and neighbors; publicly funded programs (e.g. Head Start, pre-kindergarten); and affiliation-based care (e.g. employer or faith-based care) (see Section III for an in-depth explanation of these segments of care). The supply of early and school age care and the characteristics of available care are important as these have the potential to facilitate both parental employment and positive child outcomes. In this section, an introduction is given to the issues that need to be taken into account in measuring the supply of care, the workforce of early and school age care, and the quality of care. Next, we present an overview of the policies and programs that affect the supply of care. Following this discussion, key themes in each of these areas will be highlighted and implications for measurement in the 2010 survey will be provided.

#### *What is the supply of care?*

As will be discussed further throughout this section, there are numerous gaps in understanding the supply of early and school age care. These gaps result from issues around defining the universe of care, taxonomy issues, and methodological conundrums. Measurement of the overall supply of child care is important in that it allows one to gain a deeper understanding of parents' options and how these options affect parental demand for child care and market-related outcomes. In addition to measuring the overall supply of child care, assessments of early and school age care with certain characteristics and within the contexts of community characteristics and parental needs are important. Such analyses allow for a deeper understanding of sectors of the early and school age care supply market, such as those for parents with infants or low-income parents. The 2010 survey provides an opportunity to clarify and be inclusive of multiple sectors of early and school age care. It also provides the opportunity to link supply data with local policies and demographics, allowing for contextualized analyses.

#### *Who is in the workforce?*

Our current data infrastructure does not provide a comprehensive and cohesive picture of the size and characteristics of the early and school age care workforce at either the national or state level. This lack of information is hypothesized to result from both a lack of definitional clarity regarding who is in the early and school age workforce and inadequate labor force data collection systems at federal and state levels (Brandon & Martinez-Beck, 2006).

Data on the early and school age care workforce are needed for several reasons. First, we have limited knowledge of who is caring for our nation's children during critical periods of development. Second, although we know little about the size and characteristics of the early and school age care workforce, they represent a nontrivial percentage of the

national work force and, in particular, of the workforce in the education system. Third, a reliable estimate of the early and school age care workforce, which is inclusive of all segments of early and school age care, will provide us with a better sense of the supply of early and school age care services. Reliable estimates will also help us to assess whether the supply of early and school age care meets working families' needs for services (Center for the Child Care Workforce & Human Services Policy Center, 2002). Fourth, reliable estimates of the early and school age care workforce at national, state, and local levels and disaggregated by key characteristics of the workforce will inform the development and refinement of policies, programs and fiscal decisions that can improve the quality of early and school age care. Examples of such decisions include: whether an expansion of early childhood professional development is needed and whether outreach is needed in specific geographical areas or with specific demographic subgroups (Brandon & Martinez-Beck, 2006).

### ***What is the quality of early and school age care?***

In addition to having an unclear picture of the early and school age workforce, we are lacking a national portrait of the quality of early and school age care in the United States, though a number of states have conducted state representative samples involving direct observations of quality (see review of these studies in (Zaslow, Halle et al., 2006) and some statewide cost- quality studies have been conducted (e.g. Helburn & Howes, 1996; Marshall et al., 2001; Marshall et al., 2004). Though observational measures of quality are not likely to be included in the NSCCSD due to limited resources, items measuring structural features of quality may be included. Predictive relationships between structural features of quality, process quality, and child outcomes have been identified in the literature (NiCHD Early Child Care Research Network, 2002; Westbrook et al., 2008)}. Moreover, few studies include data on broad measures of quality of care for school age children (Little, 2007). In the absence of nationally representative data, large-scale studies with samples drawn from multiple geographical areas have been used to estimate the overall quality of early and school age care that children in the United States experience. Many of these studies have been limited to center and/or family child care providers.

### ***Policies/programs affecting the supply of child care***

*Child Care and Development Fund (CCDF) - child care subsidies.* Researchers have found that increases in child care funding, including through CCDF, are associated with expansions in the supply of child care, specifically the number of child care providers (Adams & Rohacek, 2002b; Cochi Ficano, 2006; Marrufo, O'Brien-Strain, & Oliver, 2003; Piecyk, Collins, & Kreader, 1999; Queralt, Witte, & Griesinger, 2000; Kathleen Snyder et al., 2004). Evidence suggests that subsidies increase the supply of child care by both expanding demand in general and extending the range of child care settings that are affordable to low-income parents. There is evidence, for example, that subsidies make formal providers (particularly child care centers) affordable for low-income parents and that utilization of formal care, and particularly center-based care, is

higher among those receiving subsidies compared to those eligible but not receiving subsidies (Adams & Rohacek, 2002b; Child Care Bureau, 2003; Kathleen Snyder et al., 2004).

The Child Care and Development fund is an important source of funding to improve the supply of high quality care. States are required to set aside at least 4 percent of funds from CCDF grants to improve the quality and accessibility of care, though many states exceed this maximum (Pittard et al., 2006). The legislation defines quality broadly and includes “activities that are designed to provide comprehensive consumer education to parents and the public, activities that increase parental choice, and activities designed to improve the quality and availability of child care” (Child Care Bureau, 2006). In addition to quality set-aside funds, there are specific funding earmarks for improving general quality, the quality and supply of infant/toddler care and school age children, and child care resource and referral services. Though child care subsidies are intended to increase access to care and purchasing power of low-income parents and, presumably, the quality of care they can use, both the 4 percent set aside and earmarks are intended to improve the quality of early and school age care for all children (see (Zaslow, Acs et al., 2006).

At the same time that child care subsidies affect the supply of child care available to subsidy receiving families, certain policies and practices affect the supply of child care subsidies to all eligible families. When funds are not sufficient to provide a subsidy to all potentially eligible families, states prioritize certain groups, such as welfare or former welfare recipients, to receive subsidies (Urban Institute, 2004). Additionally, some states disseminate information about child care subsidies more than others. Decisions about dissemination activities may reflect limitations in the number of eligible families states can serve. A new survey of child care supply and demand should include questions that permit examination of how specific child care subsidy policies and administrative practices (such as income eligibility, parental co-pays, provider reimbursement rates) are related to the supply of providers willing to accept subsidies, the overall number of providers, provider wages, and the quality of care.

*Temporary Aid to Needy Families (TANF).* The development of the Temporary Assistance to Needy Families (TANF) program through Personal Responsibility and Work Opportunities Reconciliation Act (PRWORA) affected the supply of child care in three ways. First, because TANF requires recipients to engage in work/work-related activities for a minimum number of hours each week, the demand for child care among TANF participants increased. Researchers have concluded that as a result of this increase in demand, the supply of child care also increased (O'Neill & O'Connell, 2001). Second, TANF provides funds, in addition to CCDF funds, that can be allocated for child care subsidies. Thus, in addition to substantial increases in CCDF funds over a period of years, child care subsidy funding increased because of transfers from TANF and use of TANF direct funds for child care (Adams & Rohacek, 2002a). Third, the child care workforce has absorbed additional workers as former TANF recipients have entered the labor force as child care providers (Twombly, Montilla, & DeVita, 2001).

*Social Services Block Grant (SSBG).* The Social Services Block Grant (SSBG) is a capped entitlement program to states, enacted through Title XX of the Social Security Act. This block grant allocates money to states on the basis of their population size, with the purpose of supporting social services that address one of five goals. These goals include achieving and maintaining economic self-sufficiency and alleviating dependency on welfare programs. A high proportion of SSBG funds are allocated to increasing the availability of child care. From 2001-2005 child care was one of the five service categories accounting for the largest proportion of SSBG expenditures. (ACF, 2008). According to the 2006 Social Services Block Grant Annual Report, 4.8 million children received child care services funded at least in part by the SSBG. Allowable activities specific to child care for these funds include supporting licensing and monitoring, and funding meals, snacks, recreation, transportation, and health support services (ACF, 2006).

*Early/Head Start.* Early Head Start offers comprehensive home-based and/or center-based services to children aged zero to three. Head Start offers comprehensive center-based services to preschool children (aged three to five). Early/Head Start funding is awarded to agencies within low-income communities. The presence of Early/Head Start in a community has both direct and indirect effects on that community's child care supply. In terms of direct effects, Early/Head Start offers a formal child care option to low-income families. Impoverished families are offered this service for free and a limited number of higher income families may purchase slots for their child in the Early/Head Start program at a graduated fee scale. Because Early/Head Start is awarded to localities, it has the potential to increase the availability of formal child care in areas that may not be able to support formal providers otherwise. For instance, in some rural areas where there are few children, Head Start has been documented as the only formal child care option (Colker & Dewees, 2000). In communities with both Head Start and child care centers, there are indications that Head Start can affect the availability of center child care. At the same time, formal partnerships between Head Start and center and family child care have the potential to improve the quality of these care settings. (Cochi Ficano, 2006) found an increase in funding of Head Start to be associated with slower center child care provider expansion. This likely occurs because of substitution effects, with parents substituting Head Start participation for enrollment in another early care setting. Raikes and colleagues (2003) evaluated a program in which Head Start and Early Head Start programs partnered with centers and family child care providers who agreed to adhere to the Head Start performance standards. Raikes et al. (2003) and Schilder (2003) have found partnering programs, as compared to non-partnering programs, to offer higher quality care and to be more likely to offer parent involvement opportunities, parent referral services, and comprehensive screenings and services to children. It is not clear if the supply of Early/Head Start within a local area affects the quality of care when formal partnerships are not in place. The possibility exists, for example, that when center child care must compete with Head Start, centers more closely approximate Head Start in terms of quality indicators. There is a lack of evidence bearing on this issue available thus far.

*Kindergarten.* There is a great deal of variation in policies affecting the availability of kindergarten programs throughout the U.S. Though a vast majority (98%) of children attend at least a half day kindergarten program before entering first grade (National Center for Education Statistics, 2000), kindergarten attendance is not mandatory nor is there a mandate that all states offer kindergarten. Among those states that do offer kindergarten, uniform definitions across states regarding what constitutes kindergarten are lacking. For example, few states have statutes defining what full-day kindergarten is and among those states that have statutes there is wide variation in the number of hours used to define full-day kindergarten (Kauerz, 2005). States also vary in terms of the age by which children are eligible to attend kindergarten; educational requirements for kindergarten teachers; alignment of learning standards among early childhood education, kindergarten, and elementary education; and state funding formulas for supporting kindergarten (Kauerz, 2005). Though kindergartens will not be sampled in the NSCCSD, contextual information on kindergarten programs' policies will be collected as such policies may affect the supply of early care. As part of this policy review, information on eligibility criteria for kindergarten programs should be gathered for each kindergarten program available within the geographic areas sampled. Additionally, information should be gathered to distinguish: kindergarten versus pre-K, mandatory versus voluntary kindergarten, funding streams and mechanisms, full day versus part-day programs, and kindergarten class sizes, and adult:child ratios in the classrooms. A national study of supply and demand that takes into account these policy contextual variables would allow for further exploration regarding the role of state policy decisions in affecting kindergarten availability and enrollment, and the effect of various kindergarten programs on the supply of early and school age care.

*Pre-kindergarten (pre-K).* According to NCES data, in 2000-2001, 35 percent of schools offered pre-kindergarten (pre-K) programs. The majority of these schools were located in districts with a high concentration of low-income children (Martinez-Beck & Zaslow, 2006). Pre-K has become increasingly prevalent. From 2002 to 2006, the percentage of four-year olds in pre-K increased from 14 percent to 22 percent (Barnett, Hustedt, Friedman, Boyd, & Ainsworth, 2007). As of 2007, thirty-eight states funded pre-K programs (Barnett, Hustedt, Hawkinson, & Robin, 2006). These programs are administered in schools, child care centers and, in some instances, family child care settings. Just as with Head Start and kindergarten programs, it is possible that the availability of pre-K program slots affect the supply of center care slots both for preschool age children and for infants and toddlers. If preschool age children leave center care programs to participate in Pre-K programs, providing infant and toddler care may become less economically viable for centers. As centers offset the higher cost of infant and toddler care with fees obtained for lower cost preschool aged care (Witte & Queralt, 2006). Interestingly, many states have chosen to implement their pre-kindergarten programs in community-based as well as school-based settings. Thus, pre-K programs often involve a set of requirements and supports that enable center-based child care classrooms to meet standards for the pre-K program (Schumacher, Ewen, Hart, & Lombardi, 2005). This raises the possibility that the expansion of pre-K programs is not necessarily competing with child care centers, but may indeed be providing resources and perhaps even increasing enrollment. A new study of child care supply and demand could

differentiate between state pre-K programs that are and are not implemented in community as well as school settings and explore the implications of this for the supply of child care in different age ranges across communities. An examination of the extent to which subsidy receiving families are utilizing pre-K programs when they are and are not in community based settings and the characteristics of low-income families who are not participating in pre-K programs would also add valuable knowledge to the field. Finally, contextual policy variables may allow a national study of child care supply and demand to examine eligibility rules for pre-K programs, how various pre-K programs are changing the landscape of early and school age care supply, and program availability in private and public sectors.

*21<sup>st</sup> Century Learning Centers.* The 21<sup>st</sup> Century Learning Center program was implemented as a result of the Elementary and Secondary Education Act of 1965 (ESEA). This program provides state education agencies with formula grants which local education agencies, community-based agencies, and other public/private entities can apply for competitively. These grant funds are used to provide academic enrichment activities outside of school hours and are to be primarily targeted to low-income or low-performing children. Activities allowable through 21<sup>st</sup> Century Learning Center funds include remedial education activities, subject-specific (e.g. mathematics, science, art, music) academic activities, entrepreneurial education programs, mentoring, tutoring, counseling, recreational activities, and activities targeting limited English proficiency students (U.S. Department of Education, 2007).

*Other policies affecting early and school age care.* State and regional initiatives have also affected the supply of care. For example, some rural areas have partnered with businesses to increase the supply of care (U.S. General Accounting Office, 2004). Additionally, recent federal policies have affected the supply of quality care. In 2001, No Child Left Behind (NCLB) was passed as an effort to improve the educational systems of the United States. Good Start, Grow Smart was developed shortly after NCLB to address school readiness in early and school age care through the development of early learning standards and a focus on professional development among early and school age care providers (Martinez-Beck & Zaslow, 2006). Good Start, Grow Smart, along with quality set-aside funds from the federal child care subsidy program (Child Care and Development Fund), state funding for pre-kindergarten and other community programs, and Head Start/Early Head Start represent significant investments in improving the quality of early and school age care as well as the professional development of early and school age care providers (Martinez-Beck & Zaslow, 2006). Our understanding of the role of such initiatives in the supply of child care is limited.

*Key Themes from Past Research and Data Collection  
with Implications for Measurement*

*Factors affecting the supply of early and school age care*

In this section we review various factors that may affect the supply of early and school age care, including organizational forms, goals/philosophies, licensing and regulation, and input prices. To date, the availability of data on some of these factors is sparse. Additionally, available data are often not comparable across states, time, or data sets.

*Organizational forms*

- *Auspice and Legal Form: For-profit/non-profit.* Auspice/legal form is one organizational form upon which early and school age care facilities may vary, though the vast majority of school age care arrangements are non-profit (Seppanen et al., 1993). For profit and non-profit early and school age care facilities generally vary in terms of revenue stream, particularly reliance on parental fees and private and public dollars. Though for-profit centers tend to rely more heavily upon parental fees, non-profit centers' revenue streams tend to be more diversified, with public dollars coming from child care subsidies, USDA food grants, and other sources<sup>23</sup> (Helburn & Howes, 1996). Despite these tendencies, the distinction between for-profit and non-profit arrangements' funding streams is not always clear.

The association between legal form and child care quality has been long debated. Results from the Cost, Quality and Child Outcomes Study in Child Care Centers suggest that the overall quality of for-profit as opposed to non-profit care does not differ except in states with lax regulations (Morris & Helburn, 2000). However, when faith-based organizations are separated from community-based non-profit centers, a significant difference in quality measures that are difficult for parents to assess emerges, such as activities during meal time and nap time, fostering of reasoning skills, teachers' use of informal language, staff supervision of children during various play activities, and the provision of professional development opportunities for staff, with faith-based and for-profit facilities exhibiting lower quality care (Morris & Helburn, 2000). Stout Sosinsky, Lord, and Zigler (2007) found a similar pattern of quality among non-profit non-religiously affiliated centers, non-profit religiously affiliated centers, and for-profit centers, though variations from this pattern were found when certain indicators of quality and children's ages were considered (Stout, Lord, & Zigler, 2007). Based on these and other Cost and Quality studies, one can conclude for-profit child care arrangements are more successful at minimizing cost given observable quality. Comparably, some high quality non-profit facilities are more successful in terms of unobservable quality features, but are likely to have higher costs. Further examination into the association between structural features of child care quality and auspice/legal form would be possible in the NSCCSD.

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<sup>23</sup> Non-profit centers in religious organizations are an exception to this rule. Such centers tend to rely heavily on parental fees.



- *Single facility/multi-unit entity.* Care facilities may be independent or part of a multi-unit entity. Single care facilities may have fewer resources than those that are part of a multi-unit entity, though this depends upon how well the entity is funded. Resources may include substitute teachers, funds to support professional development, or in-house training on a specific curriculum. Distinguishing between single facilities and multi-unit entities in the NSCCSD would allow for more nuanced analyses of factors that can affect the price, quality, and supply of early and school age care.

- *Single purpose or multi-purpose organization.* Early and school age care settings also vary by whether the facility exists solely to provide early and school age care or if the facility has multiple purposes. Examples of multi-purpose organizations are the YMCA, which provides multiple services to children and adults in addition to early and school age care or lab schools operating in colleges and universities. Multi-purpose organizations are likely to have a broader philosophy than single purpose organizations that are focused solely on early and school age care. Likewise, wages and benefits are higher in certain multi-purpose organizations, such as university-based lab schools. The effects of being a single purpose or multi-purpose organization on program philosophy, child care price, and child care quality warrant further examination.

*Goals/Philosophies* The philosophy of early and school age care settings may vary depending on affiliations of the facility and the operator of the facility. For example, a facility operated by or affiliated with a faith community may select a faith-based curriculum over a secular curriculum due to a philosophy that holds religious knowledge and values as paramount. A care setting's philosophy could also affect the daily routine of care, activities/curricula, how pricing is determined, and how facility staff interacts with parents. A national examination of various provider goals and philosophies and the relationship between these goals/philosophies and child care quality would be valuable as current data on these topics are limited.

*Licensing and regulation* Licensing and regulation standards for early and school age care, referred to as licensing, registration, or certification, are established on the state or local level. There is currently a great deal of variance among states in terms of their method, scope, standards, and enforcement for such regulation. For example, states vary in terms of minimal standards for regulated care and characteristics of exempt care settings (e.g. part day child care centers, or programs operated through religious institutions or in a public school setting) (National Association for the Education of Young Children, n.d.). Studies have demonstrated a negative correlation between stringency of regulation standards and the supply of high quality child care (National Child Care Information Center [NCCIC], 2006). Based on findings from some studies, concern has been expressed over finding the optimal balance between the regulation of quality standards and the availability/affordability of care. For example, state research summarized by the National Child Care Information Center (2006) showed an association between allowable child:staff ratios and the availability of infant/toddler care in the states of North Carolina and California. The cost of care to parents has also been linked to regulatory standards, with more stringent standards being associated with a higher cost of

care (NCCIC, 2006). Additional descriptive associations between child care availability and regulations could be studied in the NSCCSD.

*Input prices.* Input prices refer to the expenditures incurred in providing early or school age care. Input prices include the cost of wages, benefits, space, insurance, food and equipment; each of which will be discussed below.

- *Wages.* Currently available data indicate that early and school age care providers are among the lowest paid wage earners in the United States (Helburn & Bergmann, 2002 as cited in Brooks, 2003). The median hourly wage of “child care workers” estimated by the U.S. Bureau of Labor Statistics (BLS) was \$8.23 in May 2006 (U.S. Bureau of Labor Statistics, 2007).<sup>24</sup> Given the fact that early and school age care providers are predominantly female (Center for the Child Care Workforce & Human Services Policy Center, 2002), O'Neill and O'Connell (2001) compared wage increases among early and school age care employees to that among all female employees. This study based on the 1997 Census of Service Industries reported that between 1982 and 1997, though the wages for all female employees increased by 79 percent on average, the wages of child care employees increased by only 11 percent (from \$9,690 to \$11,076). It should be noted that in this estimation, home-based and Head Start provider wages were not included. As such, the wage data should be interpreted and compared with caution.

Estimated annual earnings of early and school age care providers appear to vary by type of care and across states. A study by Torquati, Raikes, and Huddleston-Casas, (2007) estimated that across four Midwestern states, preschool center-based providers earned the highest average salary estimated at \$16,330 in 2001, followed by infant-toddler center-based providers (\$14,470) and licensed home providers (\$13,940). License-exempt providers earned the least at \$7,920. A more recent workforce study also found pay differentials between center and home-based providers (Chase, Moore, & Arnold, 2007) (Chase, Moore, & Arnold, 2007). Chase et al. also found pay rates to be higher in metropolitan areas and in programs in which children are not subsidized. As may be expected, education and training were predictive of higher pay. However, pay differentials were not associated with accreditation or caring for children with special needs (Chase et al., 2007).

Several limitations with current wage data have been identified. First, because only a small number of states have information on early and school age care provider wages, a national portrait of wages based on the state level information is not possible. Second, as states differ in their inclusion of segments of the early and school age care workforce when calculating wage data, reliable cross-state comparisons are hindered. Third, the measurement of annual wages has been compromised by methodological issues. In the review of data related to wages of the early and school age care workforce, Brandon and Martinez-Beck (2006) point out that annual salaries reported for Head Start teachers

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<sup>24</sup> Child care workers are defined by BLS as those who “attend to children at schools, businesses, private households, and child care institutions” but the estimate excludes preschool teachers and teacher assistants (more detailed discussion about who was included as child care workers in this data set can be found in the earlier section, *Approaches to measuring workforce in current studies at the national level*).

could not be used to compute hourly wage comparisons since the number of hours worked annually was not reported. The same issue arose when Child Trends conducted a preliminary analysis of the early and school age care provider workforce for OPRE using NHES:AELL 2005 restricted data. Without data on the number of hours worked annually, researchers could not calculate annual income based on reported hourly, weekly, or monthly wages. Exploration regarding the most efficient way to collect wage data and number of hours worked, such that wage data can be summarized using various temporal units will be necessary for the NSCCSD.

- *Benefits.* Benefits provided for the early and school age care workforce have been reviewed by several state-level studies. Recent state-based studies have found that few home-based child care providers have health insurance coverage through their own business (although they may be covered through a spouse's employment) (Chalfie, Blank, & Entmacher, 2007). A 2001 survey of the members of Local 880 Service Employees International Union that organized family child care providers in Illinois also revealed that a high percentage of its members were uninsured, slightly less than half (46 percent) of the family child care providers belonging to the union, and those with some coverage were often underinsured and relying on public health programs (Lyons, 2001 as cited in Brooks, 2005). According to a study of the early and school age care workforce in Minnesota, the availability of health and dental insurance in center-based programs differs based on the type of program with school age providers being most likely to have health insurance through their employer (Chase, Moore, & Arnold, 2007). However, a national survey of school age programs by Seppanen et al. (1993) found only approximately 72 percent of these programs offered staff any fringe benefits.

A review of recent data suggests that retirement benefits for early and school age care workers are also minimal (Brandon & Martinez-Beck, 2006; Marshall et al., 2003). Retirement coverage varies by state as well as type of care and position, with center providers being more likely than family child care providers to have some form of retirement coverage and lead teachers/administrators having more benefits than assistant teachers (Arizona State Board on School Readiness, 2005; Esposito & Kalifeh, 2006).

Training is another important benefit to early and school age providers. In a national study of after school programs by Seppanen et al. (1993), over 90 percent of program directors reported that at least some of their paid staff had received training in the last year. A recent workforce study in Arizona revealed training benefits and tuition reimbursements decreased in generosity between 1997 and 2004 for center employees. This appeared to be balanced with an increase in retirement and paid leave benefits (Arizona State Board on School Readiness, 2005).

Though the pervasiveness of paid leave for early and school age care providers is not well documented, some state workforce studies have documented its existence, particularly with center-based providers (Arizona State Board on School Readiness, 2005; Garnier, 2006). A national study of early and school age care workforce benefits could validate and generalize knowledge in this area.

- *Space.* Occupancy costs, or costs associated with renting or owning space used by an early or school age care provider/facility, represent additional input costs. Cost and quality surveys have attempted to quantify costs associated with space across various types of providers. These calculations are complicated as space may be given to non-profit or affiliation-based early and school age care providers/facilities for free or at a reduced rate. According to the Cost, Quality, and Child Outcomes in Child Care Centers study, center-based programs tend to spend approximately 14 percent of their program costs on space. This percentage varied depending upon whether the center was for-profit (20%) or non-profit (7.4%) (Helburn & Howes, 1996). Family child care providers tend to spend less on occupancy costs, though these costs do vary by geographic region (Helburn & Howes, 1996; Marshall et al., 2003). Additional national data on the variation in occupancy costs across states, regions, and type of care would provide comparative data for future state-specific cost and quality surveys.

- *Insurance* According to a workforce survey in Minnesota, 76 percent of licensed family child care providers had either general liability insurance or umbrella coverage for their child care business (Chase, Moore, & Arnold, 2007). Additional information on the cost of liability insurance and the liability coverage of family child care providers is needed. Additional information regarding the cost of liability insurance for center-based care is also needed. Though it is assumed that all centers ascribing to minimum standard requirements carry liability insurance, the cost of such insurance is often linked with other supplies, such as food and equipment in published studies. In order to gain a better understanding of input prices related to liability insurance, such costs should be disaggregated from those associated with other supplies.

- *Food and equipment.* Food and equipment are a relatively large expense for providers of early and school age care. The proportion of expenses dedicated to food and equipment varies by legal form (for-profit/non-profit) and type of care. For example, the Cost, Quality and Child Outcomes in Child Care Centers Study found that non-profit centers spend more on food than for-profit centers (Helburn & Howes, 1996). Though some family child care providers either receive donated equipment and materials (Marshall et al., 2003) or receive food subsidies, food still accounts for a greater proportion of their expenses compared to child care centers (Helburn & Howes, 1996). The NSCCSD could provide data on input prices, such as food and equipment, disaggregated by type of care, organizational form, region, and state. Such information would both provide national estimates of the cost of providing early and school age care and offer individual states comparable national estimates for their cost and quality study results.

### ***Characteristics by which the supply of early and school age care varies***

*Child's age.* The supply of child care is known to vary by child's age. For example, the 1990 National Child Care study documented a dearth of center-based infant/toddler child care slots nationally, a finding that has been replicated in more recent studies (Hofferth, Chaplin, Wissoker, & Robins, 1995; Hofferth, Chaplin, Wissoker, & Robins, 1996). The more recent National Study of Child Care for Low-Income Families

reported the number of slots available for children aged 0-13. According to these data, the number of center slots for children aged 0-5 varies by county with 4 of the 17 reporting study counties having 300 or more slots per every 1,000 children and 3 of the 17 counties having fewer than 100 slots per every 1,000 children (Collins et al., 2004). Disaggregated data for infants and toddlers were not reported. It is not clear whether the analyses documenting fewer slots for infants and toddlers include all segments of care, or whether the finding pertains only to regulated slots. One explanation that has been offered regarding the smaller supply of infant and toddler child care slots, assuming that the finding pertains only to regulated slots, is that regulations require a lower child to staff ratio for infants and toddlers compared to older children, thus making care for infants and toddlers more expensive to provide.

In addition to infants and toddlers, the number of child care slots for school age children has often been reported to be inadequate (Hofferth, 1999). Again using the National Study of Child Care for Low-Income Families data, among children aged 6-12, Collins and colleagues (2004) found 11 of 16 reporting study counties had less than 100 center slots per 1,000 school aged children. A recent national study of after-school programs found 56 percent of public elementary schools had one or more after-school programs located at the school. These programs included fee-based stand-alone programs, stand-alone academic or tutoring programs, and 21<sup>st</sup> Century Learning Centers (Parsad, Lewis, & Tice, 2009). In order to adequately document the supply of child care disaggregated according to the ages of children, providers could be asked for the number of slots they have for children in different age ranges, and the number of children they are caring for in different ranges. An examination of variation in supply for children of different age ranges taking into account both the regulated and unregulated supply is also important.

*Price<sup>25</sup> of early and school age care.* According to CCDF regulations, states are encouraged to complete a Market Rate Survey every two years. The purpose of these surveys is to provide the basis upon which states determine provider reimbursement rates for the CCDF subsidy program. Market price surveys disaggregate reports of child care prices by type of care, age of child, and geographic area. Though state market rate surveys consistently find the price of care to be higher in urban areas, for infants/toddlers, and for center-based care, market rate survey methods are not standardized and comparisons across states are problematic. Additionally, it is challenging to document comparable price ranges across states as states define types of care differently and disaggregate using different standards. For example, regionally disaggregated prices may center around one large city or rural/urban zones. Additionally, some states only analyze and report prices at the state level, thus missing the variation across communities within their state. Finally, recent cost studies are demonstrating variation in the price of care and the cost of care to providers (e.g. Witte, Schmidet, Honace, Sweeny, & Corsco, 2008) A new study on the supply and demand of early and school age care offers an

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<sup>25</sup> Throughout this document we use the term “price” to refer to how much providers charge parents for care and “expenses” to refer to out-of-pocket amount paid by parents. Price and expense are distinguished from “cost” which refers to the expenses of providers for facilities, equipment, labor and other expenses.

opportunity to use as consistent definitions and standards as possible for measuring price across the nation.<sup>26</sup>

*Flexibility regarding hours.* Hours for which care is provided varies by type of early and school age care provider. For example, in Minnesota, on average family child care providers and center providers offer care between eleven and twelve hours per day five days a week, with family child care providers offering care about 50 weeks per year and center providers open almost year round (Chase, Moore, & Arnold, 2007). School age care is offered fewer hours (about nine hours per day, five days per week for 47-48 weeks per year) (Chase, Moore, & Arnold, 2007). Compared to each of these types of care, pre-kindergarten programs are open fewer hours (approximately six hours per day, 4-5 days per week for 38 weeks per year) (Chase, Moore, & Arnold, 2007). Availability of care also varies by both the hour and day of week and whether care being offered is full-/part-time. Few child care centers provide care during non-traditional hours (6 p.m. – 7 a.m.) (Presser, 2003; Kathleen Snyder et al., 2004). Some family child care providers do provide such care, but the majority of non-traditional hour care is provided by family, friend, and neighbor care (Henly & Lyons, 2000; Hofferth et al., 1996). Currently, surveys tend to ask providers if they provide any care during non-traditional hours. Coding schemes that allow researchers to determine what proportion of a provider's care falls within "non-traditional" hours will help elucidate which providers are providing non-traditional care with greater detail. Questions regarding hours and days of operation may be challenging for family child care providers and family, friend, and neighbor providers whose hours depend on the needs of the current children in care. It might be important therefore to ask about hours of care as currently provided, and hours that a provider would offer care should it be requested.

Because part-time child care slots are more burdensome to fill due to higher costs and labor scheduling difficulties, many providers offer more full-time than part-time slots (Adams & Snyder, 2003). Additionally, the price for part-time slots is often proportionately more expensive than that for full-time slots (Adams & Snyder, 2003). One explanation of higher prices for part-time care is volume pricing, in which revenue is maximized and stabilized by offering care at a lower cost per hour for consumers who are purchasing a full week or month of care. Queries of providers in the new supply and demand study could assess the percentage of slots that are full- and part-time. These queries could be specific to the whole population of children as well as subgroups, such as infants/toddlers. Data are also needed on the availability, policies or supports in place for parents who would like to share part-time slots and on the providers' pricing policies for full-time and part-time care.

*Regional/geographical variation.* Characteristics of the community context also have an impact on the supply of child care providers. Rural areas and low-income communities have both been documented as having fewer child care centers than metropolitan areas with higher income families (Cochi Ficano, 2006; Gordon & Chase-Lansdale, 2001; Hofferth et al., 1991; O'Neill & O'Connell, 2001; Queralt & Witte, 1998;

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<sup>26</sup> Consistency in definitions may be limited by state-specific licensing rules. For example, the definition of infant according to licensing regulations may vary by state.

Rural Policy Research Institute, 1999; Walker & Reschke, 2004). In rural areas, parents' options for child care are limited. Reporting on Rural Families Speak data, Walker and Reschke (2004) documented a complete lack of infant/toddler providers in two rural counties. Additionally, in some low-income urban areas a dearth of child care providers has been documented (Collins et al., 2004 as cited in Adams et al., 2007). Family child care providers, though more prevalent than centers in both rural and low-income communities, are also less prevalent in higher income neighborhoods and metropolitan areas (Hofferth et al., 1991; Queralt & Witte, 1998). On a broader level, using Census data O'Neill and O'Connell (2001) also found center care to be less available in the south and some northern states compared to other regions of the country.<sup>27</sup> This finding was linked to differences in employment markets and is particularly interesting given that southern states have the highest proportion of center care use by subsidized children. The high use of center care in southern states by subsidized children may result from their use of contracted child care slots and policies that make center-based care attractive to families. Combining survey data on parents' child care options, disaggregated by facility characteristics (i.e. ages of children served, whether English language learners are served, part-/full-time care, type of care, etc.) and census tract, would allow for a more precise understanding of how supply issues vary by region.

*Community-level variation.* Two studies have found community-level correlates of child care supply. A study by Queralt and Witte (1998) using child care licensing data from Massachusetts identified the following factors as significant positive predictors of child care supply in a community: employment levels, residential stability, the ratio of adult men to women, the ratio of infants to children under age 11, the ratio of young adults to adults, and the proportion of single working mothers. O'Neill and O'Connell (2001) using Census data identified high proportions of foreign born workers, women employed as private household workers, teenagers neither employed nor in school, and households with related adult members as negative predictors of child care supply. In a related study of five states, Weber et al. (2007) found female earnings, household income, percent urban, median housing prices, and median rent were highly correlated with child care prices. Due to the market forces regulating supply and price, it is likely that these variables are also correlated with the supply of care. Further measurement regarding community-level characteristics that affect care, linked with Census tract data would provide valuable information to the field (Weber, Grobe, Davis, Kreader, & Pratt, 2007).

*Children with special needs.* According to the National Survey of Children with Special Health Care Needs, 8.8 percent of children under the age of five and 16 percent of children aged six to eleven have a special health care need (U.S. Department of Health and Human Services Health Resources and Services Administration Maternal and Child Health Bureau, 2008). A recent workforce survey in Minnesota reported 26 percent of licensed family child care providers, 58 percent of center provider, and 73 percent of

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<sup>27</sup> This finding is not consistent with estimates from the 1990 Profile of Child Care or 1990 National Child Care Study. This incongruence may result from a discrepancy in the businesses captured in the Census of Service Industries (e.g. it may be that southern-based centers, particularly those in religious institutions, were not captured in the Census data).

school age care providers were caring for a child with a special need at the time of the survey (Chase, Moore, & Arnold, 2007). Surveys attempting to capture the supply of early and school age care provided to children with special needs face a few important issues with methodological implications. First, providers' definitions of which children have "special needs" may not align with the definitions found in policies, which tend to focus on the presence of a diagnosis or enrollment in special education classes<sup>28</sup>. Thus, providers may over/underestimate the number of children with special needs they are serving. The pervasiveness of this measurement issue may be particularly challenging to assess among providers of young children who may not have had the opportunity to be diagnosed or attend special education classes. Additionally, early and school age care providers who primarily serve children with special needs may be challenging to locate for a survey as such providers may not identify themselves as a child care provider, but rather a specialist (e.g. teacher, occupational therapist, etc.). Indeed, specialized programs for children with special needs are likely to be offered through the Department of Education and thus be excluded from a sampling frame of child care providers. Finally, as early and school age care providers must legally accept children with special needs, in accordance with the Individuals with Disabilities Act, providers may be reluctant to provide reliable information regarding the number of children with special needs they are caring for and the specialized services they are offering.

Despite measurement challenges, measuring the supply of care for children with special needs is important. Children with physical or cognitive disabilities and/or behavioral or emotional issues may require unique equipment, providers with specialized training, or a smaller child to staff ratio. Children with behavioral issues may actually be expelled from programs, thereby limiting their families' child care options (Gilliam & Shahar, 2006; see also section on Demand of early and school age care). Asking providers what services they are currently providing and what training/equipment and outside resources (such as consultation services) they have to support children with special needs in a non-threatening way will provide for a deeper understanding of the supply of care for these children.

Another reason for examining the supply of care for children with special needs involves costs. Special needs of children result in higher expenditures for providers. A recent publication from the Special Education Expenditure Project documented that additional funds are needed in educating children with special needs in order to cover costs associated with direct instruction, supporting related services, such as assessments and evaluations, and providing transportation (Chambers, Parrish, & Harr, 2004). Some public funds are available to cover additional expenditures. Chambers et al. (2006) estimated 11 percent of special education funds go to school age programs outside of public school, 8 percent to preschool programs within public school, and 1 percent to preschool programs outside of public schools. However, recent market rate surveys find little difference in the input costs of centers and family child care providers who are and are not serving children with special needs (Workplace Solutions, 2007). Additional information is needed regarding the utilization of these funds and the services offered by early and school age care providers.

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<sup>28</sup> Child Care and Development Fund regulations allow states to define "special needs" (ACF, 2006).



### *Estimating the early and school age care workforce*

*Differing recent estimates of the workforce.* The most current and comprehensive estimates of the size of the early and school age care workforce were derived from a study by the Center for the Child Care Workforce and the Human Services Policy Center (2002). The methodology for this study was demand-based, that is based on parent report of utilization of paid early and school age care by type and extent of use. Using National Household Education Survey 1999 (NHES:99), this study estimated that there were 2.5 million early and school age care workers paid to take care of children ages 0 through 5 in the U.S. over the course of the year 2001, and 2.3 million in a given week. Of those, about half worked in center-based care or family child care, and the other half were informal providers (e.g., relatives who do not work for family child care programs and family, friends, and neighbor care as defined in Brandon, 2005) or nannies.

The Center for the Child Care Workforce and the Human Services Policy Center estimates are much higher than previous estimates based on the supply side of the early and school age care market (Center for the Child Care Workforce & Human Services Policy Center, 2002). U.S. Census Bureau estimated that there were 1.7 million early and school age care workers taking care of children ages 0 through 12 in 2000 based on the Current Population Survey (CPS).<sup>29</sup> Estimates by the Bureau of Labor Statistics of the U.S. Department of Labor were even lower (Center for the Child Care Workforce & Human Services Policy Center, 2002). Its Occupational Employment Statistics in 2000 estimated 0.8 million early and school age care workers (including preschool teachers, center-based early and school age care workers and home-based early and school age care workers) taking care of children ages 0 through 12. If the demand-based estimates included the early and school age care workers serving school age children, the difference would have been even larger. The Center for the Child Care Workforce and the Human Services Policy Center (2002) suggest this discrepancy in estimates is likely due to the omission of informal providers (e.g. friends, family, and neighbor care) in the Census study.

*Approaches to measuring the workforce in studies at the national level.* Several federal data sources provide data on the workforce; however, most of them have definitional and coverage limitations. One example of federal data sources for the early and school age care workforce with the definitional limitation is the Occupational Employment Statistics collected from firms and employers in most sectors by the Bureau of Labor Statistics. These data include two categories of the early and school age care workforce: preschool teachers and child care workers. One of the issues with this dataset is that preschool teachers are defined as those who work in school-based programs and thus it does not include teachers in Head Start or preschool programs that are not located in schools. Their category of child care workers includes employees of center-based programs, nannies, and assistants at family child care homes; however, it does not include

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<sup>29</sup> CCW and HSPC (2002) note that since the original figure included kindergarten teachers, they recalculated the estimate by subtracting the estimated number of kindergarten teachers reported in the U.S. Department of Labor's Occupational Employment Statistics 2000 from the CPS estimate.

proprietors of home-based family child care programs. Therefore, workers such as directors, managers, owners and supervisors of home-based care who may be heavily involved in the direct care of children might not have been included. Family, friend and neighbor caregivers who are paid to take care of other people's children are another group not included in this category (Center for the Child Care Workforce & Human Services Policy Center, 2002).

The Current Population Survey (CPS) collected by the U.S. Census reports the number of persons caring for children in their own homes as a business. One of the limitations is that it does not distinguish whether home-based early and school age care workers are relatives or non relatives. Furthermore, it combines preschool and kindergarten teachers in their response categories and thus does not allow separate examination of those working with children not yet in school (Breunig, Brandon, & Maher, 2004). It has been suspected that home-based child care providers including family, friend and neighbor providers are undercounted in this survey (Center for the Child Care Workforce & Human Services Policy Center, 2002).

Other data collection efforts such as the administrative data collected for the federal/state Child Care and Development Fund (CCDF) program and the Head Start Program Information Report (PIR) focus only on members/segments of the early childhood workforce working in specific programs. CCDF data focus on the services provided for low-income families receiving subsidies. The PIR collects Head Start data and has the limitation that it does not distinguish staff "directly interacting with children for most of their work hours" (p.55) who should be considered part of the early and school age care workforce, from those working in the larger early and school age care economic sector such as staff working in health services or home visiting as part of Head Start programs. This anticipates a key definitional issue of whether all those working in early and school age care, or only those working directly in caring for children, should be included in definitions of the early and school age care workforce.

The National Household Education Survey: Adult Education and Lifelong Learning Survey (NHES:AELL) is a nationally representative survey conducted by the National Center for Education Statistics that includes occupational information collected from adults age 16 or older. Its restricted dataset includes original responses to occupational questions such as industry, profession and duties that have not been recoded using standardized industry codes (which do not have the early and school age care category and thus preclude identification of early and school age care workforce). Based on these responses to the occupation question, users can manually identify child care providers and produce estimates of the early and school age care workforce. Additionally, data collected in other parts of the study link demographic characteristics to respondents identified as early and school age care providers. Child Trends has conducted a preliminary analysis of the 2005 NHES: AELL restricted data and has identified an unweighted count of slightly over 100 early and school age care providers and a weighted count of over 3 million providers. Although the process is time-consuming, the detailed information about the occupation allows users to distinguish different types, positions and responsibilities of child care providers. The occupation question, however, does not appear to capture family, friend and neighbor care providers who may not consider or

identify themselves as child care providers when asked about their occupation. Additionally, it was difficult to distinguish and categorize early and school age care staff that may be working indirectly with children, such as owners, directors, managers, and supervisors. Moreover, responses to industry, occupation, and duty questions usually did not specify what age group of children respondents served.

The National Child Care Survey 1990 (NCCS) and A Profile of Child Care Settings (PCS) are two coordinated studies conducted to find out the size and characteristics of early care demand and supply in 1990 (Willer et al., 1991). These studies combined supply and demand approach, which has the potential to address some of the issues identified to this point. NCCS was based on a nationally representative sample of families with children age 0 through 13. NCCS provides a picture of the early care demand describing the types of non parental care used. PCS provides the supply side information based on a nationally representative sample of all formal early care including center-based care, preschools and regulated family day care homes. Although PCS again suffers from the definitional limitations of focusing on the formal early care market, the combination of the PCS and the NCCS data together provide a relatively comprehensive picture of the early care market especially including both demand and supply based information (as described in the section on the currently available early and school age care workforce estimates).

*Approaches to measuring the early and school age care workforce at the state level.* Brandon and Martinez-Beck (2006) find that most states do not maintain current administrative or survey data collection efforts to provide a profile of the size and characteristics of the early childhood workforce. Among those states that do have data, the collection system tends to be based on licensing or registration programs and thereby does not capture the entire early and school age care workforce. Such data tend to be inconsistent across states due to various exemption rules applied to different types of center-based programs.

Another mechanism through which states may be able to collect early and school age care data is through their market rate surveys. Brandon and Martinez-Beck suggest adding questions to the market rate surveys as an economically viable option for collecting data on the early and school age care workforce.

A review of state data sources on the early and school age care workforce conducted in 2003 (Breunig et al., 2004) identified several limitations of state level data. The state data often do not include detailed information on early and school age care positions. Such information is critical for users to be able to distinguish early and school age care staff who do and do not work directly with children and thus may be considered part of the early and school age care workforce.

*Approaches to measuring the early and school age care workforce at the county level.* The most recent and notable study conducted for a county was the one of Alameda County, CA, which provided longitudinal information on licensed center-based care, licensed family child care homes, and license-exempt home-based care using both

qualitative and quantitative methods (Whitebook et al., 2004b). Since license-exempt home-based care providers are eligible to receive child care subsidies, this study examined data collected by child care agencies (Whitebook, 2003). From these agencies, the study acquired lists of license-exempt providers receiving subsidies at three time points to capture continuity or instability of such providers. They also collected information on providers' relationship to the child in their care, and information about whether the service was provided at their home or the child's home. The study found that only 31 percent of license-exempt providers receiving subsidies in December 2000 were still on the subsidy list a year later. Although it may suggest instability among license-exempt providers, discontinued subsidy receipt may reflect a change in the economic status of families rather than a change in the provision of care to particular children.

The Alameda study points to several potential barriers to conducting provider based study that will important to address and consider in the design of the NSCCSD. For example, in their attempt to collect information on license-exempt home-based care, the study suffered from very small sample size (n=12) due to respondents' resistance to participate in the study because of concerns about immigration status, language and culture. The anecdotal information from this study suggests that unlicensed care providers may be unwilling to participate in any study that is connected with government or regulatory agencies due to potential scrutiny. It also indicates that some respondents may be reluctant to participate in research as they may think that their jobs are not worthy of study. Another challenge clearly identified in this study is the turnover of early and school age care staff even in formal settings, (Whitebook et al., 2004b). These findings echo those of the "Provider-Linked" Survey from the 1990 National Child Care Survey. As is noted below in greater detail, parents interviewed in the 1990 study were asked to provide the name of their provider. Data collectors found that parents were reluctant to provide the name of their child's care provider. The researchers suspected that parent reluctance stemmed from safety concerns, as well as concerns that identifying their provider may lead to their arrangement being reported to licensing or tax authorities (Hofferth et al., 1991). Additionally, once contacted it was not uncommon for parent-identified providers to deny providing care (Hofferth et al. 1991).

### *Characteristics of the workforce*

*Education.* Reviewing the federal and state data that were most representative and employing reliable methods, the Center for the Child Care Workforce & Human Services Policy Center found substantial variability in early and school age workforce education characteristics across studies (Center for the Child Care Workforce & Human Services Policy Center, 2002 as cited in Brandon & Martinez-Beck, 2006). For example, estimates of the percent of center teachers with a bachelor's degree or higher ranged from 47 percent in the 1990 Profile of Child Care Settings, to approximately 30 percent reported in the National Child Care Staffing Study (Whitebook, Howes, & Phillips, 1990) and 30 percent in the Head Start Bureau: Program Information Reports (Administration for Children and Families, 2002). Brandon and Martinez-Beck (2006) also found little reliable data on the educational background of family child care providers in their review. Based on a small number of data sources, they found that the percent of family child care

providers with a bachelor's degree in state surveys was relatively low, ranging between 10 percent (in Illinois and North Carolina) to 15 percent (in Vermont).

Substantial variation in the educational characteristics of the workforce has also been found in state estimates. Twenty-two percent of center-based providers had a bachelor's degree or higher in the data collected in a representative sample of four Midwest states (Raikes et al., 2003). State specific surveys had estimates ranging from 8 percent (Nevada and Oklahoma) to 48 percent (Hawaii). It is uncertain whether this variation is attributable to variation across time, geographical areas and the characteristics of the workforce in these regions, cultural attributes such as parental expectations or preferences in selecting care for their children, methodological differences across surveys or studies, or all of these. A more recent workforce study of the early and school age care providers in Minnesota found 24 percent of family child care providers to have a bachelor's degree, compared to 45 percent of center providers, 78 percent of preschool teachers, and 55 percent of school age care providers (Chase, Moore, & Arnold, 2007). The percent of early and school age care providers whose degree was in early care or education was lower across type of provider (7% of family child care providers, 34% of center providers, 68 percent of preschool teachers, and 40 percent of school age providers) (Chase, Moore, & Arnold, 2007). The National Center for Early Development and Learning study of pre-K programs in eleven states produced similar estimates to those above for pre-K teachers, with 73 percent having a bachelor's degree or above and 69 percent majoring in early childhood education, child development, or elementary education (Early et al., 2005).

*Languages and literacy.* Remarkably little is known about the child care supply of multilingual care providers. Indeed, this topic was not mentioned in the 1990 National Child Care Survey (Hofferth et al., 1991). Recent research by Isabelli-Garcia (2007) has found that English language learners have better long-term literacy skills when English is introduced within a context of the child's home language. The degree to which this is happening in early and school age care settings, however, is unknown. Data on the languages spoken during care, languages used to instruct children in activities, and languages used to interact with parents would assist in shedding more light on the child care arrangements of English language learners.

*Unionization.* Whitebook, Howes, and Phillips (1990) found in their 1990 National Child Care Staffing study that 4 percent of the child-care workforce was unionized (cited in Brooks, 2005). Formal labor organizing has not been a major tool used by child care workers in the past to improve low wages, working conditions and benefits. Instead advocacy campaigns have been more common (Brooks, 2003). However, over the past few years, more unionization has been occurring among early care workers, particularly home-based early care workers, both regulated and unregulated (Chalfie et al., 2007). For example, in New York City, the American Federation of State, County and Municipal Employees (AFSCME) has organized nine thousand early care providers as of 1991 (Child Care Employee Project, 1991 as cited in Brooks, 2005) and the Service Employees International Union (SEIU) started organizing child-care centers in Seattle during the late nineties. In 2006, these two organizations agreed to organize

home-based early care providers, both regulated and unregulated, in 16 states (Chalfie, Blank, & Entmacher, 2007).

Unions are intended to improve the working conditions of providers. Improved working conditions in terms of working hours, wages, benefits have been associated with higher quality of care (Bellm & Haack, 2001 as cited in Brooks, 2005). As such, the unionization of workers may have direct implications for the quality of early and school age care that children and families experience. For example, in a study of 227 child care centers, Whitebook, Howes, and Phillips (1990) found that unionized providers had higher wages (by \$1.50 per hour), lower turnover rates, more early-childhood-education credits, and more in-service training. In a regression analysis of 400 child-care centers, analyzing the data collected from 400 early care centers, Mocan and Viola (1997) found that unionization increased providers' wages by 19 percent and overall compensation by 26 percent (cited in Brooks, 2003). Furthermore, unionized providers were more likely to have working conditions that have been found to be correlated with the quality child care (Whitebook, Howes, & Phillips, 1990). The implications of unionization for the cost of care for families, and the proportion of care provided by formal and informal providers, are not considered in studies looking only at the characteristics and care settings that do and do not involve unionized workers.

*Other characteristics of the workforce.* Other characteristics of early and school age care providers such as their working hours or full/part time status, and the characteristics of children they serve (such as the number, age, and race/ethnicity), is not typically asked in surveys collected from individual providers. State registry and child care resource and referral data may provide an alternative source for such information. However samples included in such administrative data sources may not be representative of the workforce in a state. Such further information may be important to collect in future survey work on the supply side.

Some of the state level surveys collected information on other socio-demographic characteristics of the early and school age care workforce beyond educational background. For example, the Child Care Quality and Workforce Characteristics in Four Midwestern States report (Raikes et al., 2003) provided data on age, race ethnicity, marital status, and parental status of the early and school age care workforce, by type of care and subsidy receipt.

Although the sample size was limited, the county level studies carried out by Whitebook and colleagues (Whitebook et al., 2004a; Whitebook, Sakai, Gerber, & Howes, 2001) also collected data on further early and school age care workforce characteristics such as age, race/ethnicity, marital status, and household income. Some information beyond the most basic characteristics was also collected, including second job status, history of public assistance receipt, depression status, English literacy and primary language, calling attention to the potential importance of collecting more in-depth information on workforce characteristics.

## *Quality in early and school age care*

*Distinguishing measures of quality.* Researchers often distinguish between two sets of measures of quality in early care settings (Smolensky & Gootman, 2003):

- *structural* measures of quality: measures of the features of early care environments that can be directly regulated, such as staff-child ratio, group size, and caregiver professional development, and
- *process* measures of quality: measures of the nature of caregiver-child interaction, for example, the extent of supportiveness and stimulation provided during interactions. These features of early care are more difficult to regulate, though states are increasingly monitoring them through Environmental Rating Scales, such as the Early Childhood Environmental Rating Scale (ECERS), the Infant/Toddler Rating Scale (ITERS), the Family Child Care Environmental Rating Scale (FCRS) and the School Age Environmental Rating Scales (SACRS).

School aged measures, as reviewed by Yohalem and Wilson-Ahlstrom (2007) did not document as clear a distinction between structural and process measures. These authors found tools gauged toward school aged care to measure: “relationships, environment, engagement, social norms, skill building opportunities, and routine/structure” (Yohalem & Wilson-Ahlstrom, 2007).

A direct examination of the relationship between structural and process measures of quality carried out by the researchers participating in the NICHD Study of Early Child Care and Youth Development (2002) confirmed a longstanding hypothesis that structural features of quality predict to measures of process quality, which in turn predict measures of children’s development. Specifically, structural equation modeling confirmed that two specific structural measures, staff-child ratio and caregiver education, related directly to positive caregiving in child care, indirectly (via positive caregiving) to later child development outcomes including social competence and cognitive outcomes.

According to studies on the quality of child care, much of the care that young children experience in the United States falls below a rating of “good” on widely used observational measures of quality (see Zaslow et al., 2006). Further, the quality of care that infants and toddlers participate in, and the quality of care that children from low-income families receive, is less likely to be rated as good than the quality of care received by older children and children from higher income families (Adams et al., 2007; Clifford et al., 2005; Pianta et al., 2005). For example, the Study of Early Child Care and Youth Development carried out for the National Institute of Child Health and Human Development provided a summary rating of the quality of caregiver-child interaction based on direct observations using the Observational Record of the Caregiving Environment (OCRE) (National Institute of Child Health and Human Development Early Child Care Research Network, 2000) and included measures of quality from a range of providers and settings. This study found “positive caregiving” to be somewhat or highly characteristic of about a third of care children experienced in centers (33 percent) and family child care homes (34 percent). A higher percent of care provided by relatives (47

percent for fathers and 45 percent for grandparents) and in-home babysitters (56 percent) was rated as involving positive caregiving. Preschoolers in centers were more likely to receive positive caregiving than the youngest children. Children from low income families were more likely than children from high income families to experience poor quality care (11 percent versus 4 percent) and less likely to experience excellent quality (8 versus 15 percent). Likewise, the study on Cost, Quality, and Outcomes, which examined center care in four major metropolitan areas, found that 65 percent of center care had an ECERS rating that met requirements for minimal but not good quality (Peisner-Feinberg & Burchinal, 1997; Zaslow, Acs et al., 2006; Zaslow, Halle et al., 2006). Issues in measuring the quality of care are reserved for the discussion of design and measurement issues below.

*Efforts to improve the quality of care: Regulation of early and school age care.* Because child care regulations are designed to establish at least a minimum level of quality, documenting the proportion of care that is regulated would be informative. The supply of regulated care with diverse characteristics is another important issue. A recent study by Collins and colleagues (2004) using National Study of Child Care for Low-Income Families data found the majority of regulated child care slots to be provided through child care centers. The availability of regulated child care slots in this study varied by community with most communities having between one slot for every three children and one slot for every ten children (Collins et al., 2004). Collins et al. found the price of regulated child care to be expensive for low-income families in her study. Based on estimates in which researchers calculated the family income for a single parent with a preschool child, Collins et al. found a small proportion of regulated centers to cost 12 percent of the parent's income or less. Child care subsidies, Head Start, and Pre-K pay for a significant proportion of regulated care (35 percent or more of the supply in centers and facilities for 10 of the 25 study communities) (Collins et al., 2004). A number of measurement and methodological issues regarding the regulation of early and school age care will be addressed in the design and measurement issues section.

*Efforts to improve the quality of care: Professional development of the workforce.* Through their review of research on professional development, Maxwell, Feild, and Clifford (2006) identified three components of professional development: education, training, and credentialing. Education refers to formal education resulting in an academic degree and other formal higher education credit. Training refers to professional development that is not credit bearing in an institution of higher education, and is generally provided outside an academic setting. It includes workshops, in-services, and on-site coaching or mentoring (when not part of a credit-bearing course). As will be discussed later, this distinction between education and training is not always adhered to and the terms are sometimes used interchangeably in the literature. Credentialing refers to qualifications early and school age care providers can obtain in order to demonstrate their competency in providing early and school age care. It is important to note that credentialing agencies set standards, but typically do not provide the education and training required for credentials (Maxwell et al., 2006).



To date, there is a limited national portrait of professional development for early and school age care providers. The 1990 Profile of Child Care Settings study asked center-based providers and regulated family child care providers about their training and found all center-based providers to report having at least some child-related training and 64 percent of regulated family child care providers as having at least some training on early childhood education (Kisker, Eliason, & et al., 1991).<sup>30</sup> The 1990 National Survey of Child Care asked parents if their providers “received education or training in early child education or child psychology”. Parents reported most center-care providers to have at least some education or training in early childhood education (Hofferth et al., 1991). Parents were less knowledgeable about family child care providers’ education and training, though 40 percent did report their family child care provider to have some education (Hofferth et al., 1991).<sup>31</sup> It is unclear, however, what the quality and accuracy of the data are (see discussion in demand section, on parent-based reports of Head Start programs).

Research examining the associations between professional development of the early childhood workforce and the quality of early and school age care settings has focused much more attention on education than on training or credentialing (Tout, Zaslow, & Berry, 2006). Studies of child care repeatedly report that more formal education, and specifically more formal education with a focus on early childhood, is associated with better quality (Tout et al, 2006). Yet a recent study with parallel analyses of data from seven early childhood programs, in which all of the teachers had a bachelor’s degree and some had a bachelor’s degree with a focus on early childhood, found education was not associated consistently with better quality or larger gain scores across the academic year for young children (Early et al., 2007). The results of Early et al.’s (2007) study may be affected by the restricted variation in the education level of providers and in the restricted types of programs studied (most were pre-kindergarten or Head Start programs). It will be important for future work to look at the importance of formal education in clearly distinguished types of early and school age care.

Though non credit-bearing training has received much less attention in the research literature than education, there is evidence that the receipt of training, and possibly also the recency of training, are associated with higher quality care (Tout et al., 2006), with some work showing training to contribute to the prediction of quality even when the level of formal education is controlled. Although some studies have shown training to predict quality in both family child care and center-based arrangements (Raikes et al., 2005), other research shows training to be particularly important to the quality of home-based child care (Hegland, 2007). In conclusion, further examination is needed of both formal education and training, and of the relative contribution of each in predicting quality within different types of care.

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<sup>30</sup> The Kisker et al. (1991) study did not define training as specifically as it is defined in this paper. Thus, providers may have confused training and education in their responses.

<sup>31</sup> The distinction between education and training in the Hofferth et al. (1991) study were not defined as specifically as it is defined in this paper. Thus, parents may have confused training and education in their responses.

## *Design and Measurement Issues for the 2010 Survey*

### *Universe*

Knowledge of the supply of early care and school age care in the U.S. is limited due to sample frame issues. The sampling frame for studies on child care, including the 1990 Supply and Demand study, has been limited to mostly regulated providers<sup>32</sup>, with the majority of studies focusing on center-based care. There are a few reasons family child care and family, friend, and neighbor care have received less empirical attention. First, family child care providers (particularly unregulated family child care providers; see discussion below of regulation of family child care providers) and informal providers (family, friend and neighbor care) can be difficult to find. Second, from an economic perspective, surveying these providers when focusing on child development outcomes is expensive as they typically provide care for fewer children than child care centers. Third, with regard to friend, family, and neighbor care, there is disagreement in the field regarding the value of studying the supply of informal providers who are not part of the “arms length” child care market.

### *Definitional issues*

*Early and school age care workforce.* Our literature review identified three major ways in which lack of clear and consistent definitions of the early and school age care workforce has influenced the early and school age care workforce estimates in previous studies: 1) the exclusion of family, friend and neighbor care providers and nannies from major data sources; 2) unclear distinction between direct and indirect service providers; and 3) unclear target age groups of children for the early and school age care workforce.

The exclusion of informal child market, namely license-exempt home-based providers, including families, friends and neighbors as well as nannies caring for young children, from currently available federal and state government counts of the early and school age care workforce is probably one of the most urgent issues resulting from the lack of clear definitions of the early and school age care workforce. This exclusion is a concern because 1) a substantial portion of children receive care from such early and school age care providers, 2) child care subsidies have been made available to relatives and other unlicensed providers and therefore the size of this particular workforce has significant policy implications, and 3) we know little about training and professional support needed among members of this component of the workforce.

Efforts to estimate the size and characteristics of the license exempt early and school age care providers would pose a number of challenges. First, the total population of such providers remains unknown and as a result, we cannot create a representative sample of this group. Second, such providers may not identify themselves as child care providers,

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<sup>32</sup> The 1990 Profile of Child Care Settings included only center-based care and regulated family child care providers in the sampling frame (Kisker et al., 1991). The National Child Care Survey, through a provider link with parents, were able to include a small number of unregulated family child care providers (Hofferth et al., 1991).

or may not consider their provision of early and school age care as their main occupation. This suggests that we need to develop questions that would allow self-identification of all types of early and school age care providers. Lastly, a large portion of the informal early care market is estimated to be immigrants (Whitebook et al., 2004b) with various English language capacities, cultures and immigration status, and who therefore may be reluctant to participate in surveys associated with governmental agencies. The informal market may also include providers who are reluctant to report their occupations due to unreported or under-reported income (Center for the Child Care Workforce & Human Services Policy Center, 2002). This may impede our ability to adequately capture the workforce even if we expand our definition to be inclusive of the full spectrum of early and school age care workforce.

The second major definitional issue of the early and school age care workforce relates to the distinction between “direct” and “indirect” service providers. Most previous surveys have not allowed users to distinguish early care staff who directly interact with children for most of their work hours (Brandon & Martinez-Beck, 2006) from those working in the larger early care economic sector such as, for example, staff working in health services or home visiting as part of a Head Start program. Another example may be proprietors of home-based care. It is not clear whether positions such as director, manager, owner, supervisor or trainer should be counted as “direct” or “indirect” services providers.

The third definitional issue concerns whether we consider those serving school age children as part of the workforce of interest. If so, we need to delineate the age limit of children whom the early and school age care workforce is defined to serve, the types of providers we would include as the early and school age care workforce serving school age children, and the way we would capture such providers. We may make such decisions in conjunction with the survey’s target population. For example, we may consider the fact that child care subsidies are provided for families with children up to age 13 in some states.

These definitional issues suggest that at first, a clear decision about whether the 2010 survey will capture the full workforce (including all segments of early and school age care providers) needs to be made. Second, the study must ensure that questions and response categories are developed with precision and detail so that respondents as well as those using the data can distinguish providers in different segments of the early and school age care workforce from one another. Third, methodologies for estimating the early and school age care workforce need to be decided upon. As a recommendation, the Center for the Child Care Workforce (CCW) and Human Services Policy Center (HSPC) developed a new demand-based estimation methodology (Brandon & Martinez-Beck, 2006). Using various statistical adjustments, it estimates the early and school age care workforce based on parents’ report of the hours spent on each type of paid care and the adult-child ratio at each care setting. Additionally, it uses occupational turnover rates to produce an estimate of the number of individuals employed in the early and school age care workforce throughout the course of a year rather than relying solely on point in time estimates. Brandon and Martinez-Beck (2006) note that the benefit of this methodology

is the fact that the workforce estimates can be presented by various characteristics of children. Such data are useful in evaluating training needs for those serving specific subgroups of children.

### ***Regulated/licensed care***

Whether providers are regulated/licensed and the extent of regulation involved depends on the type of care, state, and characteristics of the region. In most states, child care centers are licensed by the state and must abide by regulations that protect the safety of the children in care and set minimal standards for the quality of care by addressing structural characteristics of care such as maximum group size and ratios. Regulation is overseen by the state except in the cases of religious-based centers and school-based programs, each of which is regulated by their own governing bodies. In most states, family child care providers are also subject to regulations governing the safety of children. The regulations for family child care providers tend to be less strict than those for center-based care. Also, some states do not have regulatory procedures for family child care providers or for all family child care providers (whether regulations apply usually depends on the number of unrelated children cared for by the provider). For these providers, an opportunity to be registered with the state may or may not be available. Family, friend, and neighbor providers are exempt from regulation by the state, though some states are providing opportunities to get such providers licensed.

In addition to variation in terms of regulation of providers by type of care, regional characteristics, such as rurality, affect the frequency of regulatory site visits. The Cost, Quality and Child Outcomes Study team (1995) found that rural states have fewer state-licensing employees and longer distances to travel, making it more challenging to enforce standards and to maintain specialized training for child care professionals. Administrative data on measures of the number and frequency of site visits as well as the number of regulatory workers employed in a region, could be combined with an oversample of child care providers in a local area to provide in-depth information regarding regulatory practices in that area.

There are a number of methodological issues involving state regulations and licensing. First, because of definitions that are based on malleable characteristics of providers (such as the number of unrelated children cared for), identifying providers who are required to be regulated is challenging. Additionally, since requirements regarding regulation vary from state to state, providing consistent national data regarding licensing and regulatory status of the available supply is challenging. Second, because the implementation of regulatory practices varies by state, some state regulatory workers have caseloads of 25 centers, while others have caseloads exceeding 500. Given this variation, the validity of cross-state comparisons of data on regulation compliance is questionable. Third, *within* state variation regarding regulation compliance is another limitation to the validity of regulatory data. Within state variation may result from low interrater reliability among regulatory line staff or from differences in the frequency of regulatory visits, such as when comparing regulatory practices in urban versus rural areas. Finally, there is a lack of consistency in differentiating between the concepts of “regulated” and “licensed”.

Clear definitions with an understanding of what is required for certified/licensed/regulated care are needed.

In the 1990 National Child Care Survey, providers were described as being “regulated” or “unregulated” (Hofferth et al., 1991). In the Profile of Child Care Settings, centers were described as being licensed/unlicensed and family child care providers were described as regulated/unregulated, but no detail regarding the requirements of licensure or regulation were specified (Kisker et al., 1991). Key research questions regarding licensure and regulation that could be addressed in the 2010 Supply and Demand Study include: 1) whether a provider is licensed, certified, and/or registered, 2) the requirements for each (licensure/certification/registered), and 3) who enforces these requirements, with what frequency, and through what means. Survey data from providers should be merged with state-level data from the National Association for Regulatory Administration in order to gain a deeper understanding of implementation issues regarding licensure and regulation (National Association for Regulatory Administration (NARA) & National Child Care Information and Technical Assistance Center (NCCIC), 2006).

### *Creating a taxonomy for professional development*

A number of taxonomy issues affect the study of professional development among early and school age care providers. In evaluating peer-reviewed articles about professional development among early care providers, Maxwell, Feild, and Clifford (2006) found no universal definition of professional development. The taxonomy issues regarding each component of professional development identified by Maxwell et al. (credentialing, education, and training) are summarized below.

- *Credentialing.* What is entailed in receiving certifications, credentials, and licenses differs by state and credentialing agency. Thus, questions about credentialing should include information on credential requirements and the credentialing agency. Questions regarding credentials for working with age groups or special populations and how recently the certification/credential/license was received can assist in disaggregating the supply of credentialed providers. Cognitive interviews conducted for the redesign of the Schools and Staffing Survey 2007-08 indicate that the use of labels (e.g., temporary, probationary) to refer to certificate types impedes the response process and threatens data quality (Guzman & Freed, 2006). One alternative to asking providers for their credentials is to ask them what their credential allows them to do in their state. This line of questioning, when paired with an accurate definition of the type of care they provide, may produce more valid self-report data than asking what credential they have. It is important to note that across states the terminology used to refer to certificates and levels of training will likely vary. Thus, specifying the respondent’s state is also important. Moreover, terms change over time thus constructing categories that rely less on labels but more on key components of certificates may increase the potential for comparability over time.
- *Education.* Based on the review by Maxwell and colleagues (2006), the Workgroup on Defining and Measuring Early Childhood Professional Development identified

- The first of these is ascertaining the level of education with sufficient specificity. In assessing the level of education, most surveys use the categories “less than high school”, “high school/GED”, “some college”, and “college or more”. Using these categories limits the depth of data. For example, if someone reports having less than a high school diploma, one does not know whether this respondent stopped attending school at 4<sup>th</sup> grade or 11<sup>th</sup> grade. Collapsing high school and GED loses an important distinction between these degrees. Finally, the term “some college” could refer to one college class or three years of higher education.
  - Content was the second issue identified by the Workgroup on Defining and Measuring Early Childhood Professional Development on which progress is needed. There is some lack of agreement in the field regarding how to categorize and summarize the content of early childhood development focused upon in coursework, and research generally relies on a summary of extent rather than content of education. Yet the content may be particularly important in strengthening particular aspects of quality or child outcomes. Additionally, identifying how many courses one has taken in early childhood development gets challenging when the only question on content of education typically asked is the respondent’s major: universities vary greatly in their course requirements. Finally, response recall is an issue when respondents are asked about the content of their college courses. Mayfield and others participating in the National Registry Alliance (Mayfield & Thornburg, 2007) suggest using college transcripts to determine the number of courses one has taken in early childhood development, or turning to verified data in an early childhood professional development registry. An issue here, however, is that registries may not capture data for unlicensed providers, and that not all states have registries or registries with substantial participation by providers as of yet.
  - The third issue with defining education identified by the Workgroup involves recency. There are limited data to evaluate whether the recency of formal education is important to one’s skill level in teaching and caring for children. Yet some evidence points to the potential importance of recency (evidence summarized by (Tout et al., 2006)).
  - The final issue noted by the Workgroup on Defining and Measuring Early Childhood Professional Development in gaining an accurate picture of formal education in early care and development is the degree to which skills from education are applied to practice. Zaslow et al. suggest asking respondents about student teaching or practica in which the student was either directly observed or given feedback and support while interacting with children.
- *Training.* Clearly identifying training in early and school age care is also challenging. First, in their review of the literature, Maxwell, Feild, and Clifford (2006) noted that the term training was not used consistently across studies. While in some studies, the

### *Estimating the workforce*

*Point estimates versus annual estimates.* In our survey design, two types of early and school age care workforce estimates may be considered: an estimate for one particular point in time (i.e., a snapshot of the workforce) and another that captures the number of caregivers during the course of year by accounting for turnover rates of the early and school age care workforce. Given the instability of the early and school age care workforce reported in many studies, it may be important to capture the annual number, more accurately reflecting, for example, the number of workers who need training or professional support. The instability of the workforce makes it difficult and costly to conduct longitudinal studies; therefore, the NSCCSD may need to collect information on tenure and staff turnover as well as retrospective questions about whether providers cared for children in the last month or during the last year.

*State and local variability in the workforce estimates.* Large state variability in the size and characteristics of the early and school age care workforce has been found repeatedly by previous studies. In addition, early and school age care policies, programs and financing tend to occur at the state level (O'Neill & O'Connell, 2001). This suggests the need for data to be representative at the state level. In addition, the child care market has often been described as a local market, and thus characteristics and needs of child care providers may vary by city and county as well as by state. A further issue for the new surveys is the extent to which representative data can be collected at the state and local levels.

*Issues related to data on the characteristics of early and school age care providers.* As found with the estimates of the early and school age care workforce, reliable data on the qualification and other characteristics such as racial/ethnic background, immigrant status and economic background are rarely available especially for license exempt home-based early and school age care workers. Such data are useful, for instance, for examining the characteristics of those staying in and leaving the early and school age care field in order to improve the stability of this sector of the workforce. Likewise, it may be important to consider the degree to which turnovers are occurring within (e.g., from home-based to center-based care) and outside (e.g., from early and school age care to other industries and occupation) of the early and school age care field. Turnovers to other occupations and industries may have important implications for the supply of providers.

Data such as early and school age care providers' working hours or full/part time status, and the characteristics of children they serve (e.g., the number, age, racial/ethnic groups, English language proficiency, and special needs) are not typically available in the surveys collected from individual providers. Although such data may be collected from center-based programs, provider-based data are as important as the center-based data allowing users of the survey data to depict more comprehensive and detailed pictures of the early and school age care workforce. Training needs of early and school age care providers may be different by the needs of children they serve. Furthermore, Brandon and Martinez-Beck (2006) suggest that studies need to determine to what degree children with special needs are concentrated or dispersed across different early and school age care settings.

The same definitional issues identified in the review of the early and school age care workforce estimates were also found in the estimation of wages: surveys use different definitions of the early and school age care workforce to derive denominators for calculating median wages. As such, wage data should be interpreted and compared from one data source to another with caution. A measurement issue found with wage data was that in order to estimate hourly wages or annual income, we need to collect data on the number of hours worked over the course of one year.

From market-rate surveys, a number of methodological issues that are pertinent to the estimation of child care prices have been identified. Some of these issues involve the validity of price data. Validity of price data is compromised when there is disagreement regarding the definitions of various types of care and decisions regarding who is included in the child care market. Other issues that affect price validity include: accurately weighting the data by the number of children providers can serve, calculating rates to a standard time unit, using the appropriate universe so variation by community characteristics (i.e. rural, urban, suburban) can be identified, establishing a representative sample based on a reliable source for market price information, and considering limitations of certain groups (e.g. subsidized children) from accessing care from the public market (Emlen, 2005; Grobe, Weber, Pratt, & Emlen, 2003). Data on price adjustments are also necessary. In the 1990 Profile of Child Care Arrangements, providers were asked their fee per child. If more than one child from the same family



was in the providers' care, the fee was averaged across children. Providers were also asked about the characteristics of children in care and the fees from this data were converted into an hourly rate (Kisker et al., 1991). The 1990 PCS study also included reasons for price adjustments including: provision of special services, payment from outside agencies, number of children from the family in care, number of hours in care, child's age, and family income (Hofferth et al., 1991). Finally, researchers must determine how inclusive the definition of child care price should be. Providers have registration fees, field trip fees, activities fees, and other costs that are not universal. These fees were not included in the 1990 PCS study (Kisker et al., 1991). Not collecting data on these prohibits an accurate representation of parents' out-of-pocket child care expenditures.

### *Estimating the quality of early and school age care in different settings*

Comparing the quality of child care among different types of providers has two central methodological issues. These methodological issues are disparities in the components of quality assessed among center versus family child care providers, and a potential failure to capture the strengths of home-based care (Marshall et al., 2003). Researchers have begun to develop new quality measures designed to reflect the components of quality especially in family, friend and neighbor care in order to address these issues (see Maher, 2007).

*Structural and process measures of quality.* A new national study of child care supply and demand holds the potential of examining whether structural features of quality are more widely varying in certain types of setting. Though the proposed study of child care supply and demand will not be able to capture measures of process quality directly, it would be possible to include survey or administrative measures of key structural measures of quality, such as ratio and caregiver education found previously to be related to both process quality and child outcomes.

In terms of structural features of early care that support quality, the research of the Midwest Research Consortium is a key resource. This work identified twelve variables that were found to function as assets, predicting observed quality in both centers and family child care homes. Two further variables predicted observed quality only in center care and two only in family child care. The twelve variables that predicted to observed quality in both types of care were: highest level of education completed; having a Child Development Associates (CDA) credential; total hours of training related to child care; current certification in first aid and CPR; completion of an intense training program; participation in a child care related state, regional or national conference; use of a curriculum, having held a formal annual conference with each child's parent; earning \$12,500 or more in the previous year; working in a center or home with recognized accreditation; working in a center or home with a partnership with Head Start of Early Head Start to follow the Head Start performance standards; and working in a center or home participating in the USDA Child and Adult Food Care Program. Two variables predicted quality in family child care settings only: whether the provider was licensed and whether the provider received visits by a mentor or support person. Two variables

predicted quality in center-based care only: whether the provider received health benefits and whether the provider discussed their progress with someone (usually the director).

Other recent research extends the range of structural features of early care that could be included in a study of child care supply using survey or administrative data. In addition to suggesting a wider range of variables to consider for inclusion as important structural features of child care quality in the proposed supply and demand study, the recent research also suggests that the total number of positive structural features of care may be important to consider. For example, the NICHD Study of Early Child Care and Youth Development (1999) considered the importance to child outcomes of the presence of specific structural features of care, as well as the total number of these features. This study focused only on center-based child care, using cutoffs based on the recommendations of the National Public Health Association and the American Academy of Pediatrics for (1) group size, (2) staff-child ratio, (3) overall years of caregiver education, and (4) caregiver education specifically related to childhood development.

This work can be used to guide the selection of survey or administrative measures of quality for the supply and demand study. In addition to the widely recognized structural variables of group size, ratio, overall level of caregiver education, and extent of education related to early childhood (as previously identified in the work of the NICHD Study of Early Child Care), this work suggests that we should consider also including further measures for the supply side study that could be collected through telephone interviews or through collection of administrative data. These further measures include both provider measures (such as hours of recent training, certification in first aid and CPR) and program measures (such as participation in the USDA food program and regular formal meetings with parents).

Depending on the strategy for sampling, and especially whether state estimates will be possible, the NSCCSD 2010 provides an opportunity to explore state variation on key quality indicators. Mapping structural features of care against regulatory stringency, and regulatory practices (such as frequency of licensing visits) would make it possible to examine variation in quality in relation to regulatory policies. In addition, an embedded observational study with a representative subsample within all or selected states would also open the possibility of examining the relationship of observed quality to the presence of a range of structural features of quality.

*Expanding the range of care setting and providers from which quality measures are available.* Most of the available data on quality is available for center and to a lesser extent, family child care providers serving preschool age children (typically licensed). For example, while the Midwest consortium has collected data on quality across four states that allow for generalizability at the state level, they collect data from centers, family care providers, and those providing care to subsidy receiving families (Zaslow, Acs, et al., 2006).

The available research on subsidized care also speaks to the importance of collecting data on a wide range of settings and providers (Layzer & Goodson, 2003). This small but growing body of research suggests that differences in quality of care between subsidized

and nonsubsidized care may be largest for family care providers than for center-based care (Zaslow, Acs, et al., 2006). The study by Raikes et al. (2003) found that observed quality in family care varied by whether the provider was licensed, registered, or license exempt. Likewise, in the National Study of Child Care for Low-Income Families found that important distinctions in type of family child care to make were whether all children were related to the provider, all children were unrelated to provider, and whether there was mix of related and unrelated children (Layzer & Goodson, 2003). It seems increasingly important to differentiate among subtypes of home-based child care, not only according to regulatory status, but also extent of relatedness.

A similar and related concern is expanding the universe of providers to reflect the arrangements and providers used by key populations of interest such as low-income children, families receiving subsidies, and racial/ethnic groups (e.g., African American, Hispanics, and Native Americans and Alaskan Indians). Data on quality are also lacking for school aged children. With the exception of the National Household Education Survey and NSAF and other smaller scale studies, few surveys have collected information on the quality of before and after care and other less commonly used forms of arrangement such as wrap around and sick care. NHES and NSAF, for example, collected data on child to staff ratio for before- and after school care arrangements; data on other aspects of quality were not collected in these data sets.

## VII. AMERICAN INDIAN AND ALASKA NATIVE EARLY AND SCHOOL AGE CARE

### *Overview and Context*

Throughout the history of the United States, American Indians and Alaska Natives (AIAN) have had less income, less education, higher unemployment, and higher poverty rates than non-Indians (Gonzales, 2003). Disadvantages are greatest for those living on or near rural reservations. Counties containing tribal areas in the Southwest and Great Plains have poverty rates of over 20 percent and these conditions have continued over time, thus defining them as areas of persistent poverty (Weber et al., 2005). The poverty rate for AIAN children under five is 43.1 percent (Indian Health Services, 1998 as cited in Endfield, 2006). AIAN children experience prevalence rates higher than those of their non-AIAN counterparts in diabetes, Fetal Alcohol Syndrome, nutritional inadequacies, and special education (Endfield, 2006; Schafft, Faircloth, & Thompson, 2006). At the same time, AIAN have displayed resilience and ingenuity in the face of harsh policies and practices that have threatened their well-being, the continuation of their language and cultural heritage, and even the tribe's existence. The growth of tribal gaming is currently improving reservation conditions for some tribes (Annie E. Casey Foundation, 2003; Gonzales, 2003; Snipp, 2002).

Few scientific studies have focused on AIAN children, especially in the early years, and most that have been done have focused on particular tribes or communities and thus findings cannot be generalized to all AIAN children (Hammer & Demmert, 2003; Marks & Graham, 2004; Schafft et al., 2006). Participants in the 2005 Rural Early Childhood Forum on American Indian and Alaska Native Early Learning noted the "lack of research in all areas of American Indian and Alaska Native early care and education" (Schafft et al., 2006). Most existing research relies on qualitative methods and ethnographic approaches whose findings cannot be generalized to AIAN children (Marks, Moyer, Roche, & Graham, 2003). Research has documented that early and school age care can improve child outcomes and thus play an important role in improving outcomes for children (Love, 1996; Vandell & Wolfe, 2000), yet we cannot describe the education and care experiences of AIAN children.

### *Background on American Indians and Alaska Natives*

Unlike other racial/ethnic minorities, AIAN have a special legal, political, and social status in the United States; a status that comes from their tenure on the land prior to the arrival of colonial powers. Their current status has emerged from a history of treaties between the tribes and the federal government along with other governmental actions through Congress and the courts (Annie E. Casey Foundation, 2003; Gonzales, 2003; Snipp, 2002).

- *Tribes*: Tribes that have been federally recognized by the U.S. Congress operate as sovereign nations (Annie E. Casey Foundation, 2003; Gonzales, 2003; Snipp, 2002). Tribes have "inherent power over internal affairs and

- *Reservations*: The United States holds areas of lands in trust for Indian tribes, nations, bands, or villages; lands exempt from most federal and state taxation and regulation. Tribal trust lands include reservations created through treaties in which Indians were recognized to have prior rights of ownership to land or congressionally approved acts of the federal government (Gonzales, 2003). The term reservation derives from the fact that while ceding the right, title and interest to huge tracts of land, Indians “reserved” some land for their exclusive use (ibid.). As of 2000, there were 619 reservations and Alaska Native villages, most with fewer than 500 residents and some so small that they reported no children (Snipp, 2002). One reservation may have two or three different tribes and a tribe may be spread over multiple reservations. Notably, in states with high AIAN populations (California, Oklahoma, and Alaska), the majority of tribal members do not live on reservations. In Alaska, it is common for Alaska Natives to live in villages.

*Who is Indian?* Snipp (2002) reports that a multitude of legal disputes and federal legislation have established that it is important to address the question of who is a “real Indian” (p. 6). For many official purposes, tribal membership is the basis, but ways of documenting membership vary across tribes. Not all people who report being Indian are enrolled members of recognized tribes and some may be ineligible but still identify as Indian. Not everyone who has a valid claim to being Indian is recognized as such by the federal government, or even by other Indians. This confusion affects the reliability of population counts. For instance, since 1960 the U.S. Census has relied on self-reports to identify American Indians and Alaska Natives. Census counts thus include people who are not tribal members, who are not eligible for tribal membership, and whose claim may be based on a weak cultural heritage (Snipp 2002). As such, Census counts are therefore likely to exceed the sum of tribal counts. Identification is further complicated by the lack of consensus on whether to count only those who are Indian alone or to also count those who are Indian in combination with another race. Historically, American Indians have high rates of marriage with those of another race so whether or not to count multiracial

Indians matters (Sandefur & Leibler, 1996, Sandefur & McKinnell, 1986 as cited in Snipp, 2002; Gonzales, 2003).

*Population.* According to the 2000 Census, there are 4.1 million American Indians Alaska Natives in the United States, making up 1.5 percent of the total U.S. population (Ogunwole, 2002). As the median age of Indians is younger than that of the total U.S. population and Indian families are larger, Indian children represent 1.9 percent of U.S. children (Annie E. Casey Foundation, 2003; Snipp, 2002).

Within the 4.1 million AIAN, 2.5 million (.9% of total U.S. population and 61% of AIAN population) are Indian alone and 1.6 million (.6% of total U.S. population and 39% of AIAN population) are Indian in combination with one or more races (Ogunwole, 2002). Although differences in survey questions may account for some differences, the National Center for Education Statistics found a much smaller percentage of infant AIAN children to be only AIAN. In the Early Childhood Longitudinal Survey-Birth Cohort, only 23 percent of AIAN children about 9 months of age were AIAN only (Flanagan & Park, 2005). Differences could be due to difference in survey questions and sampling.

Almost a million children under age 13 are AIAN and of those, 432,000 are under age 6 (Annie E. Casey Foundation, 2003). Nearly 70 percent of Indian children under age 18 live in states west of the Mississippi River (Snipp, 2002). Over half are clustered in eight states; a third in California, Arizona, and Oklahoma with another 21 percent in New Mexico, Texas, Washington, New York, and Alaska (Snipp, 2002).

Although we associate American Indians and Alaska Natives with reservations, only 29 percent of AIAN children live on them (Snipp, 2002). Nineteen percent live on the 25 reservations with the largest Indian populations of children under age 18; the remaining 10 percent are spread over reservations with fewer than 2,700 children on each (ibid.). Indian children are dispersed across the nation, predominantly in urban areas (Annie E. Casey, 2002). New York City and Los Angeles top the list of U.S. cities with the largest numbers of Indian children (Snipp, 2002) but the ten largest cities for American Indians and Alaska Natives account for only 8.2 percent of the total Indian population (Ogunwole, 2002). AIAN are a minority in all cities; Indian children represent 10 percent or less of any city over 100,000 (Snipp, 2002). About half live outside of census-defined metropolitan areas (Gonzales, 2003).

*Languages of American Indians and Alaska Natives.* As of the 2000 Census, single-race American Indians and Alaska Natives are less likely to speak only English than non-Indians (71.8% vs 82.1%), and they are only slightly more likely to be unable to speak English well than non-Indians (10.3% vs 8.1%). In only four tribes does the percent of those not speaking English well equal or exceed 10 percent: Apache, Navajo, Pueblo, and Eskimo (Ogunwole, 2006). Single-race Indians represent 61 percent of all AIAN and are more likely to reside on reservations (Snipp, 2002), so the percentage of all Indians (single race AIAN and AIAN in combination with another race) who do not speak English well is likely to be smaller than the 10.3 percent reported above.

English appears more likely to be the primary language in homes with young children. In 2001 Early Childhood Longitudinal Survey—Birth Cohort (ECLS-B), the National Center for Education Statistics found that English was the primary language in 94 percent of the homes with an AIAN infant. Only 1% lived in homes where an AIAN language was primary, although 7 percent lived in homes where an AIAN language was spoken (Flanagan & Park, 2005). Differences in language usage estimates between Census and ECLS-B could be due to differences in questions and sampling as well as age.

### ***Key Themes from Past Research and Data Collection With Implications for Measurement***

Although U.S. Census estimates are affected by some of the definitional issues already discussed, Census does provide the most reliable counts of American Indians and Alaska Natives. Most national surveys do not include enough Indians to be able to generalize findings to all American Indians and Alaska Natives. The 1990 supply and demand studies as well as most of the more current surveys on which we rely for basic information about early and school age care do not have sampling designs that allow us to generalize findings to AIAN children and may not have sufficient numbers of AIAN children.

### ***Response to need for research on American Indian and Alaska Native children***

In 1998 President Clinton signed Executive Order 13096 which recognized the unique educational and culturally related academic needs of American Indians and Alaska Natives and the federal government's historic responsibility for their education (U.S. Department of Education, 1998). In response, the Department of Education's Office of Educational Research and Improvement and Office of Indian Education established a working group, which produced an agenda for AIAN research Priorities (Strang, VonGlatz, & Cahape, 2002). The National Center on Education Statistics oversampled AIAN children in the Early Childhood Longitudinal Survey-Birth Cohort (ECLS-B) in 2001 (Grace et al., 2006). The sample of infants in the ECLS-B relied on registered births in the National Center of Health Statistics with an oversampling of counties or county clusters where the population has had a higher percentage of AIAN births. The sample was weighted to be nationally representative of all U.S. births, approximately 2 percent of which are AIAN (Flanagan & Park, 2005). Although limited to children about 9 months of age, data included demographics and types of care of AIAN infants. NCES is in the process of collecting additional waves of data collection, following these children through their kindergarten year.

In 1998, also recognizing the need for more study of AIAN children, Congress required the study of Head Start programs for AIAN children while at the same time excluding tribal Head Start from some national Head Start research and evaluation activities (Marks et al., 2003). In response, the U.S. Department of Health and Human Services conducted a review of existing information and research needs (Marks et al., 2003) and created a research agenda for AIAN Head Start programs (Marks & Graham, 2004). They noted that the field of early childhood education for Indian children is woefully understudied.

There are striking similarities in the list of methodological issues related to research involving AIAN children developed by two different groups responding to the President's Executive Order and the Congressional mandate to study AIAN children in Head Start. Both the study by Strang et al., 2002, sponsored by the U.S. Department of Education and the study by Marks and Graham, 2004, sponsored by the U.S. Department of Health and Human Services call for recognition of the uniqueness of individual tribal communities and tribal sovereignty. The recommendations of both groups include the need for:

- Detailed national data, including over sampling in national studies and collecting tribal or village affiliation data
- Cultural appropriateness including involving American Indian and Alaska Natives in resolving definitional issues and engaging them in selection of methods that are consistent with tribal norms and values
- Demonstrated knowledge of American Indian and Alaska Native cultures
- Commitment to the long-term well-being of Indian children
- Generalizable findings
- Creation and use of appropriate dissemination methods.

***What is known about the demand for early and school age care for AIAN children?***

Although the ECLS-B includes data on the types and hours of care parents report using, few analyses of the data for AIAN children are currently available. At completion, the ECLS data will include basic information on type of primary care, age at entry into care, and total hours in care along with important contextual data derived from parent interviews and child assessments. Flanagan and Park (2006) have reported findings from the first wave of ECLS-B, when the children were about 9 months of age. They found that AIAN children were slightly more likely than all U.S. children to not be in any non-parental care (52% to 50%) and slightly less likely to be in center care (7% vs 9%). Child care usage varied with employment and poverty status, with employment associated with increased usage and poverty status associated with decreased usage. Note: NCES has not designed either the NHES ECPP or PBSA so as to be able to generalize findings to AIAN children (Mulligan, 2007, November 15, personal correspondence).

The National Center for Rural Early Childhood Learning Initiatives in collaboration with Child Trends analyzed both ECLS-B and ECLS-K data, comparing rural AIAN children to non-rural AIAN children and to rural children from other races (Grace et al., 2006; Zaslow, Brown, & Aufseer, 2005). These reports include usage of non-parental care for AIAN infants, pre-kindergartners, and kindergartners. The findings from the ECLS-B can be generalized to rural AIAN children, which represent 24 percent in ECLS-B (Flanagan & Park, 2005).

Other national surveys may have sufficient numbers of AIAN children to support analysis but without a sampling design focused on this population, the findings may or may not be representative of all AIAN children. Another problem is that even if the data are able to



support an analysis, it does not appear that researchers have used them to expand our knowledge of AIAN children's care and education. In personal correspondence, Gail Mulligan who oversees the National Household Education Survey (NHES), shared that numbers of AIAN are sufficient to support substantial analyses of AIAN children in both the Early Care and Program Participation and the Before and After School Programs and Activities surveys unless one wanted to look at the data cut by many background characteristics at once (Mulligan, 2007).

***What is known about the supply of early and school age care for AIAN children?***

It will be helpful to think of the early and school age care supply in tribal areas separately from that accessible to those not living in tribal areas. Although we can describe regulation and funding of tribal early and school age care, it is not likely that the supply impacted by them is available to AIAN children and families not living in tribal areas. AIAN Indian children and families living in urban America share the same supply as do non-AIAN children and families in those urban areas although it is likely that they experience multiple barriers in accessing it. The next section describes what is known of tribal early and school age care.

***Tribal Child Care and Development Fund, Head Start, and tribal-operated early and school age care***

Many of the 560 federally recognized tribes have small populations; about 225 of them are located in Alaska (Child Care Bureau, 2005). As with other federal efforts, delivery of early and school age care through tribes is marked by a government-to-government relationship.

*Child Care and Development Fund supported early and school age care.* Although the federal government has provided child care services for tribal children for over 60 years the creation of the Child Care and Development Fund in 1996 creates block grants with the tribes that support tribal decision-making and flexibility in use of child care funds (Office of Inspector General Department of Health and Human Services, 1998). To be eligible to receive a CCDF grant, the tribe must have at least 50 children under age 13. Smaller tribes can combine into a consortium that applies to be the grantee. In 2004 there were 268 tribal grantees, including most tribes with smaller tribes working together in consortia (Child Care Bureau, 2005). The Secretary of the Department of Health and Human Services has allotted 2 percent of the \$4.8 billion CCDF allocation for tribal CCDF. AIAN children are eligible for both state and Tribal CCDF funds. Unlike states, Tribal grantees may use CCDF funds for construction and renovation of child care facilities with authorization from their Administration for Children and Families Regional Offices (Child Care Bureau, 2005).

In a study of tribal child care market rate surveys, Weber and Grobe (2007) surveyed the 268 tribes with CCDF grants in 2004. They found the number of children under age 13 in tribal service areas averaged 2,371 and half of tribes had 773 or fewer children under age 13 in their service area. In federal fiscal year 2005, almost 25,000 children under age

13 received child care funded with tribal CCDF dollars. Over half (57%) were in center care and over a third (37%) were in family child care. Six percent received care in their own homes. Ninety percent of children receiving CCDF in centers were in regulated care whereas only 39 percent of those in family child care were in regulated facilities (Weber & Grobe, 2007a).

*Tribal Head Start.* Tribes have their own region, Region XI, within Head Start. In 2003 153 tribes in 27 states were Head Start grantees and served approximately 25,000 AIAN children. AIAN children are also served by nontribal Head Start grantees (Marks et al., 2003). A smaller number of tribes are Early Head Start grantees and some have other federal early education programs (Weber & Grobe, 2007b).

*The mix of tribal and federally supported early and school age care.* In addition to federal funds, tribes use tribal resources to create and maintain early and school age care facilities and programs. Weber and Grobe (2007) asked tribes about their mix of existing early care and school age care facilities. Almost a third of tribes (31%) had both tribal and Head Start centers. Over a quarter (28%) had only Head Start centers, and a little more than one in ten (11%) had only tribal child care centers. The remaining 30 percent had neither a tribal nor Head Start center. Tribes with more children in their own reservation were more likely to have early care and education programs.

*Regulation of early and school age care.* Within tribal areas, child care regulation may be carried out by the tribe, the state, or both. Within CCDF tribal service areas, regulation was provided most commonly by the tribe only (40%), and less frequently by the state only (27%) or both the tribe and state (27%). Six percent of tribal respondents were not able to report that regulated child care in their tribal service area (Weber & Grobe, 2007).

### ***Design and Measurement Issues for the 2010 Survey***

#### ***Issues of sovereignty, language & culture***

Tribal sovereignty and cultural differences require research on AIAN children to include special considerations; numerous bodies have identified essential characteristics of such research. Tribal communities must have a significant role in how the research is designed. Cultural issues must be addressed in the development of sampling design, data collection, analysis, and dissemination. How serious an issue language presents is not clear.

#### ***Who is Indian and tribal differences***

Two related issues complicate what would appear to be a simple question. The first is whether self-identification of race constitutes the definition of AIAN rather than tribal membership. The second is whether to count a person who is single race AIAN or single race and AIAN in combination with another race. Tribal differences matter;

demographics vary across tribes. Many American Indians and Alaska Natives argue that intertribal differences need to be identified rather than generalizing findings to all AIAN.

***Identifying the universe of AIAN children and families from whom to create a representative sample***

Representing approximately 2 percent of the total U.S. population, identification of the universe of AIAN children is challenging. The fact that Indians live in every state in small numbers further complicates design. Although Indians are clustered on reservations, only 29 percent of Indian children live on reservations and their experiences are likely to be quite different than those of the majority who live in cities and urban areas.

***Identifying the early and school age care supply that serve AIAN children***

It may be possible to identify the early and school age care supply operated or regulated by tribes by working with tribes, the Child Care Bureau, the Office of Head Start, and other federal and state agencies. Yet, the majority of children do not likely have access to these facilities because of their residence outside of reservations and other tribal areas. It is likely that a substantial portion of AIAN children are a small percent of the children being served in nontribal facilities. The design of the supply survey will need to include solutions to the challenges of describing the supply used by AIAN children and families living in and outside of tribal areas.

***Opportunities provided by existing data***

Administrative and existing survey data may be included in the design of the National Study of Child Care Supply and Demand. The ECLS-B includes parent responses regarding the type of care and education used by their child and AIAN families were oversampled so as to be able to represent AIAN children and families. The ECLS-B asked parents about child care at about 9 months, 2 and 4 years of age, and in the kindergarten year. The AIAN data in the NHES may also provide information on a number of important aspects of parent decision-making about usage of early and school age care although its sample design was not focused on the ability to generalize to AIAN children. A comparison of ECLS-B demographics with Census AIAN estimates will provide information on the success of the sampling design used in each study.

Office of Head Start and Child Care Bureau administrative data may provide information that will be of value in describing both supply and demand. The accuracy of reports of race will be an issue. Probably the more serious issue is that these programs primarily serve AIAN children who reside in tribal areas.

## VIII. CROSS CUTTING ISSUES AND EMERGING THEMES

In this section, we highlight some of the cross cutting and emerging themes that we have identified in conducting this review. This section is intended to serve two main purposes. First, it is intended as a conclusion summarizing key issues covered within this review. Second, this list is intended to serve as a starting point for discussion during the meeting of the expert panel of key conceptual and measurement issues. This list is not intended to be final; in fact, we anticipate that it will grow and be revised as the expert panel, project team, and the Office of Planning Research and Evaluation (OPRE) identify additional issues, concerns, and priorities.

### *Developing a Common Set of Definitions*

A theme common to almost every topical area covered in this review is the need for a common set of definitions. We lack a common taxonomy and definitions for basic constructs and measures. The lack of common definitions has hindered direct comparisons across studies and in many respects precludes the field from maximizing the information that exists in our current data infrastructure. This limitation applies to both survey and administrative data at the federal, state and local level. Recent efforts have focused on identifying common data elements and a core set of definitions and measures that are needed to link various administrative data systems and other data sources (see (Grobe & Weber, 2003; Lee et al., 2003), and it is possible that the design of the NSCCSD could benefit from these endeavors.

### *Defining the Universe of Supply and Demand*

A key issue in the design of the NSCCSD 2010 will be to define the universe for the supply and demand of early and school age care and education.

- *What is the universe of care that should be covered in the supply based survey?* On the supply side, for example, a critical issue will be whether and how to include family, friend, and neighbor care. The inclusion of family, friend, and neighbor care in the supply of early and school age care presents several sampling and conceptual challenges. From a conceptual perspective, the distinctive feature of the personal or proximal ties that link family, friend and neighbor caregivers to recipients of this care likely means that family, friend and neighbor care is not part of market care as defined here. Additionally, there are serious impediments to creating a sample frame that includes providers of family, friend and neighbor care since family, friend and neighbor care providers are not captured in official or commercial registries or lists. A possible approach is to identify family, friend and neighbor care providers through the demand based survey, conducting follow-up interviews with the providers used by parents who complete the interview. An alternative, though costly, approach is to include additional questions in the household screener (assuming that one will be used in the demand based survey to identify eligible child households) to identify family, friend and neighbor care providers. Both of these approaches were used in the

- *What is the universe of families and children that should be covered in the demand-based survey?*
  - There appears to be agreement that families with preschool aged children are a key target population for a demand-based study of early and school age care. There is also growing recognition that this target group should be expanded to include families with children under the age of 13. This expansion reflects a recognition that the need for non-parental care does not end as children enter their K-12 school years and that out-of-school time care may provide opportunities to enhance child outcomes. The need to include families with older children also reflects the fact that many policies and programs serve children through age 13. CCDF serves children from birth through age 13, as well as children through age 19 who are under court supervision or have mental or physical needs that prevent them from self-care (Child Care Bureau, 2006). Less, clear, however, is whether the target group should include families with children age 13 or older without special needs. Proponents of expanding the age range (beyond age 13) maintain that the need for care and adult supervision continues through the early teen years, and may be related to issues regarding neighborhood safety and the availability of youth programs in communities. Moreover, some states have increased the age limits for subsidy eligibility to include families with children up to age 16.
  - If the age of children included in the study includes school age children, it will be critical to define what types of arrangements or activities are included in the NSCCSD definition of care as methodological challenges are likely to increase as the definition of care becomes more inclusive. For example, should we define school age care to include activities such as participation in arts activities, sports teams, recreation classes, and other activities that parents enroll their children in to provide supervision and enrichment? The 1990 National Child Care Survey collected data on school age arrangements including center, relative, in-home provider, family day care, self-care and “lessons.” The challenges and implications of broadening the definition of care to include the full range of school age activities and arrangements are particularly problematic from a supply perspective. Specifically, identifying providers of such care will be difficult. Moreover, such providers are unlikely to provide care and services to only children falling within our age range (e.g., many school

- In defining the target population for the demand based study it is also important to consider the inclusion of families who are not currently using non-parental care. Their inclusion will help to address a key gap in the literature and data infrastructure as most studies have focused on families using some form of non-parental care. The inclusion of families using solely parental care will also help to identify unmet needs these families may have and that policies and programs may be able to address. Additionally, data on families using solely parental care may help shed light on the early and school age care decision making process (see section on Demand).
- Other groups that are critical to include and to sample at levels sufficient to support subgroup analyses in order to adequately examine the implications of policies and programs and to identify ways that these can better meet the needs of families include: low income families; families receiving and families eligible but not receiving subsidies, TANF clients, TANF leavers and those at risk of becoming TANF dependent.

### *Pushing the Borders on Quality Measures*

The NSCCSD 2010 presents an important opportunity for the measurement of quality for early and school age care. The timing of the NSCCSD provides an opportunity to incorporate measures relevant to a number of developments in this area, including increased efforts to disseminate information about the quality of care to consumers; the development of measures of care that are appropriate for and reflect the wide range of care settings and experiences of children and families; and an expansion in the measurement of quality through surveys beyond traditional dimensions of structural quality such as group size or child to staff ratios (see section on Quality). The design of the NSCCSD 2010 can also build upon lessons learned and innovative work currently being carried out at the state level (see work of the Midwest Research Consortium for example; Raikes et al., 2006).

### *State Versus National Picture*

To a large degree early and school age care is a local issue. Parents make decisions about their children's care based on the range and price of care available in their communities. Likewise, providers set prices based on local market conditions. Policies and programs, though shaped in large part at the federal level, are also shaped at the state and local level. For example, as noted in the previous section, states and localities have latitude in setting eligibility rules and identifying priority groups for subsidies and many supplement and expand on federal programs and funding to support the quality of care. In short, we not only need data to provide a national portrait of early and school age care but also one

that provides sufficient data to examine variations in state and local markets and economic conditions, as well as differences in the policies and programs.

### ***How Do We Assess Unmet Need?***

A key challenge and opportunity in the NSCCSD 2010 is the measurement of unmet need. To date much of the measurement of demand has focused on actual utilization patterns of families and children. Much less information is available to identify the unmet needs of families. The lack of data on this issue may reflect the difficulty of asking parents questions regarding their unmet needs, resulting in data quality and social desirability concerns. For example, parents may be hesitant to report about qualities or characteristics that their child's care is lacking. Approaches including asking parents whether they would change their care if other care (of varying characteristics and quality) became available may produce data with an insufficient level of variation to identify families with unmet need or distinguish types or levels of unmet need.

One potential approach implied in the work of Shlay and others is to collect information about parents' preferences and compare these preferences to their actual utilization patterns. However, this approach may not be applicable to parents relying solely on parental care. An additional approach, described in the demand section, is to ask parents about potential barriers to child care and subsidy utilization, and care related barriers to employment and self-sufficiency. A promising approach, favored by some of the project team members, is to measure both unmet needs and parental preferences through behavior-based measures. For example, rather than asking parents what types or features of care they prefer or if their current arrangement is lacking in any of these features, we would ask parents if they have ever attempted to access center-based care or subsidies, for example. We could then compare these responses to actual utilization patterns to identify areas of unmet need. Behavior-based measures of unmet need and preferences will likely yield higher data quality. Queralt and Witte have developed methods to measure unmet need from a care perspective using methodologies used to determine medically underserved populations (see (Queralt & Witte, 1999) "Estimating the Unmet Need for Services: A Middling Approach," (with Magaly Queralt), *SOCIAL SERVICE REVIEW*, Vol. 73, No. 4 (December, 1999)524-559. Queralt & Witte, *Estimating the unmet need for services: a practical approach using a child care illustration.*) As noted in the demand section, these approaches can provide a basis upon which to build measures of unmet need for the NSCCSD.

### ***Capacity to Relate Program Based and Market Based Arrangements***

A further challenge concerns the capacity of a new NSCCSD to collect reliable data on participation in market-based care versus publicly based programs. Examination of parent report data on participation in Head Start, for example, reveals that a portion of parents are not using the correct program designation. Furthermore, there are arrangements that blur the distinctions between publicly based programs and market-based care, such as publicly funded pre-kindergarten located in community-based child care centers. Yet there are important substantive issues that rely on the capacity of surveys to make these

distinctions. For example, an emerging question is whether the expansion of publicly funded pre-kindergarten programs is resulting in a reduction in the number of center-based slots for preschool age children, and especially infants and toddlers. Whether and how this set of distinctions will be made in the new survey will be an important issue to address.

### *Linking of Administrative Data*

In recent years there has been a concerted effort to make greater and more efficient use of administrative data collected at the federal, state, and local level. For example, researchers have linked state subsidy data to unemployment records to examine how subsidies are associated with employment outcomes (Lee et al., 2003). Data from market rates surveys in California have been used to identify reimbursement rate ceilings for subsidies by linking cost data with county level information on employment rates, housing, income, the supply of care, and subsidy expenditures (Marrufo et al., 2003). This work provides a source for approaches in which data currently collected through administrative data systems can complement data collected through the survey. Moreover, a national study of supply and demand might provide an opportunity to assess the extent to which administrative data sets capture supply, including which parts of the supply are and are not captured in major data sets. Additionally, there is a need to estimate supply in between national surveys and it would be valuable to know how survey estimates compare with findings from estimates from licensing, resource and referral agency data, market rate surveys, and state registry data sets. On the demand side, some states routinely do household surveys. States could benefit from being able to compare estimates of early and school age care utilization generated from their state household surveys with those based on a national study.

Linking administrative data to household survey data would also address some of the reporting inaccuracies that typically occur. Especially when parents are asked to retrospectively report on service receipt, there is significant discrepancy between self-report and administrative records.



## REFERENCES

- ACF. (2006). Social services block grant program annual report 2006 [Electronic Version]. Retrieved September 19, 2008 from <http://www.acf.hhs.gov/programs/ocs/ssbg/annrpt/2006/index.html>.
- ACF. (2008). Social services block grant program annual report 2005: Focus reports [Electronic Version]. Retrieved September 23, 2008 from [http://www.acf.hhs.gov/programs/ocs/ssbg/reports/ssbg\\_focus\\_2005/index.html](http://www.acf.hhs.gov/programs/ocs/ssbg/reports/ssbg_focus_2005/index.html).
- Acs, G., & Loprest, P. (2005). *Who are low-income working families?* Washington, DC: The Urban Institute.
- Adams, G., Holcolmb, P. A., Snyder, K., Koralek, R., & Capizzano, J. (2005). *Child care subsidies for TANF families: The nexus of systems and policies*. Washington, DC: The Urban Institute
- Adams, G., Holcomb, P., Snyder, K., Koralek, R., & Capizzano, J. (2004). *Child care, welfare, and families: The nexus of policies, practices, and systems*. Washington, DC: The Urban Institute.
- Adams, G., & Rohacek, M. (2002a). Child care and welfare reform. In A. Weil & K. Finegold (Eds.), *Welfare reform: The next act* (pp. 121-141). Washington, DC: Urban Institute Press.
- Adams, G., & Rohacek, M. (2002b). More than a work support? Issues around integrating child development goals into the child care subsidy system. *Early Childhood Research Quarterly*, 17, 418-440.
- Adams, G., Rohacek, M., & Snyder, K. (2008). *Child care voucher programs: Provider experiences in five counties*. Washington, DC: The Urban Institute
- Adams, G., Zaslow, M., & Tout, K. (2006). *Child care for children in low-income working families: Trends, patterns, and potential policy implications for children's development*. Washington, DC: The Urban Institute and Child Trends.
- Adams, G., Zaslow, M., & Tout, K. (2007). *Early care and education for children in low-income families: Patterns of quality and potential policy implications*. Paper presented at the Roundtable on Children in Low-Income Families.
- Administration for Children and Families. (2002). *Head Start program information report 2000-2001*. Washington, DC: U.S. Department of Health and Human Services.
- Administration for Children Youth and Families. (2007). *Head Start program fact sheet*. Washington, DC: U.S. Department of Education.
- After-school programs in cities across the United States*. (2003). Paper presented at the United States Conference of Mayors.
- After School Alliance. (2008). Surveys and polls show strong support for afterschool [fact sheet] [Electronic Version]. Retrieved July 2008 from [http://www.afterschoolalliance.org/Fact%20Sheet\\_Public%20Support%20for%20Afterschool\\_FINAL.pdf](http://www.afterschoolalliance.org/Fact%20Sheet_Public%20Support%20for%20Afterschool_FINAL.pdf).
- Afterschool Investments. (2004). *CCDF and 21CCLC state efforts to facilitate coordination for afterschool programs* Washington, DC: U.S. Department of Health and Human Services Administration for Children and Families Child Care Bureau.

- Afterschool Investments. (2006). *Making smart investments in afterschool: A policy primer for state and local leaders*. Washington, DC: U.S. Department of Health and Human Services Administration for Children and Families Child Care Bureau.
- Afterschool Investments. (n.d.-a). Percentage of children receiving child care development fund (CCDF) subsidies who are school-age [Electronic Version] from <http://www.nccic.acf.hhs.gov/afterschool/percentfundedrep.htm>.
- Afterschool Investments. (n.d.-b). *State profile series: National profile*. Washington, DC: U.S. Department of Health and Human Services Administration for Children and Families, Child Care Bureau.
- Afterschool Investments Project. (2006). *Promoting quality in afterschool programs through state child care regulations*. Washington DC: U.S. Department of Health and Human Services - Administration for Children and Families Child Care Bureau.
- Anderson, & Levine, P. B. (1999). *Child care and mothers' employment decisions (NBER Working Paper Series No. 7058)*. Cambridge, MA: National Bureau of Economic Research.
- Annie E. Casey Foundation. (2003). *Kids Count pocket guide: American Indian children*. Baltimore, MD: Annie E. Casey Foundation.
- Arizona State Board on School Readiness. (2005). Compensation and credentials: A survey of Arizona's early education workforce [Electronic Version] from [http://www.azchildren.org/MyFiles/PDF/CC\\_Compensation\\_Credentials.pdf](http://www.azchildren.org/MyFiles/PDF/CC_Compensation_Credentials.pdf).
- ASPE. (2004). TANF "leavers," applicants, and case load studies: Reports on leavers. Retrieved September 12, 2008, from <http://aspe.hhs.gov/HSP/leavers99/rpts-leavers.htm#or>
- ASPE Staff. (2003). *TANF "leavers", applicants, and caseload studies: Diverted and applicant populations*. Washington DC: ASPE.
- Barnett, W., Hustedt, J. T., Hawkinson, L. E., & Robin, K. B. (2006). *The state of preschool 2006: State preschool yearbook*: The National Institute for Early Education Research.
- Barnett, W., & Kelley, P. J. (2006). A framework for cost-benefit analysis of professional development in early care and education. In M. Zaslow & I. Martinez-Beck (Eds.), *Critical issues in early childhood professional development* (pp. 313-337). Baltimore, MD: Brookes Publishing.
- Barnett, W., & Masse, L. N. (2007). Early childhood program design and economic returns: Comparative benefit-cost analysis of the Abecedarian program and policy implications. *Economics of Education Review*, 26(1), 113-125.
- Barnett, W. S., Hustedt, J. T., Friedman, A. H., Boyd, J. S., & Ainsworth, P. (2007). *The state of preschool 2007: State preschool yearbook*: The National Institute of Early Education Research.
- Bellm, D., & Haack, P. (2001). *Working for quality child care: Good child care jobs equals good care for children*. Washington, DC: Center for the Child Care Workforce.
- Bowyer, M., Cartwright, G., Craig, H., Angelo, L. D., Drake, H., Feden, J., et al. (2006). *The role of transportation in selected Syracuse child care centers*. Syracuse, NY: The Maxwell School of Syracuse University.

- Brandon, R. N. (2005). *Enhancing family, friend, and neighbor caregiving quality: The research case for public engagement*. Seattle: University of Washington, Human Services Policy Center.
- Brandon, R. N., & Martinez-Beck, I. (2006). Estimating the size and characteristics of the United States early care and education workforce. In M. Zaslow & I. Martinez-Beck (Eds.), *Critical issues in early childhood professional development* (pp. 49-76). Baltimore, MD: Brookes Publishing.
- Breunig, G. S., Brandon, R., & Maher, E. (2004). *Counting the child care workforce: A catalog of state data sources to quantify and describe child caregivers in the fifty states and the District of Columbia*. Seattle, Washington: The Human Services Policy Center, University of Washington.
- Brooks, F. P. (2003). What differences unionizing teachers might make on child care in the USA: Results from an exploratory study. *Child and Youth Care Forum*, 32(1), 3-22.
- Burstein, N., Layzer, J. I., & Cahill, K. E. (2001). *National Study of Child Care for low-income families: Patterns of child care use among low-income families: Final report*. Washington, DC: Abt Associates, Inc.
- Caldera, Y. M., Tacón, A. M., Lindsey, E., Ross, A., Salazar-Fontanelli, J., Guerra-Foster, C., et al. (2003, June). *Child care in Mexican-American families with infants and toddlers: Parents' feelings about child care*. Paper presented at the Groves Annual Conference, Miami, FL.
- Capizzano, J., & Adams, G. (2000). The hours that children under five spend in care: Variation across states.
- Capizzano, J., Main, R., & Nelson, S. (2004). *Adolescents assuming adult roles: Factors associated with teens providing child care for younger siblings*. Washington, DC: Urban Institute.
- Carver, P. R., & Iruka, I. U. (2006). *After-school programs and activities: 2005 (NCES 2006-076)* Washington, DC: National Center for Education Statistics
- Carver, P. R., Iruka, I. U., & Chapman, C. (2005). *National Household Education Surveys program of 2005: After-school programs and activities: 2005*. Washington, DC: National Center for Education Statistics.
- Center for the Child Care Workforce, & Human Services Policy Center. (2002). *Estimating the size and components of the U.S. child care workforce and caregiving population (Preliminary Report)*. Washington, DC: Center for the Child Care Workforce.
- Chalfie, D., Blank, H., & Entmacher, J. (2007). *Getting organized: Unionizing home-based child care providers*. Washington, DC: National Women's Law Center.
- Chambers, J. G., Parrish, T. B., & Harr, J. J. (2004). What are we spending on special education services in the United States, 1999-2000? [Electronic Version] from <http://csef.air.org/publications/seep/national/AdvRpt1.PDF>.
- Chase, R., Moore, C., & Arnold, J. (2007). Child care workforce in Minnesota: 2006 statewide study of demographics, training and professional development [Electronic Version] from <http://www.wilder.org/download.0.html?report=1985>.
- Chaudry, A. (2004). *Putting children first: How low-wage working mothers manage child care*. New York: Russell Sage Foundation.

- Child Care Bureau. (2003). Child Care and Development Fund (CCDF) report to Congress for fiscal year 2002 and fiscal year 2003 [Electronic Version] from [http://www.acf.hhs.gov/programs/ccb/ccdf/rtc/rtc2002/rtc\\_general/rtc\\_2002\\_2003.pdf](http://www.acf.hhs.gov/programs/ccb/ccdf/rtc/rtc2002/rtc_general/rtc_2002_2003.pdf).
- Child Care Bureau. (2005). *Tribes and states working together: A guide to tribal-state child care coordination*. Washington, DC: Administration for Children and Families, U.S. Department of Health and Human Services.
- Child Care Bureau. (2006). Overview of the Child Care and Development Fund (Fiscal years 2006-2007) [Electronic Version] from [http://www.acf.hhs.gov/programs/ccb/ccdf/ccdf06\\_07desc.htm](http://www.acf.hhs.gov/programs/ccb/ccdf/ccdf06_07desc.htm).
- Child Care Employee Project. (1991). *Taking matters into our own hands: A guide to unionizing in the field of child care*. Oakland, CA: Child Care Employee Project.
- Child Trends. (2006). *Summary tables of national, state, and local measures*. Paper presented at the Child Care Bureau Roundtable on Performance Measures of Childcare and Employment, Washington, DC.
- Child Trends. (2007). Roundtable on measuring quality in early childhood and school-age settings: At the junction of research, policy and practice. December 4-6, 2007. from <http://www.researchconnections.org/location/ccrcal12621>
- childstats.gov. (2008). America's children in brief: Key national indicators of well-being, 2008 [Electronic Version]. Retrieved September 2, 2008 from <http://www.childstats.gov/americaschildren/glance.asp>.
- Chipty, T., & Witte, A. (1997). An empirical investigation of firms' responses to minimum standards regulations [Electronic Version]. *NBER Working Paper 6014* from nber.org.
- Chipty, T., & Witte, A. (1998). Effects of information provision in a vertically differentiated market [Electronic Version]. *NBER Working Paper 6493* from nber.org.
- Clifford, R. M., Barbarin, O., Chang, F., Early, D., Bryant, D., Howes, C., et al. (2005). What is prekindergarten? Characteristics of public prekindergarten programs. *Applied Developmental Science, 9*, 126-143.
- Cochi Ficano, C. K. (2006). Child-care market mechanisms: Does policy affect the quantity of care? *Social Service Review, 80*(3), 453-484.
- Colker, L. J., & Dewees, S. (2000). Child care for welfare participants in rural areas. Rural Welfare Issues Brief. Macro International Inc.
- Collins, A., Kreader, J. L., & Layzer, J. I. (2004). *National Study of Child Care for low-income families: The supply of regulated child care in 25 study communities*. Washington, DC: U.S. Department of Health and Human Services.
- Cornell University. (2002). Child care programs of excellence. *Quality Child Care Matters, 1*(1).
- Cost Quality and Child Outcomes Study Team. (1995). *Cost, quality, and child outcomes in child care center: Public report, second edition*. Denver, CO: Economics Department, University of Colorado at Denver.
- Danziger, S. K., Ananat, E. O., & Browning, K. G. (2004). Childcare subsidies and the transition from welfare to work. *Family Relations, 53*(2), 219-228.
- Dektar, E. (n.d.). *Facts about ... child care and transportation*. Alameda, CA: Alameda County Local Investment in Child Care Project.

- Early, D. M., Maxwell, K. M., Burchinal, M., Bender, R. H., Ebanks, C., Henry, G. T., et al. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development*, 78(2), 558-580.
- Emlen. (1998). *From a parent's point of view: Flexibility, income, and quality of child care*. Paper presented at the Child Care in the New Policy Context, NIH Campus, Bethesda, MD.
- Emlen. (2005). The validity of child-care market-rate surveys. Unpublished Manuscript.
- Emlen, Koren, P., & Schultzke, K. (2000). A packet of scales for measuring quality of child care from a parent's point of view: With summary of methods and findings [Electronic Version]. Retrieved July 12, 2007 from <http://www.hhs.oregonstate.edu/familypolicy/occrp/publications.html#parentserspective>.
- Emlen, & Weber, B. (2007). *Parental use of child care: A guide for constructing parent surveys*. Salem, OR: Oregon Child Care Research Partnership.
- Emlen, A. C., Koren, P. E., Shultz, K. H., & Weber, R. (1999). From a parent's perspective: Measuring the quality of child care. A final report [Electronic Version] from [http://www.ssw.pdx.edu/focus/emlen/documents/Final%20report\\_pdf.PDF](http://www.ssw.pdx.edu/focus/emlen/documents/Final%20report_pdf.PDF).
- Endfield, L. S. (2006). *The health and development of American Indian and Alaska Native children and families*. Paper presented at the Proceedings of the Rural Early Childhood Forum on American Indian and Alaska Native Early Learning, Little Rock, AR.
- Esposito, B., & Kalifeh, P. (2006). Version]. *Child care workforce study 2006* from <http://www.fcforum.org/downloads/publications/seminole%20workforcestudy%202006.pdf>.
- Federal Interagency Forum on Child and Family Statistics. (2007). *America's children: Key national indicators of well-being 2007*. Washington, DC: U.S. Government Printing Office.
- Federal Trade Commission v. Tenet Healthcare Corporation (8th Cir. 1999).
- Ficano, C. C., Gennentian, L., & Morris, P. A. (2006). Child care subsidies and employment behavior among very-low-income populations in three states. *Review of Policy Research*, 23(3), 681-698.
- Flanagan, K., & Park, J. (2005). *American Indian and Alaska Native Children: Findings from the base year of the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B)*. Washington, DC: National Center for Education Statistics.
- Flanagan, K., & West, J. (2004). *Children born in 2001 first results from the base year of the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B)*. Washington, DC: U.S. Department of Education Institute of Education Sciences.
- Frech, H. E., Langenfeld, J., & McCluer, R. F. (2004). Elzinga-Hogarty tests and alternative approaches for market share calculations in hospital mergers. *Antitrust Law Journal*, 71, 921-947.
- Garnier, P. C. (2006). Illinois salary and staffing survey of licensed child care facilities: FY2005 [Electronic Version] from <http://www.dhs.state.il.us/onenetlibrary/27897/documents/hcd%20reports/child%20care/fy05salarystaffingapprovedfinal.pdf>.



- Gennetian, L. A., Crosby, D. A., Huston, A. C., & Lowe, E. D. (2002). How child care assistance in welfare and employment programs can support the employment of low-income families. *Next Generation Working Paper Series No. 11*. New York: MDRC.
- Gennetian, L. A., Ficano, C. C., & Morris, P. A. (2003). *The effect of child care subsidies on work behavior: A three-state comparison*. New York: Manpower Demonstration Research Corporation.
- George, R. M., & Cusick, G. R. (2006). *The relationship between ASM and educational outcomes: Graduation and dropout (unpublished manuscript)*: Chapin Hall Center for Children at the University of Chicago.
- Gilliam, W. S., & Shahar, G. (2006). Preschool and child care expulsion and suspension. *Infants & Young Children, 19*(3), 228-245.
- Gonzales, A. A. (2003). American Indians: Their contemporary reality and future trajectory. In D. L. Brown & L. E. Swanson (Eds.), *Challenges for rural America in the twenty-first century* (pp. 43-56). University Park, PA: Penn State University.
- Gordon, R. A., & Chase-Lansdale, P. L. (2001). Availability of child care in the United States: a description and analysis of data sources. *38*(2), 299-316.
- Grace, C., Shores, E. F., Zaslow, M., Brown, B., Aufseer, D., & Bell, L. (2006). *Rural disparities in baseline data of the Early Childhood Longitudinal Study: A chartbook*. Mississippi State, MS: National Center for Rural Early Childhood Learning Initiatives.
- Granger, R. C., Durlak, J., Yohalem, N., & Reisner, E. (2007). *Improving after-school program quality*. New York, NY: William T. Grant Foundation.
- Grobe, D., & Weber, B. (2003). *Guidebook for implementing a study on the dynamics of child care subsidy use*. Oregon: Oregon State University Family Policy Program, Oregon Child Care Research Partnership.
- Grobe, D., Weber, B., Pratt, C. C., & Emlen, A. (2003). *Market rate study guidebook: A guide to implementing a child care market rate study using child care resource and referral data*. Corvallis, OR: Oregon Child Care Research Partnership.
- Guzman, L., & Freed, S. (2006). *Developing measures of child care as a support to employment and self-sufficiency*. Paper presented at the Child Care Bureau Roundtable on Performance Measures of Childcare and Employment.
- Hammer, P. C., & Demmert, W. G., Jr. (2003). American Indian and Alaska Native Early Childhood Health, Development, and Education Assessment Research. ERIC Digest (pp. 12): Archives at <http://www.ael.org/>.
- Han, W., & Waldfogel, J. (2001). Child care costs and women's employment: A comparison of single and married mothers with pre-school age children. *Social Science Quarterly, 82*(3), 552-568.
- Harvard Family Research Project. (2007). *Findings from HFRP's study of predictors of participation in out-of-school time activities: Fact sheet* Cambridge, MA.
- Heckman, J. J., & Masterov, D. V. (2004). *The productivity argument for investing in young children (Working Paper 5)*. Chicago, IL: Invest in Kids Working Group Committee for Economic Development.
- Hegland, S. (2007). *Using program structure and teacher beliefs to predict quality in family and center-base care*. Paper presented at the National Association for the

- Education of Young Children Annual Conference; November 7-10, 2007, Chicago, IL.
- Helburn, S. W., & Bergmann, B. R. (2002). *America's child care problem: The way out*. New York, NY: Palgrave.
- Helburn, S. W., & Howes, C. (1996). Child care cost and quality. *The Future of Children*, 6(2), 62-82.
- Henly, J. (2008). *Employment-based challenges: Scheduling and its implications for child care*. Paper presented at the Annual Meeting of the Child Care Policy Research Consortium, Washington, DC.
- Henly, J., & Lyons, S. (2000). The negotiation of child care employment demands among low income parents. *Social Issues*, 56(4), 683-706.
- Henly, J., Schaefer, H. L., & Waxman, R. E. (2005). *Three dimensions of nonstandard work schedules: Timing, predictability, and flexibility: Working paper*. Chicago, IL: School of Social Service Administration, University of Chicago.
- Henly, J. R., Schaefer, L. H., & Waxman, E. (2006). Nonstandard work schedules: Employer- and employee-driven flexibility in retail jobs. *The University of Chicago*.
- Hernandez, D. J., Denton, N. A., & Macartney, S. E. (2007). Children in immigrant families - the U.S. and 50 states: National origins, language, and early education [Electronic Version]. *Children in America's Newcomer Families*. Retrieved September 12, 2008 from [http://www.childtrends.org/Files/Child\\_Trends-2007\\_04\\_01\\_RB\\_ChildrenImmigrant.pdf](http://www.childtrends.org/Files/Child_Trends-2007_04_01_RB_ChildrenImmigrant.pdf).
- Hillabrant, W., Rhoades Jr., M. B., & Pindus, N. (2004). Lessons learned from implementing tribal TANF programs. In *Perspectives on poverty, policy, & place*. Columbia, MO: RUPRI Rural Poverty Research Center, University of Missouri.
- Hofferth, S. (1999). Child care, maternal employment, and public policy: The silent crisis in U.S. child care. *Annals of the American Academy of Political and Social Science*, 563(1), 20-38.
- Hofferth, S., Brayfield, A. A., Deich, S. G., & Holcomb, P. A. (1991). *National Child Care Survey, 1990: Parent study*. Washington, DC: Urban Institute Press.
- Hofferth, S., & Chaplin, D. (1998). State regulations and child care choice. *Population: Research and Policy Review*, 17, 111-140.
- Hofferth, S., Chaplin, D., Wissoker, D. A., & Robins, P. K. (1995). *The use of choice characteristics in child care decision models* (No. 95-354): Pew Charitable Trusts National Institute of Child Health and Human Development.
- Hofferth, S., Chaplin, D., Wissoker, D. A., & Robins, P. K. (1996). Choice characteristics and parents' child care decisions. *Rationality and Society*, 8, 453-495.
- Howell, M. (2006). Between Economic Development & Child Care: Driving Transportation and Child Care Together [Electronic Version] from <http://economicdevelopment.cce.cornell.edu>.
- Human Services Policy Center. (2007). *Fact sheet: Percent of all non-parental child care hours by type of child care*. Seattle, WA: Daniel J. Evans School of Public Affairs: University of Washington.
- Isabelli-Garcia, C. (2007). *Language development: At-home and abroad*. Paper presented at the Midwest Modern Language Association.

- Kaplow, L., & Shapiro, C. (forthcoming). Antitrust. In A. Polinsky & S. Shavell (Eds.), *Handbook of Law and Economics*. Burlington, MA: Elsevier.
- Kauerz, K. (2005). State kindergarten policies: Straddling early learning and early elementary school [Electronic Version]. *Young Children* from <http://journal.naeyc.org/btj/200503/01Kauerz.asp>.
- Kinukawa, A., Guzman, L., & Lippman, L. (2004). *National estimates of child care subsidy receipt for children ages 0-6: What can we learn from the National Household Education Survey?* Washington, DC: Child Trends.
- Kisker, E., Eliason, E., & et al. (1991). *A profile of child care settings: Early education and care in 1990*. Princeton, NJ: Mathematica Policy Research.
- Kleiner, B., Nolin, M. J., & Chapman, C. (2004). *Before- and after-school care, programs and activities of children in kindergarten through eighth grade: 2001* (Statistical analysis report). Washington, DC: National Center for Education Statistics.
- Kuhns, C., & Webb, M. B. (2003). *A summary of research and publications on early childhood for American Indian and Alaska native children*. Washington, DC: U.S. Department of Health and Human Services Administration for Children and Families.
- Lambert, S. J., & Henly, J. R. (2007). Low-level jobs and work-family studies [Electronic Version] from [http://wfnetwork.bc.edu/encyclopedia\\_entry.php?id=4254&area=all](http://wfnetwork.bc.edu/encyclopedia_entry.php?id=4254&area=all).
- Lambert, S. J., & Waxman, E. (2005). Organizational stratification: Distributing opportunities for work-life balance. In E. K. S. Lambert (Ed.), *Work and Life Integration: Organizational, Cultural, and Individual* (pp. 103-126). Mahwah, NJ: Lawrence Erlbaum Associates
- Lauver, S., Little, P. M., & Weiss, H. (2004). *Moving beyond the barriers: Attracting and sustaining youth participation in out-of-school time programs (Issues and Opportunities in Out-of-School Time Evaluation Brief No.6)* Cambridge, MA: Harvard Family Research Project.
- Lawrence, S., & Kreader, J. L. (2006). *Parent employment and the use of child care subsidies*. New York, NY: National Center for Children in Poverty.
- Lawrence, S., & Kreader, J. L. (2006). *School-age child care arrangements*. New York: Child Care and Early Education Research Connections.
- Layzer, & Goodson, B. (2003). *National Study of Child Care for low-income families: Care in the home: A description of family child care and the experiences of the families and children who use it: Wave 1 report*. Washington, DC: Abt Association.
- Lazyer, J. I., & Goodson, B. D. (2006). *Care in the home: A description of family child care and the experiences of the families and children who use it. Wave 1*. Washington, DC: National Study of Child Care for Low-Income Families.
- Lee, Goerge, R., Reidy, M., Dreader, J. L., Georges, A., Wagmiller, R. L., et al. (2003). *Child care subsidy use and employment outcomes of TANF mothers during the early years of welfare reform: A three-state study*. Washington, DC: Child Care Bureau, Administration on Children and Families, Department of Health and Human Services.



- Lemke, Witt, R., & Witte, A. (2001). *Child care and the welfare to work transition*. Wellesley, MA: Wellesley College Department of Economics.
- Lemke, Witt, R., & Witte, A. (2007). The transition from welfare to work. *Eastern Economic Journal*, forthcoming.
- Lerman, R. (2003). *Single mothers retain nearly all their employment and wage gains in the current economic slowdown*. Washington, DC: The Urban Institute.
- LINCC Partners. (2008). *Child care and transit: Making the link in California*.
- Lippman, Guzman, L., Keith, J., & Kinukawa, A. (2007). Memo to I. Martinez-Beck, CCB. In Martinez-Beck (Ed.).
- Little, P. (2007). *The quality of school-age child care in after-school settings*. New York, NY: Child Care and Early Education Research Connections.
- Love, J. M. (1996). *Are they in real danger? What research does-and doesn't-tell us about child care quality and children's well-being*. Princeton, NJ: Mathematica Policy Research.
- Lyons, A. (2001). *SEIU Local 880 home day care workers: Research findings*. Chicago: Metro Chicago Information Center.
- Marks, E. L., & Graham, E. T. (2004). *Establishing a research agenda for American Indian and Alaska Native Head Start programs*. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families.
- Marks, E. L., Moyer, M. K., Roche, M., & Graham, E. T. (2003). *A summary of research and publications on early childhood for American Indian and Alaska Native children*. Washington, DC: U.S. Department of Health and Human Services.
- Marrufo, G., O'Brien-Strain, M., & Oliver, H. (2003). *Child care price dynamics in California*. San Francisco: Public Policy Institute of California.
- Marshall, N. L., Creps, C. L., Burstein, N., Cahill, K. E., Wagner Robeson, W., Wang, S. Y., et al. (2003). *Massachusetts family child care today: A report of the findings from the Massachusetts cost and quality study*. Wellesley, MA: Wellesley Centers for Women.
- Marshall, N. L., Creps, C. L., Burstein, N., Glantz, F. B., Wagner Robeson, W., & Barnett, S. (2001). *The cost and quality of full day, year-round early care and education in Massachusetts: Preschool classrooms*. Wellesley, MA: Wellesley Center for Women and Abt Associates Inc.
- Marshall, N. L., Creps, C. L., Burstein, N., Squibb, B., Roberts, J., Dennehy, J., et al. (2004). *The cost and quality of family child care in Maine*: Maine Office of Child Care and Head Start.
- Martinez-Beck, I., & Zaslow, M. (2006). The context for critical issues in early childhood professional development. In M. Zaslow & I. Martinez-Beck (Eds.), *Critical issues in early childhood professional development* (pp. 1-16). Baltimore, MD: Brookes Publishing.
- Maxwell, K. L., Feild, C. C., & Clifford, R. M. (2006). Defining and measuring professional development in early childhood research. In M. Zaslow & I. Martinez-Beck (Eds.), *Critical issues in early childhood professional development* (pp. 21-48). Baltimore, MD: Brookes Publishing.
- Mayfield, W., & Thornburg, K. (2007). *Turning registry numbers into data*. Paper presented at the National Registry Alliance Meeting, Keystone, CO.

- McGregor, G., Mulligan, S., Morris, S., Harper-Whalen, S., & Buck, C. (2002). *Child care and young children with disabilities: A statewide survey of child care providers' experiences, skills, and knowledge*. Missoula, MT: University of Montana Rural Institute.
- MDRC. (2008). Evaluation of child care subsidy strategies: Policy framework [Electronic Version]. Retrieved September 2, 2008 from [http://www/mdrc.org/project\\_11\\_38.html](http://www/mdrc.org/project_11_38.html).
- Meyers. (1993). Child care in JOBS employment and training program: What difference does quality make? *Journal of Marriage & Family*, 55, 767-783.
- Meyers, & Jordan, L. P. (2006). Choice and accommodation in parental child care decisions. *Journal of the Community Development Society*, 37(2), 53-70.
- Meyers, Peck, L. R., Davis, E. E., Collins, A., Kreader, J. L., Georges, A., et al. (2002). *The dynamics of child care subsidy use: A collaborative study of five states*: Washington, DC: National Center for Children in Poverty; New York: Columbia University's Mailman School of Public Health.
- Miller, M. G., & Hu, J. S. (1999). *DSHS subsidized child care: A briefing paper*. Washington: Washington State Department of Social and Health Services.
- Mitchell, A., & Stoney, L. (2006). *New partnerships: Early care & education and regional/transportation planning*: Smart Start's National Technical Assistance Center.
- Mocan, H. N. (2001). *Can consumers detect lemons?: Information asymmetry in the market for child care*: National Bureau of Economic Research.
- Mocan, H. N., & Viola, D. (1997). *The determinants of child care workers' wages and compensation: Sectoral difference, human capital, race, insiders and outsiders*. Cambridge, MA: National Bureau of Economic Research.
- Morris, J. R., & Helburn, S. W. (2000). Child care center quality differences: The role of profit status, client preferences, and trust. *Nonprofit and Voluntary Sector Quarterly*, 29(3), 377-399.
- Morrissey, T., & Banghart, P. (2007). *Family child care in the United States*. Child Care & Early Education Research Connections.
- Mulligan. (2007). Personal Correspondence.
- Mulvihill, B. A., Cotton, J. N., & Gyaben, S. L. (2004). Best practices for inclusive child and adolescent out-of-school care: A review of the literature *Family & Community Health*, 27(1), 52-64.
- National Association for Regulatory Administration (NARA), & National Child Care Information and Technical Assistance Center (NCCIC). (2006). *The 2005 child care licensing study: Final report*. Washington, DC: Child Care Bureau.
- National Center for Education Statistics. (2007a). Enrollment in public elementary and secondary schools, by grade: Selected years, fall 1980 through fall 2005 [Electronic Version] from [http://nces.ed.gov/prgorams/digest/d07/tables/dt07\\_036.asp](http://nces.ed.gov/prgorams/digest/d07/tables/dt07_036.asp).
- National Center for Education Statistics. (2007b). *Mathematics achievement of language-minority students during the elementary years*. Washington, DC: U.S. Department of Education.
- National Institute of Child Health and Human Development, Early Child Care Research Network, & Duncan, G. (2003). Modeling the impacts of child care quality on children's preschool cognitive development. *Child Development*, 74, 1454-1475.

- National Institute of Child Health and Human Development Early Child Care Research Network. (1997). Familial factors associated with the characteristics of nonmaternal care for infants. *Journal of Marriage & Family*, 59, 389-408.
- National Institute of Child Health and Human Development Early Child Care Research Network. (1999). Child outcomes when child care center classes meet recommended standards for quality. *American Journal of Public Health*, 89, 1072-1077.
- National Institute of Child Health and Human Development Early Child Care Research Network. (2000). Characteristics and quality of child care for toddlers and preschoolers. *Applied Developmental Science*, 4(3), 116-141.
- National Research Council and Institute of Medicine. (2003). *Working families and growing kids: Caring for children and adolescents*. Washington, DC: The National Academies Press.
- NiCHD Early Child Care Research Network. (2002). Child care structure process outcome: Direct and indirect effects of child care quality on young children's development. *Psychological Science*, 13(2), 199-206.
- O'Neill, G. E., & O'Connell, M. (2001). *State estimates of child care establishments: 1977-1997*. Washington, DC: U.S. Bureau of the Census.
- Office of Inspector General Department of Health and Human Services. (1998). *Tribal child care*. Washington D. C.
- Ogunwole, S. U. (2002). *The American Indian and Alaska Native population: 2000* (No. Census 2000 Brief: C2KBR/01-15). Washington, DC: U.S. Census Bureau.
- Ogunwole, S. U. (2006). *We the people: American Indians and Alaska Natives in the United States* (No. Census 2002 Special Report: CENSR-28). Washington, DC: U.S. Census Bureau.
- Overturf Johnson, J. (2005). Who's minding the kids? Child care arrangements: Winter 2002. *Current Population Reports, Household Economic Studies*, 70-101.
- Overturf Johnson, J., & Downs, B. (2005). *Maternity leave and employment patterns of first-time mothers: 1961-2000*. Washington, DC: U.S. Census Bureau.
- Parsad, B., Lewis, L., & Tice, P. (2009). *After-school programs in public elementary schools. First look*. (NCES 2009-043). Washington, DC: U.S. Department of Education.
- Peisner-Feinberg, E., & Burchinal, M. (1997). Relations between preschool children's childcare experiences and concurrent development: The cost, quality, and outcomes study. *Merrill-Palmer Quarterly*, 43, 451-477.
- Pianta, R., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., et al. (2005). Features of prekindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions. *Applied Developmental Science*, 9, 144-159.
- Piecyk, J. B., Collins, A., & Kreader, J. L. (1999). *Patterns and growth of child care voucher use by families connected to cash assistance in Illinois and Maryland*. New York, NY: National Center for Children in Poverty.
- Pittard, M., Zaslow, M., Lavelle, B., & Porter, T. (2006). *Investing in quality: A survey of state child care and development fund initiatives*. Washington DC and New York: The National Association of State Child Care Administrators, Bank Street College of Education, and Child Trends.

- Presser, H. B. (1995). Job, family and gender: Determinants of nonstandard work schedules among employed Americans in 1991. *Demography*, 32, 577-598.
- Presser, H. B. (2003). *Working in a 24/7 economy: Challenges for American families*. New York, NY: Russell Sage Foundation Publications.
- PRWORA, Pub.L.no. 104-193, (1996).
- Public Welfare, 45 CFR, pt.98(2002).
- Public Welfare, 45 CFR, pt.99(2002).
- Queralt, & Witte, A. (1999). Child care regulations: A method to pursue social welfare goals. *Children and Youth Services Review*, 21(2), 111-146.
- Queralt, & Witte, A. D. (1998). Influences on neighborhood supply of child care in Massachusetts. *Social Service Review*, 72(1), 17-47.
- Queralt, Witte, A. D., & Griesinger, H. (2000). Changing policies, changing impacts: Employment and earnings of child-care subsidy recipients in the era of welfare reform. *Social Service Review*, 74(4), 588-619.
- Raikes, Torquati, J. C., Hegland, S., Raikes, H. A., Scott, J., Messner, L., et al. (2006). Studying the culture of quality early care and education. In M. Zaslow & I. Martinez-Beck (Eds.), *Critical issues in early childhood professional development* (pp. 111-136). Baltimore, MD: Brookes Publishing.
- Raikes, Wilcox, B., Peterson, C., Hegland, S., Atwater, J., Summers, J., et al. (2005). *Parent perceptions of child care choice and quality in four states*. Lincoln, NE: The Gallup Organization and the University of Nebraska-Lincoln.
- Raikes, Wilcox, B., Peterson, C., Hegland, S., Atwater, J., Summers, J., et al. (2003). *Child care quality and workforce characteristics in four Midwestern states*. Lincoln, NE: The Gallup Organization.
- Rous, B., Hallam, R., Harbin, G., McCormick, K., & Jung, L. A. (2007). The transition process for young children with disabilities: A conceptual framework. *Infants & Young Children*, 20(2), 135-148.
- Rural Policy Research Institute. (1999). *Rural America and welfare reform: An overview assessment*: Rural Policy Research Institute: Rural Welfare Reform Initiative.
- Schafft, K. A., Faircloth, S. C., & Thompson, N. L. (2006, July 28-29, 2005). *Assessing the state of the knowledge: American Indian and Alaska Native rural early childhood education*. Paper presented at the Proceedings of the Rural Early Childhood Forum on American Indian and Alaska Native Early Learning, Little Rock, AR.
- Scheffman, D., & Spiller, P. (1987). Geographic market definition under the U.S. Department of Justice merger guidelines. *Journal of Law and Economics*, 30, 123-147.
- Schexnayder, D. T., Schroeder, D. G., Faliski, K., & McCoy, J. (1999). *Texas subsidized child care utilization patterns and outcomes*. Austin, TX: Ray Marshall Center for the Study of Human Resources.
- Schilder, D. (2003). *Head Start/child care partnerships: Partnering programs more likely to provide comprehensive services*. Newton, MA: Education Development Center, Inc.
- Schumacher, Ewen, D., Hart, K., & Lombardi, J. (2005). *All together now: State experiences in using community-based child care to provide pre-kindergarten*. Washington, DC: Center for Law and Social Policy.

- Schumacher, R., & Greenberg, M. (1999). *Child care after leaving welfare: Early evidence from state studies*. Washington, DC: Center for Law and Social Policy.
- Seppanen, P. S., Love, J. M., deVries, D. K., Bernstein, L., Seligson, M., Marx, F., et al. (1993). *National Study of Before & After School Programs: Final report*. Washington, DC: U.S. Department of Education, Office of Policy and Planning.
- Shlay. (2002). Barriers to child care subsidies: Why subsidies are often not used. In C. Groark, K. Mahaffie, R. McCall & M. Greenberg (Eds.), *From Science to Policy: Research on Issues, Programs and Policies in Early Care and Education*. Report prepared for the Governor's Task Force on Early Childhood Education, Pennsylvania.
- Shlay, Jaeger, E., Weinraub, M., Murphy, P., Shaw, K., & Gottesman, L. (2001). *Making a case for child care: An evaluation of a Pennsylvania-based intervention called Child Care Matters*. Philadelphia, PA: Temple University Center for Public Policy.
- Shlay, Tran, H., Weinraub, M., & Harmon, M. (2005). Teasing apart the child care conundrum: A factorial survey analysis of perceptions of child care quality, fair market price and willingness to pay by low-income, African American parents. *Early Childhood Research Quarterly*, 20(4), 393-416.
- Shlay, Weinraub, M., & Harmon, M. (2007). *Leaving welfare for employment: The role of child care subsidies for white, Hispanic, and African American families*. Philadelphia, PA: Temple University, Family and Children's Policy Collaborative.
- Shlay, Weinraub, M., Harmon, M., & Tran, H. (2004). Barriers to subsidies: Reasons why low-income families do not use child care subsidies. *Social Science Research*, 33(1), 134-157.
- Shlay, A., Weinraub, M., & Harmon, M. (2007). *Racial and ethnic differences in welfare leavers' child care preferences: A factorial survey analysis*. Philadelphia, PA: Family and Children's Policy Collaborative at Temple University.
- Shlay, A. B., & Weinraub, M. (2008). *The catch-22 of welfare to work*: Miller-McCune.com.
- Smolensky, E., & Gootman, J. A., (Eds.). (2003). Trends in the care of children. In *Working families and growing kids: Caring for children and adolescents* (pp. 42-64). Washington, DC: National Academies Press.
- Snipp, C. M. (2002). *American Indian and Alaska Native children in the 2000 Census: A Kids Count/PRB report on the Census 2000* (No. RC 023952). Washington, DC: Annie E. Casey Foundation  
The Population Reference Bureau.
- Snyder, K., Banghart, P., & Adams, G. (2006). *Supporting child care subsidy access and retention: Ideas from seven Midwestern states* (Policy Brief). Washington, DC: Urban Institute.
- Snyder, K., Bernstein, S., & Koralek, R. (2004). *Parents' perspectives on child care subsidies and moving from welfare to work*. Washington, DC: The Urban Institute.
- State child care subsidy administration policies for school-age care*. (2007.). Washington, DC: U.S. Department of Health and Human Services Administration for Children and Families Child Care Bureau.

- Stout, S. L., Lord, H., & Zigler, E. (2007). For-profit/nonprofit difference in center-based child care quality: Results from the National Institute of Child Health and Human Development study of early child care and youth development. *Journal of Applied Developmental Psychology* 28(5-6), 390-410.
- Strang, W., VonGlatz, A., & Cahape, P. (2002). *Setting the agenda: American Indian and Alaska Native education research priorities*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools.
- Tekin, E. (2004). *Single mothers working at night: Standard work, child care subsidies, and implications for welfare reform* (Working Paper No. 05-113). Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.
- Thurlow, M. L., Duran, R. P., & Kato, K. (undated). *Before- and after-school care arrangements and activities of school-age language minority children*. Washington, DC: NCES.
- Torquati, J., Raikes, H., & Huddleston-Casas, C. A. (2007). Teacher education, motivation, compensation, workplace support, and quality of center-based child care and teachers' intention to stay in the early childhood profession. *Early Childhood Research Quarterly*, 22(2), 261-275.
- Tout, K., Zaslow, M., & Berry, D. (2006). Quality and qualifications: Links between professional development and quality in early care and education settings. In M. Zaslow & I. Martinez-Beck (Eds.), *Critical issues in early childhood professional development* (pp. 77-110). Baltimore, MD: Brookes Publishing.
- Toys "R" Us, Inc. v. Federal Trade Commission (7th Cir. 2000).
- Twombly, E. C., Montilla, M. D., & DeVita, C. J. (2001). *State initiatives to increase compensation for child care workers* Washington DC: The Urban Institute.
- U.S. Bureau of Labor Statistics. (2007). *The employment situation* (No. USDL 07-1363). Washington, DC: U.S. Bureau of Labor Statistics.
- U.S. Census Bureau. (1999). Dynamics of economic well-being: Program participation, who gets assistance? *Current Population Reports, Series P70-69*. Washington, DC: U.S. Government Printing Office.
- U.S. Census Bureau. (2008). Annual estimates of the population by sex, race, and Hispanic origin for the United States: April 1, 2000 to July 1, 2007 (NC-EST2007-03).
- Executive Order 13096, American Indian and Alaska Native Education, Vol. 64, Number 195 C.F.R. (1998).
- U.S. Department of Health and Human Services Health Resources and Services Administration Maternal and Child Health Bureau. (2008). *The national survey of children with special health care needs chartbook 2005-2006*. Rockville, MD: U. S. Department of Health and Human Services.
- U.S. Department of Justice, & Federal Trade Commission. (1992, rev. 1997). *Horizontal merger guidelines*. Retrieved from <http://www.usdoj.gov/atr/public/guidelines/hmg.htm>.
- U.S. General Accounting Office. (2004). *Prekindergarten: Four selected states expanded access by relying on schools and existing providers of early education and care to provide services* (No. GAO-04-852). Washington, DC: United States Government Accountability Office.
- United States v. Von's Grocery Co. (384 U.S. 270 1966).

- University Consortium on Welfare Reform. (2003). *Preserving the gains, rethinking the losses*. Evanston, IL: Northwestern University.
- Urban Institute. (2004). *Child care subsidies and leaving welfare: Policy issues and strategies*. Washington, DC: The Urban Institute.
- Urban Institute. (2006). *Children of immigrants: Facts and figures*. Washington, DC: The Urban Institute.
- Urban Institute, & Child Trends. (2004). *National Survey of America's Families*. Washington, DC: Urban Institute.
- Vandell, D. L., & Wolfe, B. (2000). *Child care quality: Does it matter and does it need to be improved?* Madison, WI: University of Wisconsin-Madison, Institute for Research on Poverty.
- Walker, S. K., & Reschke, K. L. (2004). Child care use by low-income families in rural areas: A contemporary look at the influence of women's work and partner availability. *Journal of Children and Poverty*, 10(2), 149-167.
- Weber, B. (2005). *Measurement of child care arrangement stability: A review and case study using Oregon child care subsidy data*. Oregon State University.
- Weber, B. (2007, August, 2007). *Measurement issues: Market rate surveys and measurement issues: Child care stability*. Paper presented at the Measurement Issues Panel at Child Care Policy Research Consortium.
- Weber, B., & Grobe, D. (2007a). *Child care market rate survey policies and practices of tribes*. Corvallis, OR: Oregon State University Family Policy Program.
- Weber, B., & Grobe, D. (2007b). *Tribal Child Care and Development Fund grantees: Market rate surveys and other child care practices and policies*. Corvallis, OR: Oregon Child Care Research Partnership, Oregon State University Family Policy Program.
- Weber, B., Jensen, L., Miller, K., Mosley, J., & Fisher, M. (2005). A critical review of rural poverty literature. *International Regional Science Review*, 28(4), 381-414.
- Weber, R. B., Grobe, D., Davis, E. E., Kreader, J. L., & Pratt, C. C. (2007). Practices and policies: Market rate surveys in states, territories, and tribes [Electronic Version] from [http://www.hhs.oregonstate.edu/familypolicy/occrp/publications/Survey-of-States-Report-FINAL-05\\_30.pdf](http://www.hhs.oregonstate.edu/familypolicy/occrp/publications/Survey-of-States-Report-FINAL-05_30.pdf).
- Weinraub, M. (2008). *Using factorial survey analysis to examine parents' child care preferences*. Paper presented at the Annual Meeting of the Child Care Policy Research Consortium (CCPRC), Washington, DC.
- Weinraub, M., Shlay, A. B., Harmon, M., & Tran, H. (2005). Subsidizing child care: How child care subsidies affect the child care used by low-income African American families. *Early Childhood Research Quarterly*, 20(4), 373-392.
- Welch-Ross, M., Wolf, A., Moorehouse, M., & Rathgeb, C. (2006). Improving connections between professional development research and early childhood policies. In M. Zaslow & I. Martinez-Beck (Eds.), *Critical issues in early childhood professional development* (pp. 369-394). Baltimore, MD: Brookes Publishing.
- Werden, G., & Froeb, L. (2007). Unilateral competitive effects of horizontal mergers. In P. Buccirossi (Ed.), *Advances in the Economics of Competition Law*. Cambridge, MA: MIT Press.



- West, J., & Bose, J. (2002). *Using administrative records and follow up interviews to verify household survey responses*. Paper presented at the International Conference on Improving Surveys.
- Westbrook, T. R., Forry, N. D., Dwyer, K., Halle, T., Hair, E., Vick, J. E., et al. (2008). *Examining the relationship between child care quality and child outcomes across settings for low-income families*. Paper presented at the Annual Head Start Research Conference, Washington, DC.
- Whitebook. (2003). *Early education quality: Higher teacher qualifications for better learning environments: A review of the literature*. Berkeley, CA: University of California, Berkeley. Center for the Study of Child Care Employment.
- Whitebook, Howes, C., & Phillips, D. (1990). *Who cares? Child care teachers and the quality of care in America. Final report: National Child Care Staffing Study*. Oakland, CA: Child Care Employee Project.
- Whitebook, Phillips, D., Bellm, D., Crowell, N., Almaraz, M., & Jo, J. Y. (2004a). *Two years in early care and education: A community portrait of quality and workforce stability*. Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley.
- Whitebook, Phillips, D., Bellm, D., Crowell, N., Almaraz, M., & Jo, J. Y. (2004b). *Who leaves? Who stays?: A study of the Alameda County early care and education workforce*. Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley.
- Whitebook, Sakai, L., Gerber, E., & Howes, C. (2001). *Then and now: Changes in child care staffing, 1994-2000* (Technical Paper). Berkeley, CA: University of California.
- Willer, B., Hofferth, S., Kisker, E., Divine-Hawkins, P., Farquhar, E., & Glantz, F. B. (1991). *The demand and supply of child care in 1990*. Washington, DC: National Association for the Education of Young Children.
- Wirt, J., Choy, S., Rooney, P., Provasnik, S., Sen, A., & Tobin, R. (2004). *The condition of education 2004 (NCES 2004-077)*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- Witte. (2003). *What might happen to infant and toddler care when public pre-k and public school-age programs expand?* Paper presented at the "Research on Market Dynamics for Infant and Toddler Care: Next Steps for Research" Workshop; June 24, 2003, Alexandria, VA.
- Witte, & Queralt, M. (2003). *Impacts of eligibility expansions and provider reimbursement rate increases on child care subsidy take-up rates, welfare use and work* (NBER Working Paper No. 9693). Cambridge, MA: National Bureau of Economic Research.
- Witte, & Queralt, M. (2004). *What happens when child care inspections and complaints are made available on the internet?* (NBER Working Paper No. 10227). Cambridge, MA: National Bureau of Economic Research.
- Witte, & Queralt, M. (2005). *Assessing the quality of child care using longitudinal, administrative data: What can it tell us and how can it be used?* (Working Paper). Wellesley, MA: Wellesley College, Department of Economics.
- Witte, & Queralt, M. (2006). *Infant and toddler care after welfare reform: A cross state comparison*. In N. Cabrera, R. Hutchens & H. E. Peters (Eds.), *Welfare to*



- Childcare: What Happens to Young Children when Single Mothers Exchange Welfare for Work?* (pp. 51-73). Mahwah, NJ: Lawrence Erlbaum.
- Witte, A. D., & Queralt, M. (2005). An examination of the duration of child care subsidies in Rhode Island: Impacts of policy changes and cross state comparisons [Electronic Version] from <http://www.childcareresearch.org/location/7829>.
- Witte, A. D., Schmidet, P., Honace, W., Sweeny, M., & Corsco, C. (2008). *Executive summary: The Massachusetts 2006 provider cost survey*.
- Wolf, A. (2003). *Entry into child care: How family economy, demographics, and parenting attitudes affect the timing and type of children's initial arrangement*. Cambridge, MA: Harvard University Graduate School of Education.
- Women in the labor force: A databook*. (2006). Washington, DC: U.S. Department of Labor, Bureau of Labor Statistics.
- Workplace Solutions. (2007). *2007 child care market rate survey: Final report*. Reading, MA: Delaware Department of Health and Social Services, Division of Social Services.
- Yohalem, N., & Wilson-Ahlstrom, A. (2007). *Measuring youth program quality: A guide to assessment tools*. Washington, DC: The Forum for Youth Investment, Impact Strategies, Inc.
- Zaslow, M., Acs, G., McPhee, C., & Vandivere, S. (2006). *Children in low-income families: Change and continuity in family context and measures of well-being*. Washington, DC: Paper prepared for The Urban Institute and Child Trends Roundtable on Children in Low-Income Families.
- Zaslow, M., Brown, B., & Aufseer, D. (2005). *American Indian and Alaska Native young children: Findings from the ECLS-K and ECLS-B baseline data* (No. Rural Early Childhood Brief No. 4). Mississippi State, MS: National Center for Rural Early Childhood Learning Initiatives.
- Zaslow, M., Halle, T., Guzman, L., Lavelle, B., Dombrowski, J., & Berry, D. (2006). Review and synthesis of selected research reports submitted to the Child Care Bureau, U.S. Department of Health and Human Services [Electronic Version]. Retrieved July 12, 2007 from <http://www.childcareresearch.org/SendPdf?resourceId=8720>.
- Zaslow, M., Halle, T., McNamara, M., Weinstein, D., & Dent, A. (2007). *Working towards a recommended common core of measures of early childhood professional development: Issues and preliminary recommendations*. Washington, DC: Child Trends.